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Integrative Complexity of 2016 Presidential Candidates as an Indicator of Future Decision Making

Angela M. Romero

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INTEGRATIVE COMPLEXITY OF 2016 PRESIDENTIAL CANDIDATES

A Master Thesis

Submitted to the Faculty

of

American Public University

by

Angela Marie Romero

In Partial Fulfillment of the

Requirements for the Degree

of

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DEDICATION

I dedicate this thesis to my husband and children. Their selflessness and support has encouraged and motivated me to attain this educational goal. Much of my time was spent focused on a computer screen while they made our demanding life happen. I am blessed with a spouse who relentlessly supports me in every goal I set out to accomplish. Fidel, Gabby, Reyna, and Eneas – this is for you.

I must also thank my mother Sharlene Gonzalez, my late father Howard Hicks, my stepfather Armando Gonzalez, and my brother Isaac Hicks – all of whom instilled in me the “grit” that has allowed me to demolish every barrier life has placed in my path. My gratitude to you all is infinite.

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I would also like to acknowledge my fellow students who have spent the time responding to my posts in every course. Their willingness to share their diverse and courageous experiences will benefit me for the entirety of my career.

ABSTRACT OF THE THESIS

**INTEGRATIVE COMPLEXITY OF 2016 PRESIDENTIAL CANDIDATES AS AN
INDICATOR OF FUTURE DECISION MAKING**

by

ANGELA M. ROMERO

American Public University System, April 2016

Charles Town, West Virginia

Professor Dr. Nicole Drumhiller

This study furthers research on political leaders through the lens of integrative complexity. Integrative complexity has been used as a measurement tool in political psychology for more than four decades. This study will further research on one of the most challenging endeavors facing integrative complexity scholars – an agreed upon automated scoring system. The subjects are Hillary Clinton and Donald Trump who are the leading candidates for their respective political parties in the 2016 United States presidential election. The study will use the automated integrative complexity scoring system developed by Conway et al. (2014) to analyze selected content from 2016 debate transcripts, issue position speeches, and terrorism related interview questions from June 2015 through March 2016 to measure the integrative complexity levels of both subjects during the campaign. Findings are consistent with previous research that liberal

politicians generally score higher than their conservative counterparts on integrative complexity. The findings also support previous research that leaders exhibit decreased integrative complexity during stressful situations. The findings did not support previous evidence that leaders operate at decreased integrative complexity levels while campaigning. The study ultimately furthers the body of research evolving the latest automated integrative complexity scoring system.

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CHAPTER I

INTRODUCTION

The 2016 presidential election is upon us and the drama of American politics once again reaches new heights. The frontrunner for the Democratic Party is Secretary Hillary Clinton. Secretary Clinton was the runner up for the Democratic nomination in 2008 losing to then Senator Barrack Obama. Once elected, President Obama selected her as Secretary of State for his administration. This was the latest in many accomplishments and an entire lifetime on the world stage. Clinton graduated from Yale with a Juris Doctor degree in 1973, served as the first lady of Arkansas beginning in 1978, served as first lady of the United States beginning in 1992, served in the United States Senate beginning in 2001, was a presidential candidate in 2008, and is now the leading Democratic Party candidate for the presidency. The unexpected frontrunner for the Republican Party nomination is Donald Trump. Trump is a successful businessman, real estate mogul, investor, author, media personality, and socialite. He is the founder and CEO of The Trump Organization which he established in 1975. Trump has been instrumental in many of the most prominent real estate deals and architecture that adorns New York City. He is well known for being the producer of his own reality show called “The Apprentice” which began in 2004 and ran for more than a decade. Trump is the author of “The Art of the Deal” which was published in 1987. Mr. Trump has never held office but despite this fact he maintains a substantial lead over his Republican colleagues and continues to captivate voters by consistently dominating media outlets. Both Clinton and Trump have maintained a commanding lead throughout the election cycle and earned most of the delegates for their respective parties on Super Tuesday – one of the biggest competitions on the way to earning their party nomination. Both have gone on to win delegates in multiple states after Super Tuesday as well. Barring unusual circumstances, it is nearly mathematically impossible for Clinton and Trump’s opponents to catch either candidate in

the race to earn enough delegates to win their party nomination. Unusual circumstances are afoot for the Republican Party as several party elders are dismayed that the leading candidate is Trump. As is always the case in politics the situation will continue to evolve.

If Clinton or Trump goes on to win the nomination for their respective parties they will compete for the opportunity to be the President of the United States. The office of the presidency demands the ability to navigate complex global foreign policy issues. Consider one region of the world that remains in continuous turmoil-the Middle East. American troops are on the ground in Iraq and Syria as the Syrian civil war is nearing half a decade long. Russia has intervened, the Islamic State continues to terrorize civilians on a global scale through physical violence and extreme propaganda campaigns, the recent Iranian nuclear deal drives uncertainty and divisiveness, and these are just the major issues in the region. The decision making process for addressing these foreign policy situations is extraordinarily complex and multifaceted. These types of problem sets are exceptionally demanding of a leader's cognitive resources. How a leader takes in information, processes information, and makes decisions using the processed information is extremely thought-provoking. The topic has fascinated researchers in multiple disciplines and has resulted in innumerable studies attempting to understand and predict leader decision making processes and the effects of those decisions on a given environment. Long term strategizing is imperative to effective foreign policy and political leaders are relied upon to plan ahead and protect United States interests. Leaders must consider United States interests abroad as well as domestic implications. "Knowing one's own objectives is not enough; one must also understand the perceptions and concerns of the other side and how the other side is likely to react to policy initiatives of one's own state" (Tetlock 1986, 557). For the United States, and many of

its allies, one of the most vexing foreign policy issues over the past few decades is the issue of terrorism.

The most insidious actor on the world stage currently, with regard to terror organizations, is the Islamic State. The Islamic State began in June 2014 following the the fall of Al Qaeda in Iraq and emerged a more sophisticated organization composed of previous Al Qaeda leaders with years of experience in asymmetric warfare and shock and awe tactics. The lessons learned after years on the battlefield enabled them to advance their barbarism and terror. The new brand of terror includes a transition from strictly traditional ways to more modern approaches. “Unlike the Taliban or al Qaeda which rejected music, technology, dancing, etc., ISIS [Islamic State] has not only embraced them, but also put them to use to advance its cause very successfully” (Da Cruz 2015, 159). The Islamic state has one of the most sophisticated propaganda campaigns ever seen by an armed group and has captured large swaths of territory throughout Iraq and Syria. Through technology they have recruited fighters from all over the world. The Islamic State employs a world class media team and understands the value of cinematography in the fight to solicit young people to their cause. More importantly, the Islamic State has found its way into the United States news cycle and remains there on an almost continuous basis by way of violent videos of beheadings, assassinations, drownings, and suicide bombings. The next President of the United States will undoubtedly be forced to make decisions on how to defeat the Islamic State. Will that leader resort to a hawkish approach or work to resolve the situation diplomatically?

Leaders matter and their psychological makeups are extremely important to the overall progress of a nation since they are relied upon to make complex decisions for the people they represent. Clinton and Trump, if elected to the presidency, will make decisions that drive the United States response to the Islamic State or other terror groups. Either candidate, if elected,

will have to take in diverse perspectives and try to predict how those perspectives collide and understand that they are inextricably related to one another. To investigate each candidate's ability to navigate these complex decisions this study will measure Clinton and Trump's integrative complexity levels. According to two of the most prominent figures in the integrative complexity community:

Integrative complexity is calculated from evidence concerning two components: differentiation, the individual's recognition that a topic has more than one dimension or that more than one legitimate viewpoint about it exists; and integration, the recognition of relationships such as interactions or trade-offs among the differentiated dimensions or viewpoints" (Suedfeld and Tetlock 2014, 597).

Do the integrative complexity levels of Clinton and Trump decrease when discussing terrorism related questions and how will this impact their decision making when dealing with a terrorism related issue? Analysis of Clinton and Trump's integrative complexity levels (specifically increases or decreases) while discussing the topic of terrorism will provide insight to their potential response in future terrorism related events. Establishing reliable research on patterns in political leader's integrative complexity through analysis of their rhetoric could assist analysts and leaders in identifying the point at which an event may be heading toward non-peaceful resolution. This information could be used, both domestically and abroad, as a tool to predict when certain actions or intervention could ultimately prevent conflict. "Much of integrative complexity research has been in the political psychology arena, where the emphasis on change patterns has shown interesting results, including reliable findings that an integrative complexity drop precedes both international and domestic political violence" (Suedfeld and Tetlock 2014, 598). One limitation to building a body of research to further demonstrate integrative complexity's relationship to peaceful or non-peaceful resolution of conflict is the way it is measured. Integrative complexity scoring is predominantly accomplished by hand. Hand scoring

requires a high level of expertise and is time consuming to accomplish. This limitation has led many researchers to select other ways of measuring complexity. This study builds on previous research on automated scoring (Conway et al. 2014; Suedfeld and Tetlock 2014; Hermann and Young 2014) and seeks to further automated integrative complexity scoring as a viable option to hand scoring for future researchers. Additionally, this study will build on previous integrative complexity research on political leaders (Suedfeld 2010; Tetlock 1983, Thoemmes and Conway 2007; Suedfeld, Cross, and Brcic 2011; Wilhelm, Wilhelm, and Wilhelm 2012) integrative complexity of political leaders while campaigning for office (Conway et al. 2012) and integrative complexity as it relates to wars between nations and how it may act as a predictor of war (Suedfeld, Tetlock, and Ramirez 1977; Hogenraad 2005, 2010).

CHAPTER II

LITERATURE REVIEW

The literature on integrative complexity is robust, spans the course of more than four decades, and has proven applicable to a diverse range of research topics. Integrative complexity has been employed as a theoretical framework to study widely varied issues ranging from subjects as simple as opinion leadership in the political blogosphere (Brundidge et al. 2014) to exceptionally complex issues such as war and peace and international relations and negotiations research (Suedfeld and Tetlock 1977; Lith, Suedfeld, and Krawczyk 2005). “Integrative complexity is a widely used variable amongst social and political psychologist in studies of leader personality, information-processing styles, decision making, diplomatic relations, conflict and conflict resolution, attitudes, and communication, among other topics” (Suedfeld and Tetlock 2014, 597). Given its deep roots in political psychology the integrative complexity framework seemed most fitting for this study.

