# SOCIO-CULTURAL INTELLIGENCE:
# THE EFFECT OF SOCIO-CULTURAL INFORMATION ON INTELLIGENCE ESTIMATES

**EMILY A. SLEGEL**

A Thesis

Submitted to the Faculty of Mercyhurst University

In Partial Fulfillment of the Requirements for

The Degree of

MASTER OF SCIENCE
IN
APPLIED INTELLIGENCE

DEPARTMENT OF INTELLIGENCE STUDIES
MERCYHURST UNIVERSITY
ERIE, PENNSYLVANIA


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# DEDICATION

This work is dedicated to the intelligence analysts and academic researchers who examine socio-cultural intelligence in order to answer the harder questions when dealing with people that often go unanswered. I hope this study provides a base to understanding the effect of socio-cultural information on intelligence estimates and thus continue the research on this topic.

# ACKNOWLEDGEMENTS

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# ABSTRACT OF THE THESIS

**Socio-Cultural Intelligence:**

**The Effect Of Socio-Cultural Information On Intelligence Estimates**

A Critical Examination

By

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Master of Science in Applied Intelligence

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With the decreasing occurrence of traditional wars between other western states, as well as the unfamiliarity with the enemy, the lesser-known countries where current wars are being fought are proving to be a difficulty for the United States' traditional military and diplomatic strategies. This study uses experimental observation conducted at the Intelligence Studies Program at Mercyhurst University. All of the participants in the experiment were asked to produce an intelligence estimate, and the experimental group used socio-cultural information to produce their estimate.

Once the results of the experiment were gathered, descriptive and inferential statistics were used to understand if socio-cultural information produced more accurate estimates by comparing the estimates produced by both the control and experimental groups. The post-experimental survey filled out by the experimental group also examined

the possible issue of over-confidence in intelligence estimates by using one additional intelligence discipline.

Using descriptive statistics, socio-cultural intelligence has a positive effect on accuracy of intelligence estimates but not at a statistically significant level. The inferential statistics showed a small negative relationship between the use of socio-cultural information and the accuracy of intelligence estimates. Overall, the results from using both types of statistical methods indicate that the use of socio-cultural information on estimates is inclusive as a whole.

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IC          Intelligence Community

# INTRODUCTION

## Introduction to the Problem

Former U.S. Secretary of Defense, Robert Gates clearly identified that the world

is in an era of constant conflict and success will be less a matter of imposing one's will

and more of a function of shaping behavior – of friends, adversaries and more

importantly the people in between (Laughrey, 2008). The current shape of international

relations and the realm of international crises are changing. In recent history there is a

decreasing occurrence of traditional wars or even battles between other western states,

where culture, society, social structure, language and authority structures are already

known. The United States currently faces difficulty winning wars in areas of the world

where the cultures and societies are lessen known.

## Background of the Problem

Throughout history, cultural knowledge has provided outsiders with the crucial

knowledge of the thinking, intentions, and capabilities of others. The limited body of

literature has clearly indicated that there are limited documented situations or examples

of socio-cultural intelligence used in order to further develop the discipline. Meyer

(2009) illustrates the one example of where socio-cultural intelligence and the use of

socio-cultural information was well documented in the Occupation of Japan after World

II. McFate (2005) have researched situations where the use of socio-cultural intelligence

would have been beneficial to a certain situation, such as the Iraq War. The major issue

with attempting to develop the discipline is that there is no help from academia, including

the field of anthropology (Tyrell, 2007) for reasons that anthropologists feel that applying

the anthropological methodology to the study of an "enemy" would be implying that we

are spying. This inhibits the progress of the discipline, for socio-cultural intelligence is deeply rooted in the theory of Cultural Awareness, a theory based in academia, and thus will formalizing the intelligence discipline will be challenging without academia's assistance.

Currently, in the field of socio-cultural intelligence there have been attempts to develop the discipline without the assistance of anthropologists. Sorrentino (2011) has developed the definition of socio-cultural intelligence, but only in terms of it having a set of basic elements and what the discipline seeks to do. Pool (2011) argues that at present there are a large number of frameworks that different organizations can use and the attempts to answer questions about what exactly constitutes socio-cultural data. Authors, including Meyer (2009) have conducted research in terms of a case study to learn the historical application of socio-cultural intelligence. Delp (2008) has discussed the need for socio-cultural intelligence as an intelligence gathering discipline in itself, in terms of beginning to formalize the discipline. Patton (2010) has researched socio-cultural intelligence and its possible applications and has concluded that there is a lack of socio-cultural intelligence at the strategic level, which is where it would be most useful. Finally, Kleiner (2008) has concluded that generals and other military leaders need to have socio-cultural knowledge of their area of operation in order to be a more effective leader.

In terms of the people impacted by the issue of the lack of socio-cultural intelligence, the decision makers are the ones in need. In the military, leaders of all services have concluded that a misunderstanding of culture at the operational level can lead negative to public opinion; ignorance of a culture at a tactical level endangers both

civilians and troops. Lister (2011) further illustrates this point in his research indicating that a lack of cultural awareness will condemn a counterinsurgency effort to almost certain defeat. At the strategic level for policy makers, a misunderstanding of culture can produce policies that intensify insurgency situations (Kleiner, 2008). Thus policy makers with cultural awareness would have made more informed decisions potentially changing the current direction of wars and other strategic plans. Finally, business leaders are impacted when attempting to market penetration in a new company and if they do not know the culture, the business will ultimately fail for not gaining any customers and buyers of their good that does not suit that culture's needs.