Integrative complexity diverges from the larger theory of cognitive complexity because it takes into consideration the integration of diverse perspectives as well as situational and temporal changes. Most notably the two concepts are different because integrative complexity is not looked at as a stable personality trait like cognitive complexity but rather a state variable or way of thinking. “[Integrative complexity] is a measure of the cognitive structure underlying information processing and decision making in a specific situation and time of interest to the researcher or policymaker” (Suedfeld 2010, 1669). Integrative complexity provides a way to study the cognitive processing of a given subject by examining their ability to look at a given problem set through a systems of systems approach. Those exhibiting higher integrative complexity can look at a complex adaptive system and distinguish the parts that make up the

whole. They can understand the way those parts interact and ultimately determine which parts are critical and what the tradeoffs are if these parts become inaccessible. Someone exhibiting lower integrative complexity looks at a complex adaptive system and tries to compartmentalize the subcomponents according to basic rule sets. They do not see value in identifying how the parts interact or how that interaction affects the whole. They simply apply a predetermined rule set (religious, moral, ideological) and make their decisions within that rigid structure. Integrative complexity also takes into account certain conditions, situational factors, and timeframes. “The scoring of integrative complexity is used to track or monitor changes in the individual’s complexity of thought in a specific context and time period and to use these scores as signals forecasting the decisions that follow” (Suedfeld, Cross and Brcic 2011, 1009).

Articles about integrative complexity, and therefore the emergence of integrative complexity as a theory, began appearing in the 1970s following the cognitive psychology revolution of the 1960s. The overarching theories from which integrative complexity developed were cognitive complexity (Vannoy 1965) and cognitive flexibility (Scott 1962). In the original literature in the 1960s cognitive complexity was defined as “the number of independent dimensions worth of concepts the individual brings to bear in describing a particular domain of phenomena [while cognitive flexibility was defined as] the readiness with which the person's concept system changes selectively in response to appropriate environmental stimuli” (Scott 1962, 405). Cognitive complexity was generally thought of as a “combination of flexibility, high levels of information search, and tolerance for ambiguity, uncertainty, and lack of closure” (Suedfeld 2010, 1670). Researchers should know that throughout the literature cognitive complexity and integrative complexity are often used as synonymous terms. In more current literature however, integrative complexity is the agreed upon term of use. “At the large construct

level, “cognitive complexity” has been ascribed many meanings, but almost all of those meanings have in common the demonstration of multidimensional (as opposed to a unidimensional) thinking” (Conway et al. 2014, 604). Earlier theorists developing cognitive complexity were concerned with whether or not an individual could recognize and cognitively handle more than one perspective. Very similar descriptions emerge in later literature but are now defining integrative complexity. “People with very high integrative complexity maintain a high acceptance of uncertainty, ability to synthesize opposing viewpoints, or multidimensional integration of opinions” (Thoemmes and Conway 2007, 195). Alternatively, “People exhibiting very low integrative complexity can be described as engaging in “black-or-white” thinking, all-or-nothing judgments, possessing a general inability or unwillingness to accept uncertainty and divergent viewpoints, and a desire for rapid closure” (Thoemmes and Conway 2007, 195). The noteworthy difference between the two definitions is that integrative complexity measures integration in addition to differentiation. Integrative complexity seeks to understand if the subject can do more than just recognize differing and competing perspectives. Can one go a step further and integrate those perspectives.

Overall the literature on integrative complexity is abundant. The three areas of literature on integrative complexity that related most directly to this study were studies of; political leaders, elections, performance and decision making (Suedfeld 2010; Conway et al. 2012; Thoemmes and Conway 2007; Suedfeld, Cross, and Brcic 2011; Wilhelm et al. 2012), studies of integrative complexity in international relations, negotiating, and studies of war and peace (Tibon 2000; Peterson, Winter and Doty 1994; Suedfeld 2003; Suedfeld, Tetlock and Ramirez 1977), and measuring techniques and issues for integrative complexity (Conway et al. 2014; Suedfeld and Tetlock 2014; Houck and Gornick 2014; Young and Herman 2014).

Political Studies and Integrative Complexity

The intrigue and utility in studying politics through the lens of integrative complexity is apparent in the abundant literature. A multitude of researchers have set out to predict election outcomes, anticipate the performance of politicians, study presidents as well as their performance, and analyze political leaders in general. Although the majority of studies focus on United States political leaders the findings are still surprisingly diverse and have successfully evolved the understanding of integrative complexity and its effectiveness in researching issues in political psychology. Previous research findings prove that the complexity of political leaders' thinking is extremely important in understanding leadership outcomes. No leadership competition is more important than the one for the highest office in one of the world's super powers – President of the United States. Once a candidate is elected, how they perform is crucial to the nation's success and as such has been studied fervently.

Presidential Performance and Integrative Complexity

Several researchers have spent a great deal of time studying the integrative complexity of United States presidents. United States presidents are prime candidates for content analysis with many years of political experiences and a tremendous amount of data for researchers to code since every speech, inauguration, appearance, issue position, state of the union address, radio address, Sunday talk show appearance, previous debates, interviews, press conferences, meetings with other world leaders, and generally their everyday life is meticulously documented and archived. Perhaps one of the most comprehensive studies to investigate the integrative complexity of United States presidents is Thoemmes and Conway's 2007 study of the integrative complexity of forty one United States presidents. In this study the first four state of the union addresses for each president (commensurate archival material was replaced for President John F.

Kennedy) were analyzed and five or more paragraphs from each speech were coded by two expert scorers. The study successfully highlighted how both environmental as well as personality factors contribute to U.S. presidents' complexity and provided a "rich dataset" from which to explore multiple questions relevant to the relationship between integrative complexity and leadership (Thoemmes and Conway 2007). The resulting comprehensive dataset allowed the authors to explore time-series developments of integrative complexity among the presidents and the relationship of integrative complexity to situational and personality variables from the big five personality trait model. This research was intriguing and set the stage for other researchers to complete follow on studies. A follow up study of President Barack Obama used Thoemmes and Conway's data citing that "President Obama's overall integrative complexity score was $M = 2.12$, $SD = 0.92$ which is the second highest mean score reported among post-World War II presidents, John F. Kennedy having the highest ($M = 2.18$)" (Suedfeld, Cross, and Brcic 2011, 1019). In this study Suedfeld, Cross, and Bric (2011) researched President Obama's integrative complexity as one of three variables (the other two variables were motive imagery and universal values) predicting that he would have a relatively high integrative complexity (due to his high level of intelligence) but in times of stress would exhibit sharp decreases in integrative complexity. The results were in line with the hypothesis proving that President Obama exhibited higher integrative complexity than all but one of his predecessors who have held the office of the presidency but did in fact show drastically reduced integrative complexity during six separate times in his presidency. "One [sharp] decrease occurred in late 2009, the period of the acrimonious debates and uncertain outcome related to the health care bill, a predominant issue in Obama's policies" (Suedfeld, Cross, and Brcic 2011, 1024). Universal healthcare had been an unattainable goal so many times in previous administrations and likely caused significant stress

to President Obama and the administration. “The other [sharp] decline was in 2010 after the republican victories [in which the party seized control of the house and gained ground in the senate]” (Suedfeld, Cross, and Brcic 2011, 1024).” President Obama likely foresaw the battle ahead with a republican controlled congress polarized against a democratic president in a highly partisan climate. Another presidential study (Suedfeld 2010) analyzed Bill Clinton’s integrative complexity during his first election campaign and sampled from other speeches given in the first month, second year, and third year of his first administration. The mean scores declined in every sample, from a high of 2.31 during the campaign to a low of 1.68 in October–December 1993. In this study researchers found that President Bill Clinton had an astoundingly stable level of integrative complexity. Yet another article building from Thoemmes and Conway’s research stood out from the rest on presidential performance. Wilhelm et al. (2012) argued that cognitive complexity, as opposed to integrative complexity, was a better predictor of overall presidential performance. This article once again built on the previous research by Thoemmes and Conway (2007) elaborating on the finding that presidents high on integrative complexity were not the better performers nor were they more likely to get re-elected. Wilhelm et al. (2012) argued that evidence indicated that authoritarianism was increasing in the U.S. due to increasing inequality and this drove the necessity to exhibit decreased integrative complexity especially when seeking re-election (Wilhelm et al. 2012). They argued “a lack of integrative complexity makes hasty, quick, and rigid conclusions more likely, which draw from a limited reservoir of knowledge, but this may often be seen as decisiveness to authoritarians” (Wilhelm et al. 2012, 97). The study was comprehensive and effectively conducted but the overall tone was fairly cynical and read in a way that seemed slightly biased against conservatism. The research is still of benefit to this study inasmuch as it forces the researcher to truly process, understand, and think through the

concepts of cognitive complexity and integrative complexity to consider which is more effective in predicting presidential performance. Overall the research on presidential performance has delivered reliable data and several noteworthy inferences that have ultimately advanced understanding of integrative complexity's relationship with leadership in complex environments. Integrative complexity research is not limited to studying individual presidents-it extends to larger political bodies and ideas.

Political Ideology and Integrative Complexity

There is now a relatively large and methodologically sophisticated body of work that addresses left-wing and right-wing differences in cognitive complexity (Jost et al. 2003). Jost et al. "reviewed the results from many different studies aggregated across various behavioral domains and contexts, and found that a moderate to strong relationship does exist between an interrelated set of epistemic, existential, and ideological motives and the expression of political conservatism." (Jost et al. 2003, 366) .Their findings, with regard to integrative complexity, supported other evidence that conservatism is linked with decreased or lower integrative complexity. Tetlock (1983) conducted several studies investigating political ideology and its correlations to decreased integrative complexity. One example, a study of U.S. senatorial speeches in 1975 and 1976 indicated that "politicians whose voting records were classified as either liberal or moderate showed significantly more integrative complexity than did politicians with conservative voting records," even after controlling for political party affiliation (Tetlock, 1983, 118). There was one article that did not replicate these findings. Gruenfeld (1995, 5) conducted a study on Supreme Court justices and found that "results supported a status-contingency model, which predicted higher levels of complexity among members of majority factions than among members of either minority factions or unanimous groups independently of

the ideological content of their views.” The study was comprised of three separate experiments and was conducted very methodically. “Two majority and two minority opinions authored by each of the eight most liberal and eight most conservative justices during the period from 1953 to 1990 were selected and coded” (Gruenfeld 1995, 11). Each justice’s opinion was divided into thirds of equal length and the middle paragraph of each third was excerpted and coded in isolation by two expert coders with a final correlation of .87. Gruenfeld highlighted that this factor of majority group influences over minority group may have been present in other studies linking conservatism to decreased integrative complexity but not considered. It would be worthwhile for the community to revisit earlier works with the Gruenfeld findings in mind to investigate the possibility of these majority/minority dynamics as a confounding variable. Although interesting to consider (and seemingly intuitive) the link between decreased complexity and conservatism requires further study and warrants further research. Since integrative complexity is a state variable there may be certain situations where the relationship between decreased complexity and conservatism can be proven but it may not apply in other situations.

Predicting Elections and Integrative Complexity

Other studies investigated predicting election outcomes (Conway et al. 2012) through the lens of integrative complexity. This reading informed the research for this study by providing support, along with Thoemmes and Conway (2007) that this study’s hypothesis that Clinton and Trump are operating at decreased integrative complexity levels while campaigning. The Conway et al. (2012) study did go one step further and found that candidates may actually “time” when the integrative complexity “shift” needs to occur. The study suggests that starting with higher complexity and then “shifting” relatively late in the process, towards lower complexity, is

predictive of winning elections (Conway et al. 2012). However, in the same study the second experiment did not render the same results and did not correlate with other previous results and conventional wisdom. “Taken as a whole, the results clearly offered no direct support for the “simplicity sells” view that is a common assumption in political psychological theory (Thoemmes and Conway 2007) and with which we started this article” (Conway et al. 2012, 612). A more comprehensive study of these phenomena must be conducted to actually understand if this is significant. The study was accomplished during the 2008 election which was an extraordinary groundbreaking election in terms of racial barriers being torn down, record voter turnout, and many other factors. A study investigating a series of elections versus this election alone will provide more comprehensive data. Politicians are well studied in most cases and the idea that they understand when to shift messaging is plausible. Albeit that the politicians and their teams aren’t actually stating “it is time to shift complexity levels” it may be an almost intuitive response as they navigate the campaign trail. This research also ties back to the research discussed earlier in the literature review by Jost et al. (2003) who investigated the link between conservatism and decreased integrative complexity levels. If conservative politicians are already operating at decreased integrative complexity levels will they dip even lower in a campaign? Overall the majority of research, specifically the work of Tetlock (2010), and Tetlock and Rank (1976) support the theory that politicians (and revolutionary leaders) exhibit decreased integrative complexity when seeking power and increased integrative complexity when they achieve the power and take on new challenges. This increase in integrative complexity once achieving power is concentrated on succeeding in the new role – in the case of presidential performance that requires effectively managing international relations issues.

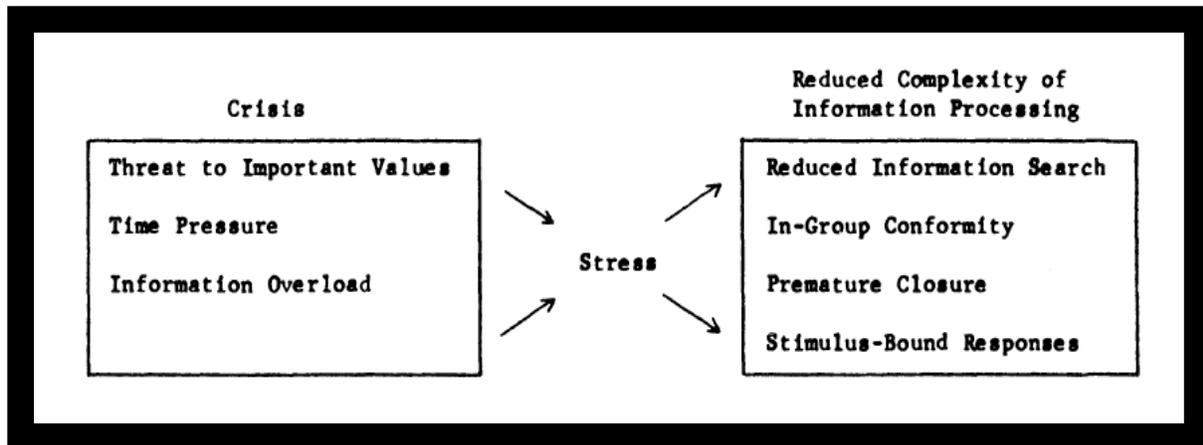
War and Peace and Integrative Complexity

This study seeks to predict the future decision making processes of Clinton and Trump when dealing with terrorism related events. The body of research utilizing integrative complexity as a framework to study past international relations issues informed this study immensely. “Studies by several research groups have shown that the outbreak of international war at the end of an increasingly tense international confrontation is commonly preceded by drops in the integrative complexity of governmental documents and leader speeches 2–6 months prior to war (World War I, the Korean War, the Six Days’ War)” (Suedfeld 2010, 1690). Furthermore, according to Suedfeld (2010, 1689) “Perhaps the best-established findings concerning the relationship between integrative complexity and high-level politics relate to the outcomes of international confrontations.” It is not possible to be highly integrated unless there is a highly differentiated multidimensional cognitive space to integrate (Suedfeld and Tetlock 1977). The international relations arena provides that opportunity. Indeed, if integrative complexity can be used as an indicator of potential conflict leaders may be able to steer nations away from armed conflict and act at the appropriate time to work toward a more diplomatic resolution. Several studies reveal that “violence, as a response to frustration, is much more likely among subjects who lack integrative complexity” (Tetlock 1985, 1567). In a rather interesting take on integrative complexity as it relates to predicting the onset of hostilities Hogenraad (1995) performs content analysis on four fictional stories and four actual historical transcripts of real life conflicts. Hogenraad’s findings are consistent with other researchers who have identified drops in complexity preceding conflicts (Suedfeld and Tetlock 1977). It is thought provoking that even in fictional stories integrative complexity is revealed and belligerent characters exhibit decreased complexity during conflict. Peaceful resolutions have also been analyzed and increased integrative complexity is exhibited by political leaders who have been capable of negotiating for

resolutions that successfully avoided major conflict. Gutierri, Wallace, and Suedfeld (1995) conducted a study that focused on the integrative complexity of the information processing of the Kennedy administration officials before, during, and after the Cuban Missile Crisis. The study proved that if decreased integrative complexity is associated with engaging in hostilities - that the reverse also holds true and moderate or increased integrative complexity likely leads to peaceful nonviolent resolution of disputes between nations. Overall, “American leaders maintained moderate levels of integrative complexity through even the most dangerous moments of the Cuban Missile Crisis but showed a pattern compatible with the cognitive manager and disruptive stress models of complexity change in response to environmental challenge” (Gutierri, Wallace, and Suedfeld 1995, 1). Other studies analyzed the rhetoric between nations as a way to predict potential conflicts. Tetlock (1995) studied the integrative complexity of American and Soviet foreign policy rhetoric issued in official statements between 1945 and 1983. “In general, upward shifts in integrative complexity were associated with successful coordinative behavior (agreement on important bilateral or multilateral issues relevant to American-Soviet relations); downward shifts in integrative complexity were associated with competitive behavior (political or military interventions abroad) (Tetlock 1995, 1579).” Suedfeld and Tetlock (1977) also researched integrative complexity and communications of world leaders during crisis. The cognitive reaction to crises diagram below displays Suedfeld and Tetlock’s findings that stress (due to threat to important values, pressure to make timely decisions, and information overload) contributes to decreased integrative complexity. The findings supported Suedfeld, Tetlock, (1977, 170) “general predictions concerning changes in information-processing complexity as a function of environmental stress, derived from both experimental psychology and political science analyses.” The study took two separate historical crises, one ending peacefully and one

ending in conflict, and selected content samples from world leaders leading up to the resolution of each event. In each case the data supported previous research and showed that integrative complexity increased in the event that ended peacefully and decreased in the event that ended in conflict.

Figure 1 – Cognitive Reaction to Crises Diagram
Source: Data from Suedfeld and Tetlock 1977



This research further supported the importance of integrative complexity shifts between world leaders and further educated the community on the interplay of nations based on integrative complexity.

Terrorism and Integrative Complexity

Prevalence of terrorism related issues and attacks on a global scale demand that researchers in the intelligence and security studies community examine integrative complexity as it relates to terrorism. The research on this topic informs this study and aligns with the goal of predicting which leaders may be best suited to handle terrorism related issues. Suedfeld (2003) recognized this need and conducted a study that measured integrative complexity levels of key leaders in the United States and its allied countries before the Sept. 11, 2001 terrorist attack in the United States and during the ensuing one and a half years of the coalition counterattack in Afghanistan. His finding replicated earlier findings showing a “complexity decrease prior to the

onset of armed conflict, an increase in complexity during the phase of strategic planning and coalition formation leading up to a counterstrike, and higher complexity among leaders whose nations are less centrally involved in the conflict” (Suedfeld, 2003, 90). Researchers have also taken earlier works related to conservatism and expanded it to relate political conservatism, religious fundamentalism, and decreased integrative complexity. Antonenko et al. (2013, 110) argue that both “Christian fundamentalism and political conservatism are associated with rule-based moral processing.” Their study links earlier research in decreased integrative complexity and conservatism to an “aversion to using multiple perspectives and a tendency to submit to religious authority which may lead fundamentalists not to consider the particular details of each situation, instead applying previously established and Biblically condoned moral codes” (Atonenko et al. 2013, 112). Integrative complexity is also being used in the Extremist Risk Guidelines model created and being developed by Lloyd and Dean (2014) to identify and predict extremist offenses. Research that directly relates terrorism and integrative complexity is limited but more research links between the two could help us understand and address ways that we may influence policy decisions that involve terrorism. The link between decreased integrative complexity and fundamentalist behavior could prove a worthwhile area of research.

Scoring and Integrative Complexity

The efficacy of integrative complexity as a theoretical framework and measurement tool has been proven but does lack one important capability – an effective agreed upon automated scoring system. “Integrative complexity is conceptually unique, popular enough to suggest a potential market for an automated measure, yet time-consuming enough to suggest that researchers might take advantage of the construct in greater numbers if a more efficient automated version were available” (Conway et al. 2014, 603). Human scoring is an expertise that

takes great effort to master. The first manual for scoring integrative complexity was written by Gloria Baker-Brown, Elizabeth J. Ballard, Susan Bluck, Brian de Vries, Peter Suedfeld and Philip E. Tetlock in 1992 and drew from over twenty years of experience in researching the concept. The manual calls for any researcher wishing to conduct work on integrative complexity to achieve correlation of .85 with an expert coder. The details of scoring will be elaborated upon in the methodology section of this paper but here we will discuss the general issues in the community with regard to scoring. Assessing integrative complexity requires the judgment of trained coders, who may have to make subtle inferences about the intended meaning of speakers (Baker-Brown et al.1992). As a result of this requirement much of the research on integrative complexity is done in an academic environment where several researchers assist one another to achieve subject matter expert scoring capabilities. Researchers do have the option of taking an online three day course to gain the necessary skills for human scoring. However, the additional issue of bias comes into play when only one individual scores the material. The reliability of results actually demands that more than one scorer is analyzing the data and that the data is appropriately masked to prevent bias. Furthermore, “once coders are qualified, each research team becomes its own coding standard; in effect, once a team is qualified for integrative complexity coding, they need only check their reliability (alpha) among themselves” (Hermann and Young 2014, 642). This does not bode well for teams of researchers who have been together for years without outside teams or refresher training as a checks and balance to their research. The extensive time required to gain expertise, the limitation of the academic environment being the most feasible and generous place to accomplish research, and the human bias involved with a single scorer or teams of scorers who are their own standard all point to the need for an alternate scoring system.

Human scoring has long been referred to as the “gold standard” for measuring integrative complexity. However, due to the above mentioned issues scholars have turned to exploring an automated scoring system. This has led to much debate on the ability of computers to accurately score the data. The debate on automated scoring centers around this very idea that automated scoring will never reach the level of accuracy that human scoring does because the technology to discern all of the nuances in language does not yet exist. There are many schools of thought on whether or not scoring can be automated and accurate at the same time. A symposium held in 2014, which included Peter Suedfeld and Phillip Tetlock – both the foremost experts in integrative complexity scoring, addressed this issue and many of the leading scholars in the field collaborated on several papers discussing progress toward an agreed upon automated tool (Conway et al. 2014; Houck et al. 2014; Suedfeld and Tetlock 2014; Young and Herman 2014). Although a consensus has not been reached on an automated scoring system the community does agree that “automation will increase the quantity and improve the quality, transparency, and replicability of available data” (Herman and Young 2014, 635). Both Walker and Schafer’s operational code system and Hermann’s Leadership Trait Analysis system have relatively recently produced automated versions and do provide somewhat of a foundation to build upon (Suedfeld and Tetlock 2014). “Human-scored systems were, in a sense, developed in a different era where the amount of available data to score was not large, and therefore slower methods of scoring could still score quite a bit of the relevant data” (Houck et al. 2014, 657). That is not the world we live in today. Information is constantly coming at us in massive amounts. Younger researchers have grown up in an environment where data could be compiled and analyzed almost instantaneously for their entire life. Researchers have options in today’s technologically advanced environment. If we are to advance the knowledge on integrative complexity in today’s

environment the implementation of an automated scoring system should be the most immediate goal of scholars. The question becomes how do we measure complexity via an automated system and is the unit of measurement the same as human scoring?

Scholars who participated in the symposium noted that to move forward with scoring integrative complexity, especially in an automated scoring system, a more thorough understanding of what researchers mean when they say “complexity” has to be decided on. Conceptual complexity and integrative complexity are synonymous terms to many researchers but very different to others while both concepts do differ greatly from cognitive complexity. Furthermore, it is not necessarily that the construct is not understood that is the issue but that it is not applied uniformly by researchers. Herman and Young suggest their use of a multi-pass system to overcome these issues. In a first pass, negations are identified; in the second pass, indicators of complexity are found; in the third, indicators of simplicity. In the fourth pass, indicators preceded by a negation have their value inverted or “flipped.” In the fifth pass, indicator values are counted (Herman and Young 2014). More research must be done to decide if this mitigates the concern. Additional research must also be accomplished to determine if computer scoring can handle/analyze larger units of measure than the current unit of measurement – the paragraph. This has been studied by Herman and Young (2014) but the community would benefit greatly through continued research on this subject. In the meantime, “researchers can choose their preferred methodology based on the applicability of each alternative to the question they want to answer, as well as on the resources they can invest in trying to answer it” (Suedfeld and Tetlock 2014, 600).

Research on political studies and integrative complexity revealed that there is ample evidence to support decreased integrative complexity during political elections. Additionally, the

data on presidential performance delivers many examples of instances of increased or decreased complexity based on situational conditions and enables the researcher to fully understand the nature of integrative complexity as a state variable rather than a personality trait. Further, political ideology and its relationship with integrative complexity shows that indicators of decreased integrative complexity is related to conservative ideologies while indicators of increased integrative complexity is usually related to liberal ideology (Tetlock, 1983). This finding lends credibility to the hypothesis that Clinton will be higher than Trump in integrative complexity throughout this study. Research on war, peace, and conflicts was helpful toward understanding that there is reliable evidence of decreased integrative complexity in world leaders preceding conflicts. Conversely indicators of increased integrative complexity occur in international situations that end in peaceful resolution. The research on integrative complexity and its relation to terrorism is not as abundant as one would expect but there are findings that link terrorism with decreased integrative complexity and those findings do inform this study. Finally, the literature on scoring integrative complexity does show the increased need for research involving automated scoring to further the communities need for an effective, agreed upon automated scoring system.

CHAPTER III

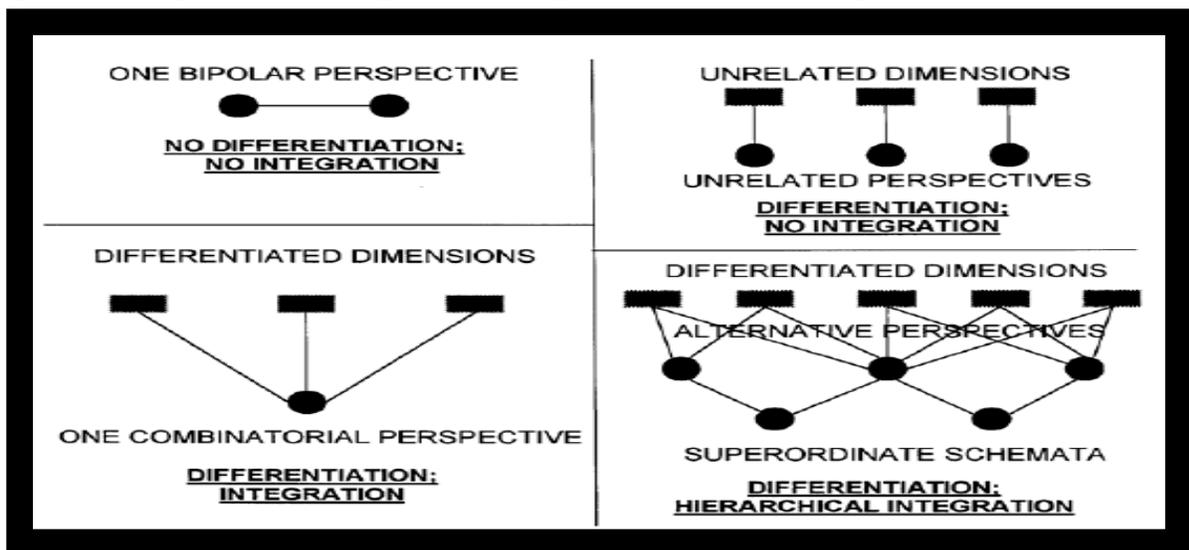
THEORETICAL FRAMEWORK

Origins and Evolution of Integrative Complexity

Integrative complexity grew out of early work on scoring human samples from Streufert and his colleagues (Streufert, Suedfeld, and Driver 1965), but the current archival method used by most researchers was developed and popularized by Baker-Brown et al. (1992) with the majority of important works being led by Peter Suedfeld and Phillip Tetlock over the last forty years. Under Suedfeld and Tetlock's tutelage several researchers have developed the concept through countless studies. The framework has been used by political psychology researchers on topics ranging from international peace (and war), electoral success, political revolutions, international crises, political ideologies, and profiling specific political figures, to name just a few. "This large body of scored materials spans thousands of years and covers multiple continents, nations, and languages" (Conway et al. 2014, 607). Integrative complexity emerged from the larger framework of cognitive complexity as a result of this development.

Figure 2 - Integrative Complexity Diagram

Source: Suedfeld, Peter. 2003. Integrative complexity of western and terrorist leaders in the war against the Afghan terrorist regime. *Psicología Política*(27): 79-92 p 80



Cognitive complexity and cognitive flexibility were conceptualized in 1962 by William A. Scott and were the antecedents to integrative complexity. Scott postulated that “cognitive complexity [was] the number of independent dimensions worth of concepts the individual brings to bear in describing a particular domain of phenomena [whereas] cognitive flexibility is defined as the readiness with which the person's concept system changes electively in response to appropriate environmental stimuli” (Scott 1962, 405). Integrative complexity goes beyond earlier concepts because it measures integration. Cognitive complexity was originally measured by the paragraph completion test. This was generative data in that researchers controlled what was generated by starting a sentence and using that cue to have each participant contribute at least six sentences of original thought. The paragraphs were then scored for integrative complexity using the 1 to 7 scale. Alternatively, integrative complexity is measured via running text and escapes the requirement for a controlled environment dependent on researcher and their participants. Conway et al. (2014) system “is designed to approach human evaluations of both differentiation and integration; and is an advance over previous systems that measure differentiation only” (Suedfeld and Tetlock 2014, 599). Because this study seeks to measure differentiation and integration as well as increases and decreases over time and situations in the Conway et al. (2014) automated system was the best measurement tool available.

Integrative complexity has been used as a theoretical framework to study political leaders but previous researchers primarily studied archival material to analyze decisions that have already been made. The current study seeks to make predictions about how Clinton and Trump’s integrative complexity may affect how they handle future terrorism related issues. Integrative complexity measures the structure of the subject’s thoughts not the content or their ideology. “Both components of integrative complexity, differentiation (the recognition of more than one

legitimate point of view and/or relevant dimension relevant to the topic) and integration (the recognition of relationships among the differentiated items, through; interaction, trade-off, synthesis, or incorporation within a higher-level system) [will be studied]” (Suedfeld , Cross, and Brcic 2011, 1009). Based on several previous research outcomes the hypothesis is that Clinton’s integrative complexity will remain higher than Trumps throughout the span of the study but both will have decreased complexity as a result of being engaged in a campaign and even lower complexity when discussing terrorism related issues. First, there is some research to suggest that liberal politicians in the United States are more complex than conservative politicians (Tetlock, 1983). Secondly, other researchers have found in a parallel fashion that “successful leaders are defined by their ability to shift their complexity at the right time, such as the fact that successful revolutionary leaders have low complexity while seeking power, but higher complexity immediately after achieving that goal” (Conway et al. 2012, 600). Lastly, Tetlock (1981) demonstrated in a sample of 10 United States presidents, that a president’s speeches once in office are typically higher than his pre-office campaign speeches. The goal of the research will be to analyze both subjects integrative complexity and predict how that may illustrate their future decision making processes – specifically if they are operating at a decreased level of integrative complexity in a future terrorism related event. Their hypothesized lower integrative complexity level (due to campaign stress and cognitive fatigue) and the continued terrorism related events in the Middle East, Paris, and the United States present an opportune time to analyze content before there is an actual crisis that calls upon our political leaders for action.

CHAPTER IV

METHODOLOGY

The issue of accessibility to political leaders presents challenges when designing a research plan to investigate the subject's integrative complexity. Although Clinton and Trump are living subjects the process of obtaining data through face to face interviews or requesting survey completion is out of the question given rigorous schedules, layers of controls to prevent direct access by those outside their circle, and researcher inability to gain priority over more valuable entities such as media conglomerates. Integrative complexity was once scored by the paragraph completion test, as described in the theoretical framework section of this paper; participants were given six sentence stems and asked to generate the remainder of the sentence. If the paragraph completion test was the only way to score integrative complexity this study would be impossible to accomplish. Fortunately, over the course of many studies the theoretical framework for integrative complexity has evolved. To overcome these limitations various researchers have developed several content analysis systems that allow researchers to analyze integrative complexity via content analysis of verbal and written materials. "Complexity can be scored in almost any verbal material, whether written or spoken, produced in response to specific questions or spontaneously: test completions, letters, diaries, interviews, press conferences, books, articles, memos, diplomatic notes, military orders, reports, debates, and so on practically ad infinitum" (Suedfeld, 2003, 80). Content analysis techniques allow researchers to review archival documents of almost any world leader, politician, academic, philosopher, or any other subject of interest. The internet has expanded the use of content analysis even more by increasing the accessibility and ease of acquiring innumerable documents online. Because of this accessibility research on integrative complexity has progressed for more than four decades and

has been applied to countless research puzzles specifically in the sociology and political psychology fields.

Integrative complexity has been used as a theoretical framework to study political leaders but previous researchers primarily studied archival material to analyze past decisions. The current study seeks to make predictions about how Clinton and Trump's integrative complexity may affect how they handle future terrorism related issues. Integrative complexity measures the structure of the subject's thought processes rather than their individual belief systems.

Researchers are attempting to understand and analyze how the subject thinks not what they think which provides a better foundation upon which to make predictions about that individual's future decisions. In this study both components of integrative complexity, differentiation (considering multiple perspectives as relevant even if they are opposing) and integration (recognizing there is a relationship between these different dimensions and that they are intertwined) will be analyzed (Suedfeld, Cross, and Brcic 2011). Integrative complexity goes a step further than its predecessor cognitive complexity by measuring not only differentiation but also integration. Integrative complexity is concerned with how well the subject integrates various perspectives and navigates the decision making process based on this integration. Based on several previous research outcomes the hypothesis is Clinton's integrative complexity will remain higher than Trump's integrative complexity throughout the span of the study but both will have decreased complexity as a result of being engaged in a campaign and even lower complexity when discussing terrorism related issues. The previous research outcomes discussed above found that leaders exhibited decreased integrative complexity while seeking power, that political leaders speeches before elections exhibited lower integrative complexity than their speeches after election, and that

integrative complexity decreases in leader's rhetoric before nation's devolve to wars. Supporting studies are expanded on in the theoretical framework section of this paper.

The goal of the research in this study will be to analyze both subjects integrative complexity and predict how that may illustrate their future decision making processes – specifically if they are operating at a decreased level of integrative complexity. Their hypothesized decreased integrative complexity level (campaign stress and cognitive fatigue) creates the opportunity to study the subjects and make predictions about what their responses might look like in a future crisis. The study is relevant because given historical precedence future leaders will have to make decisions on terrorism related topics. Continued terrorism related events in the United States, various locations in the Middle East, and the recent attacks in Paris and Belgium remind us that the issue of terrorism is an long-term problem. The chances of either candidate, if elected to the presidency of the United States, navigating a terrorism related event are exceptionally high. Suedfeld, Tetlock, and Ramirez (1977) studied twenty years of United Nations assembly speeches from 1947 to 1976 and found that integrative complexity was greatly reduced in speeches made in months prior to outbreak of war (1948, 1956, 1967, and 1973). If we are truly interested in seeking to resolve disagreements among countries through diplomacy rather than conflict then studying the integrative complexity of our leaders may give analysts the tool to alert decision makers that nations may be approaching a trigger point.

This study will utilize the automated integrative complexity scoring system developed by Conway et al. (2014) to score and analyze the integrative complexity of Clinton and Trump pre-campaign (to obtain a baseline integrative complexity score), during the 2016 presidential election campaign, and when discussing terrorism related issues during the 2016 presidential election campaign. The Conway et al. (2014) system is specifically designed to measure integrative

complexity. “Integrative complexity coding is difficult, in large part, because it does not rely on simple “content-counting rules” of the sort that some other content analytic approaches employ” (Baker-Brown et al. 1992, 3). Conway et al. (2014) had a thorough understanding of this issue. “This newly developed automated integrative complexity scoring system achieved an alpha of .72 on the standard integrative complexity coding test and across nine datasets covering over 1,300 paragraphs, consistently showed modest relationships with human-scored integrative complexity (average alpha = .62; average r = .46)” (Conway et al. 2014, 603).

Earlier systems (for example those listed in the below table) were designed to measure cognitive complexity. That is they set out to measure differentiation alone. They measure a subject’s ability to identify different perspectives but not how those perspectives interact. “Integrative complexity stands out in the cognitive complexity universe as one of the few measurements that explicitly accounts for integration (Conway et al. 2014, 605).” Integration accounts for a more systematic way of thinking that considers and plays out how the differing perspectives collide and interact with one another. The Conway et al. (2014) system is the latest and most aggressive attempt at accurately measuring integrative complexity.

Table 1 - Examples of Inexpensive Text Analysis Systems

Source: Young, Michael D. and Margaret G. Hermann. 2014. Increased Complexity Has Its Benefits. *Political Psychology* 35, no. 5: 635-645, p 636

| Text Analysis Software* | Universal Resource Locator | Cost for Academic Use |
|-------------------------|---|---|
| Wordstat | http://provalisresearch.com/products/content-analysis-software/ | \$590 |
| LIWC | http://www.liwc.net/ | \$90 |
| Diction | http://www.dictionsoftware.com | \$189 |
| VisualText | http://www.textanalysis.com/ | \$0 (noncommercial) |
| Profiler Plus | http://www.socialscience.net/tech/ProfilerPlus.aspx | \$0 (for nonfunded and thesis research; 5% fee for funded research) |
| GATE | http://gate.ac.uk/ | \$0 |

*A more comprehensive list of text analysis software is maintained by Kimberly Neuendorf at: <http://academic.csuohio.edu/kneuendorf/content/cpuca/ccap.htm>

Selecting Data

Both Clinton and Trump are well into their campaigns. At this point in the election cycle the candidates have participated in several debates, given position speeches, been the subject of countless interviews, engaged in discourse with voters in many states to gain the support of caucus goers, and numerous other events. All of these instances have been documented for various reasons by many sources. The transcripts of these events can be found in several locations on the internet but researchers must be careful to select a website that is not for or against any one candidate or position while selecting data for coding in order to remain unbiased. For this study vote smart (<http://www.vote-smart.org>) will be utilized to obtain all of the campaign material that will be coded on both subjects. “A more or less unified standard of the coded context or an archival source that is similar across subjects in terms of audience and purpose ensures that ratings of integrative complexity can be compared in a meaningful manner” (Thoemmes and Conway 2007, 202). Selecting from a reputable source also guards against unwittingly selecting material from a site that is either pro or con Clinton or Trump. Vote smart is a non-profit bipartisan organization that researches, collects, categorizes, and archives information about political leaders. The organization’s objective is to ensure voters have a trustworthy source by which they can educate themselves on the funding, positions, and the overall body of work for politicians seeking elected public office.

The overall objective for selecting the data will be to identify a baseline integrative complexity score, a campaign integrative complexity score, and an integrative complexity score while discussing terrorism (terrorism integrative complexity score). There will be three word documents containing five paragraphs for each of the three categories for both Clinton and Trump. This is the required document preparation per the automated integrative complexity

manual. All documents will also be scrubbed to remove any extraneous wording so that only what the candidates actually said gets scored by the automated system.

The baseline integrative complexity score will be derived from Clinton and Trump's own previous works. Five paragraphs from Clinton's book "Living History" and five paragraphs from Trump's book "The Art of the Deal" will be selected to get a baseline integrative complexity score for both subjects prior to them entering the campaign for President of the United States. This is the only data that will not be collected from votesmart.org because the intent is to identify the subject's integrative complexity score prior to entering the campaign for President of the United States.

Next, five paragraphs from the point in time where Clinton entered the presidential race and five paragraphs from the point in time where Trump entered the presidential race will be selected for coding. These paragraphs will be selected from campaign speeches and debate transcripts and will not contain any rhetoric around terrorism related events. The intent is to code the data and analyze whether or not Clinton and Trump's integrative complexity score decreased after joining the campaign trail. The resulting score will be compared to their integrative complexity score prior to launching their campaigns as well as their score when discussing terrorism related content.

Finally, five paragraphs from Clinton's debate transcripts and various interviews and five paragraphs from Trump's debate transcripts and various interviews were selected in which they are answering terrorism related debate or interview questions. The resulting scores were analyzed and compared to the baseline integrative complexity scores and the campaign integrative complexity score to identify whether or not integrative complexity levels were lower or higher than baseline or lower or higher than campaign levels.

The data collected from votesmart.org for both the campaigning integrative complexity score and the terrorism related answers integrative complexity scores were gathered using the start and end date filter and the keyword “all” under the speeches tab in the vote smart database for either Clinton or Trump. When applying these filters votesmart.org had fifty four returns of data on Clinton with a beginning date of 1 June 2016 and an ending date of 18 March 2016. Using the same parameters for starting and ending date in votesmart.org for Trump produced a total of one hundred and nine returns of data. Each of the 2016 debate transcripts, issue position speeches, and terrorism related interview responses from June 2015 through March 2016 were pulled down and analyzed to find suitable material to code. In integrative complexity the basic scoring unit refers to a section of material that focuses on one idea – according to the conceptual/integrative complexity scoring manual this is the paragraph (Baker-Brown et al. 1992). All documents were analyzed to select a total of fifteen paragraphs of material for each subject. Five paragraphs from pre-campaign content, five paragraphs from campaign related content, and five paragraphs for terrorism related answers. Once the data was selected it was sorted into separate word documents for Clinton and Trump and carefully organized for scoring. Scoring integrative complexity can be done in two distinctly different ways. Researchers can score manually using the coding manual for conceptual/integrative complexity (Baker-Brown et al. 1992) or one can select an automated system. As stated earlier in the paper this study was conducted using an automated integrative complexity scoring system developed by Conway et al. (2014).

Operationalizing the Data

Although the “gold standard” for scoring integrative complexity remains the human scoring system several researchers have worked tirelessly collaborating to advance an automated

system that seeks to reach higher levels of correlation with the accuracy of human scoring. As discussed earlier, human scoring expertise is gained through an elaborate training process. However, the hand scoring system has led to studies limited to the academic environment. Essentially professors' train students on hand scoring of integrative complexity and students are able to gain expertise and disseminate scoring across multiple researchers then compare results or settle disagreements in scoring. Automated scoring furthers the research by not being limited to that environment.

To further research on automated scoring of integrative complexity most recent automated system produced by Conway et al. (2014) was in this study. This approach at automated scoring is based on the conceptual/integrative complexity scoring manual. The automated integrative complexity manual and required excel file downloads to utilize the Conway et al. (2014) system can be found online at <http://psychweb.psy.umt.edu/conway>. Researchers do not need to be experts at excel software to complete their study as Conway et al. (2014) have very thoroughly explained how to use this system in their automated integrative complexity manual and instructions for each file. The program has two scoring systems – one for scoring paragraphs (filename AutoICParagraphs) and one for scoring documents (AutoICDocuments). AutoICParagraphs is used for shorter segments of text and the unit of measurement is the paragraph. AutoICDocuments is designed for longer running text and segments the text into seventy five word blocks. The automated integrative complexity manual cautions researchers about using the AutoICDocuments file to score shorter paragraphs because the system produces a higher score than is merited for the given text. Given this cautionary advice this study will use the AutoICParagraphs to code the selected paragraphs.

Scoring the Data

The Conway et al.(2014) automated scoring system, like hand scoring and other automated integrative complexity systems, produces a score from 1 to 7 using the conceptual/integrative complexity scoring manual as a basis. In both systems, scores of 1 conceptually represent a total lack of differentiation or integration. Scores from 2 to 3 represent levels of differentiation. Scores from 4 to 7 represent differentiation and integration. Scores of 2, 4, and 6 are intermediate scores and indicate that while the ideas required for the next score are present they are not fully developed in a way that warrants the next higher score. Table 2 illustrates the overall content flags and indicators that scorers are looking for in each paragraph for the major scores of 1, 3, 5, 7.

Table 2 – Content Flags and Indicators for Integrative Complexity Scoring

| Integrative Complexity Score | Content Flags | |
|-------------------------------------|--|---|
| 1 | ABSOLUTELY, ALL, ALWAYS, CERTAINLY, CONSTANTLY, CONVINCED, DEFINITELY, ENTIRELY, FOREVER, IMPOSSIBLE, INDISPURABLE, IRREFUTABLE, IRREVERSIBLE, NEVER, SOLELY, SURELY, UNCONDITIONALLY, UNDOUBTEDLY, UNQUESTIONABLY | |
| 3 | All of the content flags characteristic of a score of 2 are also diagnostic of a score of 3. The same key words appear to signal both implicit and explicit differentiation. Additional content flags specific to a score of 3 include "ALTERNATIVELY", "EITHER-OR", "ON THE OTHER HAND" and "MEANWHILE" | |
| Integrative Complexity Score | Critical Indicator | Specific Indicators (at least one of the listed indicators is found in the paragraph) |
| 5 | Author acknowledges alternative perspectives or dimensions are not only held in focus simultaneously but are also viewed interactively | <ol style="list-style-type: none"> 1. Mutual influence and interdependence 2. Negotiation 3. Causal attributions 4. Synthesis |
| 7 | Author expresses an overarching viewpoint (temporal, causal, theoretical) of the problem or concept. Discussion of dynamic and specific ways in which levels of problem interact and how levels affect one another and are inextricably linked | <ol style="list-style-type: none"> 1. Hierarchical integration 2. Comparison of outcomes 3. Systemic analysis 4. Complex trade-offs among conflicting goals |

The Automated Integrative Complexity system goes a step further than previous systems. The system also assigns two sub-scores of integrative complexity: dialectical and elaborative complexity (Conway et al 2014). For example “[recognizing] markers of ambiguity, uncertainty,

or a willingness to see multiple perspectives as valid (even if competing)” is considered dialectical complexity (Conway et al. 2014, 605). This is the way most currently available text analysis systems measure complexity. Conversely, “markers of elaboration of a specific viewpoint, multiple dimensions offered without qualification, and several complex arguments in defense of a particular perspective” is considered elaborative complexity (Conway et al. 2014, 605). Measuring only the dialectical portion of complexity misses opportunities to bring to light other ways people exhibit integrative complexity.

Scorability of the Data

The integrative complexity scoring manual identifies several indicators that make a paragraph unscorable. These standards ultimately save researcher’s time by clueing them into paragraphs that will end up not producing scoring results if not weeded out in the preliminary paragraph selections. The main characteristic of an unscorable paragraph is that the “author’s rule structure for drawing inferences or making decisions is not evident” (Baker-Brown et al. 1992, 10). Paragraphs that consist primarily of cliché’s and satire or sarcasm are generally not scorable but researchers should look at surrounding context to make this decision. Paragraphs where most of the content is the author quoting someone else’s thoughts without sufficient discussion by the author about their position on these thoughts is also considered unscorable. Paragraphs that are mainly descriptive in nature, list out an agenda, just state facts without placing them in a larger context, are unscorable as they do not allow the researcher to analyze thought content or structure of the author. Finally, paragraphs where there is a breakdown in understanding, meaning the text is too complex or scientific for the scorer to grasp the material are considered unscorable. All of these characteristics should be strongly considered when selecting data to prevent selection of unscorable data.

Study Limitations

A 2014 symposium was held in which several integrative complexity researchers gathered to collaborate with the intent to address the issue of achieving consensus on automated scoring systems and overcoming challenges inherent to this endeavor. Veteran researchers wrote responses to the target article which was the unveiling of the Conway et al. (2014) automated scoring system. Many continuing challenges remain for researcher seeking an automated scoring system for integrative complexity. Foremost among these challenges is the awareness that automated scoring will never replace human scoring. Although human scoring is time consuming, requires expertise and refresher training, and fails to handle large amounts of data it remains the most accurate scoring method. Automated scoring systems remain unperfected and fail to detect subtle distinctions in human language that human scorers pick up rather easily after effective training. Many researchers argue that a combination of hand scoring and automated scoring is the best system but continued research will be required to determine the efficacy of this approach (Hermann and Young 2014). Hermann and Young (2014, 644) state that “hand coding supports and contributes to the enhancement of automated coding” therefor they support a combined approach to better automated scoring. As of now, researchers are limited to the systems currently available if hand coding is not something they can accomplish training, experience, and expertise on.

There are many systems of automated scoring that have been developed over time to assist coders with scoring content. As stated earlier in the methodology section of this paper the Conway et al. (2014) automated system was chosen for this study because it seeks to measure integrative complexity (specifically integration) which many of the previous systems fail to do. However, the Conway et al. (2014) system can be informed by these previous coding systems

and what researchers have learned while developing them. As part of the 2014 symposium Herman and Young responded to the target article and highlighted that the Conway et al. system used in this study is considered a single pass system (Hermann and Young 2014). Herman and Young (2014, 635) describe a single pass system as “one that uses a “single-pass matching” system that relies on matching lists of words or phrases to those presumed to assess various categories of integrative complexity.” This basic counting leads to many issues that Herman and Young (2014) suggest can be overcome by simply using a multi-pass system. Herman and Young (2014, 635) state “although multiple-pass text-analysis systems cannot solve all the problems Conway et al. (2014) have encountered, such a system would make the journey to a satisfactory automated integrative complexity both faster and more comfortable.” They expand on this at length in their article. Their primary point is that:

such systems allow researchers to focus on the conceptual issues involved in automating their particular coding schemes, rather than on the technical problems of writing software, by providing them with a platform that contains the tools needed to mitigate the problems both Conway and Tetlock and their associates identify, including; endless permutations, ad hoc exclusions, negations, absence of clear linguistic markers, common qualifiers such as “however, but, and yet.” (Hermann and Young 2014, 636)

Future research should include studies that compare integrative complexity scoring results in both single-pass and multi-pass systems. Researchers could also attempt to combine systems and integrate the best of each into one tool that accomplishes several tasks and measures multiple dimensions of integrative complexity.

There are also time constraints that compress the study and prevent analyzing the integrative complexity of the candidates beyond March 2016. Opportunities to study their integrative complexity when they win or lose their party nomination could be very interesting. For example, if Clinton or Trump does not win the nomination for their party studying their concession speeches and comparing those with their earlier campaign speeches would build upon

the body of research that focuses on candidates exhibiting decreased integrative complexity while campaigning for office. Previous research by Suedfeld and Tetlock, as discussed earlier in this paper, provides evidence that after winning a campaign political leaders integrative complexity increases but what happens to their integrative complexity when they lose? Moreover, along the same thought process the study would be more comprehensive if it could compare the integrative complexity of the subject's while campaigning to their integrative complexity in office if either subject is ultimately elected to the presidency. Also, due to time constraints the data has had to be pared down to a manageable workload given the time allotted to complete the capstone course. Although the study exceeds the minimum required paragraph count of five per subject (this study analyzes fifteen paragraphs per subject) it would have been interesting to analyze additional content. Analyzing additional data would add to the overall credibility of the study. Clinton is sixty eight years old at present and Trump is sixty nine years old. Both subjects have a lifetime of work behind them that has been well documented – a more comprehensive data set may illuminate additional findings for the integrative complexity community. The good news is given the popularity of the integrative complexity framework and the desire for an effective automated scoring system future researchers will likely tackle another project to test the Conway et al. (2014) automated scoring system.

The issue of speech writers should be briefly noted. In many cases where the data is solely content analysis of speeches given by the subjects under study the question arises-who wrote the speeches? Is the study then measuring the speech writer's integrative complexity or the subject's integrative complexity? In general – the agreed upon consensus on this concern is that any speech given by a candidate will be reviewed by that candidate prior to delivery (Suedfeld 2010, Thoemmes and Conway 2007). Additionally, the people on their team are chosen for a

reason – because they share the ideology of the leader they are supporting and they are writing the speech according to the beliefs and style of the leader who will deliver it. Thoemmes and Conway (2007) discuss this issue in their study and conducted extensive analysis to investigate whether or not speech writing affected the integrative complexity of the forty one presidents they scored. Thoemmes and Conway (2007, 220) posited that “although most presidents received help with their speeches, the modern role of the speech writer is generally assumed to have begun during Calvin Coolidge’s tenure.” To explore whether or not speech writer’s made a difference in scoring - a comparison was made between state of the union speeches prior to speech writing becoming prevalent and state of the union addresses after speech writing became prevalent. The findings showed that the introduction of speechwriting as a common practice did not significantly impact patterns found prior to speechwriting (Thoemmes and Conway 2007). Although noted as an acknowledged concern that may arise for some readers the issue of speechwriters is not as prominent as one may initially imagine.

CHAPTER V

FINDINGS AND ANALYSIS

Major Findings

Thirty paragraphs were scored using the automated integrative complexity system (Conway et al. 2014) with a total of five thousand one hundred and forty two words analyzed. The AutoICParagraphs excel macros template provides two tabs when results have been calculated. The first tab displays each paragraphs integrative complexity scores (including dialectical integrative complexity and elaborative integrative complexity), and the second tab lists the words scored and the number of times each word was counted by the system. This word list allows researchers to analyze the words scored and ensure they were scored accurately. The automated integrative complexity manual provides an example to illustrate this point. If a study was being accomplished on content covering weight loss and the system scored the word “weight” as a complex word the researcher could exclude this word since it is not actually being used to exhibit complexity but rather as a descriptor of how much someone weighs. The word list for the results of this study was analyzed and did not contain any words that were scored inaccurately, any words that had unusually high word counts, or any words that required exclusion as a result of being given credit for complexity when they were not used in a complex manner.

The hypothesis is Clinton’s integrative complexity will remain higher than Trump’s throughout the span of the study but both will have decreased complexity as a result of being engaged in a campaign and even lower complexity when discussing terrorism related issues. Clinton’s integrative complexity (average of campaign content and terrorism related content: 3.275) was higher than Trump’s (average of campaign content and terrorism related content: 2.5)

throughout the span of the study as hypothesized. However, both candidates' complexity was lower in the baseline content (selected from Clinton's book "Living History" and Trump's book "Art of the Deal") than the campaign content collected from votesmart.org which was unexpected. Both candidates did have lower integrative complexity for terrorism related content than for campaign content but Clinton's only dropped slightly (decreased from 3.3 to 3.25) while Trump's (decreased from 3.0 to 2.4) decreased more significantly. Interestingly, Clinton's terrorism related content was higher than her baseline content (3.25 and 2.65 respectively). Also of note is that Trump's integrative complexity scores had an increase or decrease of only .01 across all three categories. (baseline integrative complexity 2.5, campaign integrative complexity 2.6, and terrorism related integrative complexity 2.4). Table 3 illustrates the overall results for Clinton and Trump in each category (baseline, campaign, and terrorist related integrative complexity scores) and provides an average of all three categories integrative complexity for Clinton and Trump.

Table 3 - Integrative Complexity Scores of Clinton and Trump by Category

| Integrative Complexity Category | Clinton | Trump |
|--|----------------|--------------|
| Baseline Integrative Complexity | 2.65 | 2.5 |
| Campaign Integrative Complexity | 3.3 | 2.6 |
| Terrorism Related Integrative Complexity | 3.25 | 2.4 |
| Average Integrative Complexity | 3.0 | 2.5 |

Table 4 gives a more comprehensive view of the results to include scoring for each individual paragraph and scoring for the dialectic and elaborative integrative complexity scores. The blue scores are Clinton's content (baseline content line 1-5, campaign content line 6 -10, terrorism related content line 11-15) and the green scores are Trump's content (baseline content line 1-5, Campaign content line 6 -10, terrorism related content line 11-15). Clinton's dialectical

integrative complexity throughout the study was 2.4 and her elaborative integrative complexity was 2.72 while Trumps dialectical integrative complexity throughout the study was 2.25 and his elaborative integrative complexity was 1.85. Results indicate Clinton has an overall higher dialectical and elaborative integrative complexity score throughout this study.

Table – 4 Automated Integrative Complexity System Results

| Word Count | IC | DIAL | ELAB | IC_Diff | IC_Integ | DIAL_Diff | DIAL_Integ | ELAB_Diff | ELAB_Integ |
|------------|------|-------|-------|---------|----------|-----------|------------|-----------|------------|
| 249 | 3.5 | 2.375 | 2.625 | 2 | 0.5 | 1.125 | 0.25 | 1.375 | 0.25 |
| 91 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0.5 | 0 |
| 150 | 2.5 | 2 | 1.5 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| 103 | 1.25 | 1.25 | 1 | 0.25 | 0 | 0.25 | 0 | 0 | 0 |
| 86 | 5 | 4 | 3 | 2 | 2 | 1 | 2 | 2 | 0 |
| 349 | 5 | 4.5 | 3.25 | 2 | 2 | 2 | 1.5 | 1.75 | 0.5 |
| 271 | 3 | 3 | 3 | 2 | 0 | 2 | 0 | 2 | 0 |
| 147 | 2.75 | 2.25 | 1.5 | 1.25 | 0.5 | 0.75 | 0.5 | 0.5 | 0 |
| 184 | 3 | 1.75 | 3 | 2 | 0 | 0.75 | 0 | 2 | 0 |
| 186 | 2.75 | 2 | 1.75 | 1.25 | 0.5 | 0.75 | 0.25 | 0.5 | 0.25 |
| 125 | 3.5 | 1.75 | 3.5 | 2 | 0.5 | 0.75 | 0 | 2 | 0.5 |
| 173 | 2.75 | 2.25 | 2 | 1.25 | 0.5 | 1 | 0.25 | 0.75 | 0.25 |
| 310 | 3.5 | 2.75 | 3.25 | 2 | 0.5 | 1.5 | 0.25 | 2 | 0.25 |
| 162 | 3.5 | 2.25 | 3 | 2 | 0.5 | 0.75 | 0.5 | 2 | 0 |
| 103 | 3 | 1.5 | 3 | 2 | 0 | 0.5 | 0 | 2 | 0 |
| 119 | 3 | 3 | 1.5 | 2 | 0 | 2 | 0 | 0.5 | 0 |
| 182 | 2.5 | 2.5 | 2.5 | 1.5 | 0 | 1.75 | 0 | 1.75 | 0 |
| 98 | 2.5 | 1.5 | 2.5 | 1.5 | 0 | 0.5 | 0 | 1.5 | 0 |
| 91 | 2 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 137 | 2.5 | 2 | 1.5 | 1.5 | 0 | 1 | 0 | 0.5 | 0 |
| 158 | 3 | 3 | 1 | 2 | 0 | 2 | 0 | 0 | 0 |
| 110 | 3 | 3 | 2 | 0 | 2 | 0 | 3 | 0 | 1 |
| 154 | 3 | 2 | 3 | 2 | 0 | 1 | 0 | 2 | 0 |
| 149 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 219 | 3 | 3 | 3 | 2 | 0 | 2 | 0 | 2 | 0 |
| 182 | 1.5 | 1.5 | 1 | 0.5 | 0 | 0.5 | 0 | 0 | 0 |
| 265 | 2.5 | 2.5 | 2 | 1.5 | 0 | 1.5 | 0 | 1 | 0 |
| 241 | 2.5 | 2.5 | 2 | 1 | 0.5 | 1 | 0.5 | 1 | 0 |
| 160 | 2.5 | 1.5 | 1.5 | 1 | 0.5 | 0 | 0.5 | 0.5 | 0 |
| 188 | 3 | 2.5 | 2 | 2 | 0 | 1.5 | 0 | 1 | 0 |

Baseline Integrative Complexity

Clinton's baseline integrative complexity score was 2.65 while Trump's was 2.5. Content from Clinton's and Trump's own works was selected to establish a baseline integrative complexity score. The baseline score was calculated to provide a measurement from which the campaign related content and terrorism related content could be analyzed and compared to the other categories being measured. When examining the individual paragraph scores for the baseline integrative complexity scores (Clinton 3.5/1.0/2.5/1.25/5.0 and Trump 3.0/2.5/2.5/2.0/2.5) Clinton's scores have a range of 4.0 while Trump's scores have a range of 1.0. Again we see that Trump's integrative complexity level is quite stable in comparison to Clinton's. This is rare (according to Thoemmes and Conway 2007) and warrants additional study.

Campaign Integrative Complexity

The campaign integrative complexity scores were higher for Clinton and Trump than their baseline scores. Clinton was up from 2.65 (baseline) to 3.3 (campaign) and Trump was up from 2.5 (baseline) to 3.0 (campaign). These findings did not align with the initial hypothesis that both candidates would have decreased integrative complexity as a result of being engaged in a campaign as evidenced in previous studies and as discussed in the literature review of this paper. One potential explanation of this is simply timing. The study may have been conducted too early in the campaign cycle (data selection concluding in March 2016 and campaign continuing on until November 2016) to measure the drops in complexity. As Conway et al. found;

...significantly different pattern between [reelection] winners and losers over their four years in office, such that winning presidents showed a steeper and later drop in complexity as the election season approached, whereas losers dropped earlier in their tenure, and, if anything, slightly increased during the election season. This

suggests that the mean level of complexity is less important than the timing of a complexity shift: Late drops in complexity may be the most effective means of winning elections. (Conway et al. 2012, 600)

Although that above quote deals with reelection campaigns, further research of 2004 campaign debate speeches coincided with these findings. “Data thus suggest that a larger “shift” downward in complexity as the election nears is a more effective rhetorical device than (relatively) more stable complexity levels during the election season” (Conway, et al. 2012, 606). As the election goes on and either candidate goes on to win their respective party nominations shifts in integrative complexity may occur. It is interesting to note that throughout the campaign cycle the shifts in complexity for Trump and Clinton in the two categories measured for this study (campaign integrative complexity and terrorism related integrative complexity) thus far have been .05 or under.

Terrorism Related Integrative Complexity

The findings did not support the hypotheses that both Clinton and Trump were likely operating at a decreased complexity level due to campaigning which limits the ability of this study to make the connection between decreased integrative complexity and politician decision making while discussing terrorism. As explained earlier in this section, one possible explanation is that the study concluded prior to the shift to decreased complexity by the subjects of the study. Findings nonetheless supported the hypothesis that the candidates would score lower on terrorism related content: Trump (decrease from 3.0 campaign integrative complexity to 2.4 terrorism related integrative complexity) and for Clinton (Decrease from 3.3 campaign integrative complexity to 3.25 terrorism related integrative complexity). It is important to note that while the findings do support the hypothesis both candidates did not have significantly decreased integrative complexity scores when discussing terrorism related content. Decreases

would be much sharper if an actual terrorism related event occurred while they were in office. Earlier discussion in this paper explains research by Suedfeld and Tetlock (1977) that cognitive reaction to stress (due to threat to important values, pressure to make timely decisions, and information overload) causes decreased integrative complexity. The findings do allow us to make the assumption, based on the subject's terrorism related integrative complexity scores, that Clinton's complexity would remain higher than Trump's in a terrorism related event. This is significant because as Suedfeld and Tetlock (1977, 182) found "international crises that resulted in war were characterized by lower levels of communicative complexity than those that were resolved peacefully; and...the changes in complexity as the climax approached showed a decrease prior to the outbreak of war and an increase prior to peaceful solution."

The below figures are excerpts from the results of the automated integrative complexity scoring system. The specific paragraphs were selected from debate transcripts for Clinton and Trump respectively and are presented to illustrate that the system scores the content and thought process not the ideology of the individual. Both paragraphs are extremely different in their approach to dealing with terrorism (specifically the Islamic State) but receive similar complexity.

Figure 3 - Clinton Paragraph from Terrorism Related Content

| Paragraph | Word Count | IC |
|--|------------|------|
| <p>well john i think that we have to look at isis as the leading threat of an international terror network it cannot be contained it must be defeated there is no question in my mind that if we summon our resources both our leadership resources and all of the tools at our disposal not just military force which should be used as a last resort but our diplomacy our development aid law enforcement sharing of intelligence in a much more open and cooperative way that we can bring people together but it cannot be an american fight and i think what the president has consistently said which i agree with is that we will support those who take the fight to isis that is why we have troops in iraq that are helping to train and build back up the iraqi military why we have special operators in syria working with the kurds and arabs so that we can be supportive but this cannot be an american fight although american leadership is essential .</p> | 173 | 2.75 |

Figure 4 - Trump Paragraph from Terrorism Related Content

| Paragraph | Word Count | IC |
|--|------------|-----|
| <p>let me just tell you you look at the middle east they're chopping off heads they're chopping off the heads of christians and anybody else that happens to be in the way they're drowning people in steel cages and he now we're talking about waterboarding this really started with ted a question was asked of ted last two debates ago about waterboarding and ted was you know having a hard time with that question to be totally honest with you they then came to me what do you think of waterboarding i said it's fine and if we want to go stronger i'd go stronger too because frankly that's the way i feel can you imagine can you imagine these people these animals over in the middle east that chop off heads sitting around talking and seeing that we're having a hard problem with waterboarding we should go for waterboarding and we should go tougher than waterboarding that's my opinion .</p> | 160 | 2.5 |

Dialectic and Elaborative Integrative Complexity

Conway et al. (2012, 601) define these sub constructs as “dialectical complexity (complexity achieved by giving legitimacy to two opposing viewpoints) and elaborative complexity (complexity achieved by using complex reasoning to defend a singular viewpoint.” The main focus of this study is integrative complexity scoring but the results on dialectical and elaborative integrative complexity remains an interesting point of discussion. Clinton’s average dialectical integrative complexity score was 2.4 while Trump’s was 2.25. Clinton’s average elaborative integrative complexity score was 2.72 while Trump’s was 1.85. Clinton scored higher on elaborative integrative complexity while Trump scored higher on dialectical integrative complexity. Still in both categories Clinton’s average score on both dialectical and elaborative complexity were higher than Trump’s scores in the same categories. The findings in this category reveal the importance of capturing elaborative complexity in addition to dialectical integrative complexity (most studies capture only dialectical complexity).

Clinton vs. Trump Integrative Complexity

The findings did support the hypothesis that Clinton did maintain a higher integrative complexity score than Trump in each category (campaign integrative complexity and terrorism integrative complexity) throughout the span of the study. This is consistent with previous research that liberal politicians usually score higher in integrative complexity than their conservative counterparts. Tetlock (1983, 118) found that “conservative senators made significantly less complex statements than their liberal or moderate colleagues” during a study in which he “employed a systematic coding technique to assess the integrative complexity of policy statements of senators who, on the basis of their 1975 and 1976 voting records, had been classified as liberal, moderate, or conservative.” An important point must be made here to ensure readers acknowledge that integrative complexity scores are not an indicator of being more or less intelligent. “Integrative complexity is more appropriately viewed as a measure of knowledge in use in a particular situation, not as a measure of intellectual ability or understanding (constructs that would be better assessed by a focused examination or test) (Tetlock 1983, 125).” Arguments can be made that given a particular situation higher complexity would serve the problem solver better but another given situation may be better served by a lower integrative complexity approach. “In fact, high integrative complexity may result in wasting cognitive resources on unimportant, simple, or unsolvable problems, or on processing tangential, even irrelevant, information (Suedfeld, 2010, 1680).” Like most things in life balance is required.

CHAPTER VI

CONCLUSION

Future Research and Conclusion

This study successfully furthered research on automated scoring of integrative complexity. The automated integrative complexity scoring manual designed by Conway et al enabled relatively easy use of their automated system and ensured researcher's understood how the system worked. The manual cautions the researcher against certain pitfalls if the system is used incorrectly. The system proved very useful and is a promising step toward automated systems that can approach the accuracy of human scoring. The major component of the system that makes it both automated and human scored is that it allows for human analysis of the words that were scored to ensure the computer scoring does not incorrectly weight words. This combination makes the system an example for future systems. The results of the study were interesting although the hypothesis was not fully supported much was learned. The findings drove additional thoughts about future research.

A follow up article to this study should be conducted to analyze the remaining months of the election cycle. Specific research identifying when (or if) the "shift" from higher to lower integrative complexity occurs for Clinton and Trump could build on previous studies discussed earlier in this paper. Other important data points include the point at which either subject wins or loses their party nomination. If Clinton or Trump wins their party nomination does their integrative complexity increase for a period of time as a result of the win and then decrease again as the election goes on? Does their integrative complexity decrease prior to winning their party nomination and then decrease more as the election goes on? Additionally, if either Clinton or Trump does get elected to the presidency of the United States does their integrative complexity

increase once they are in office? If they run for reelection what are the changes in their complexity leading up to and during that election cycle?

As discussed earlier in this paper the probability of the next president of the United States having to navigate a terrorism related event is highly likely. The fight against the Islamic State is just beginning. A study scoring integrative complexity of the next president during terrorism related events could build upon the body of work on international crisis communication and integrative complexity levels of leaders. The findings of this study predict Clinton will better navigate a terrorism related incident because she maintained a significantly higher integrative complexity score than Trump. In the unfortunate (but likely) event that Clinton (or Trump) has to lead the nation through a terrorism related event researchers could build on this study to evolve integrative complexity research as it relates to leader decision making processes in terrorism related events.

Future research should include studies that compare integrative complexity scoring results in both single-pass and multi-pass systems. Although Conway et al (2014) have developed a better system than was previously available there is still room for growth. Technology is constantly evolving and computers are closer and closer to approaching “human-like processing” capabilities. Researchers can build on the combination of single pass and multipass systems that score all of the components of integrative complexity; differentiation, integration, dialectical, and elaborative. Additional studies using automated systems informed by the expertise of hand scorers will ultimately refine integrative complexity automated scoring.

Clinton or Trump may likely go on to win their respective party nominations and represent their parties in the general election for the office of presidency of the United States. If either go on to win the presidential election they will lead the efforts to address and navigate

complex issues on terrorism. The current administration will pass on the problem of how to handle the fight against the Islamic State to the next administration. The most recent illustration of the extent of the problem the world is grappling with regarding terrorism is the Islamic State attacks in Belgium. Suicide bombers attacked a main airport and subway station killing thirty one people and injuring many more. The likely reasoning behind the attacks is the Islamic State response to the capture of the last remaining mastermind of the recent Paris attacks which occurred in Belgium four days prior. Leadership decision making in complex matters like handling terrorism demands the ability to differentiate multiple global perspectives and integrate those perspectives to anticipate tradeoffs that will lead to common ground and collaboration against an enemy who is adept, determined, calculated, barbaric, and technologically savvy.

Studying the integrative complexity of leaders and their rhetoric can provide a window into their thought processes and help us determine who will most effectively tackle the most complex issues facing the United States. Leaders (and what they say) matters on the global stage. Leaders who incite violence, isolationism, intolerance, racism, and egocentric attitudes are likely operating at decreased integrative complexity levels. If they behave like that in normal operating environments we can assume that they will drop even farther in a crisis. Integrative complexity measures thought processes and cuts through the political façade being sold to all of us by every politician hoping to be the next president. We should heed the findings of this study, and the many before it that warn us of the dilemma lower complexity leaders can thrust a nation into. Further utilization of this analytical tool can aid us all in selecting our future leaders - especially now that there is an easy to use automated tool for that research.

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