In this discipline there have been efforts to begin discussions on that matter of unification and developing data in terms of methods to gather, and analyze it (Pool, 2011). There have also been conferences, including various members of the Intelligence Community, in order to begin the dialog of formalizing the discipline of socio-cultural intelligence (Friedland, 2007). Finally, there have been programs created in order to start the application of socio-cultural intelligence, including the Human Terrain System (Army, 2005). The Human Terrain System, designed in 2006 by the U.S. Army Training and Doctrine Command, was composed of civilians with social science academic backgrounds who would deploy with tactical units in bringing combat commanders knowledge of the location population. In 2008, the total number of teams deployed reached a high of 28 in Iraq, but it is too early to tell the impact of socio-cultural intelligence within these projects.

**Statement of the Problem**

It is not known how, and to what degree socio-cultural information impacts intelligence estimates. There has been no research into the understanding of socio-cultural information and its direct impact on intelligence estimates. If there is no clear understanding of the relationship between the use of socio-cultural information and the accuracy of intelligence estimates, then why continue to further the discipline that does not benefit the field of intelligence. The study intends to discover if socio-cultural information produces a statistically significant change in the accuracy of intelligence estimates. Many organizations, including government, military, and businesses have highlighted the need for socio-cultural knowledge. By using socio-cultural knowledge in the decision making process, the decision maker has one more type of intelligence available to predict how certain people or the enemy will react to a program, plan or product (Schmorrow, 2011). Secondly, there has been a minimal training and educational opportunities in terms of using this knowledge (Kleiner, 2008), for socio-cultural information is not clear and concrete and is hard to apply to an estimate. Finally, there is very little literature in terms of advancing the topic of socio-cultural knowledge (Coles, 2006).

**Purpose of the Study**

The purpose of the study is to examine if socio-cultural information and knowledge produce a statistically significant change in the accuracy of analytic estimates. The study is exploratory in nature, in order to establish a connection between socio-cultural information and intelligence estimates. This study intends to start at the base of the socio-cultural intelligence discipline by focusing on the direct effect that socio-

cultural information has on intelligence estimates, thereby assisting the field in terms of formalization and acknowledging the use of socio-cultural information in the Intelligence Community as seen with historical examples of applications or lack there of in previous literature. The method is quantitative in nature, as an experiment is the best way to identify and possibly control the variables, in order to see if the socio-cultural information has a measurable effect on intelligence estimates. By indicating yet another discipline that analysts can use to produce more accurate estimates, the field of socio-cultural intelligence can begin to become formalized and be used more often in the Intelligence Community.

## Research Questions

The research question addressed in this study revolves around the need to understand the effect of socio-cultural information on intelligence estimates. The goal of this study is to fill in the gap of knowledge about the direct effect of socio-cultural information on intelligence estimates, thus building the base for socio-cultural intelligence. The overarching question is does the use of socio-cultural knowledge produce a statistically significant change in the accuracy of analytic estimates? A sub-question that is also being studied is the concept of using one additional intelligence discipline impacting an analyst's confidence in the estimate. Using Mercyhurst University Intelligence Program students, the data will be easy to gather, but since the program is quite small, the data set has the potential to be limited.

## Definition of Terms

There are various definitions of socio-cultural intelligence, which range anywhere from existing as its own discipline used by military to analyzing socio-cultural data

produced in a weekly intelligence product form, to simply the understanding of various

cultures. For the purpose of this study the following terms are defined below.

**Socio-Cultural Intelligence**. Analyzed social, political, economic and other

demographic information that provides understanding of a people or nation's history,

institutions, psychology, beliefs (such as religion) and behaviors. Socio-cultural

intelligence helps to provide understanding to why a people act as they do and what they

think. It also provides a baseline for education and designing successful strategies to

interact with foreign peoples no matter if they are allies, neutrals, occupied people or

enemies (Coles, 2006).

**Socio-Cultural Information**. The social, political, economic and other

demographic information of a people or nation (Coles, 2006).

## Nature of the Study

The nature of the study is quantitative, as it will use experimental observation to

collect data. The rational for using an experiment is that an experiment is the best way to

identify and possibly control variables, in order to see if the variable socio-cultural

knowledge has a measurable effect on intelligence estimates.

## Relevance and Significance of the Study

Other studies have highlighted the need for formal socio-cultural intelligence by

examining previous historical examples where socio-cultural knowledge has been

beneficial to a certain situation (Meyer, 2009). Some studies provide a definition for

socio-cultural intelligence itself (Sorrentino, 2011). Authors have presented several

deficiencies with the current stance of socio-cultural intelligence. This includes the

Intelligence Community's need for socio-cultural intelligence as an intelligence gathering

discipline in itself (Delp, 2008). Another study highlighted the lack of socio-cultural intelligence at the strategic level and the failures that have come because of it (Patton, 2010). A recent study highlighted how generals and other military leaders need to have socio-cultural knowledge of the region or country in their area of operation in order to be a more effective leader (Kleiner, 2008). The US Army, in particular, has recognized the need for socio-cultural intelligence in terms of their Human Terrain Analysis (US Army, 2005), but this is often at the tactical or operational level and not the strategic level.

There is no literature or study conducted to date that seeks to understand the effect of socio-cultural information on estimates. The previous historical examples only illustrate when socio-cultural intelligence was used and the effect that it had on estimates and assessments. This does not clearly prove whether socio-cultural information changed the accuracy of analytic estimates, only that in the entire course of a war it aided decision makers in their choice of policies.

By understanding if socio-cultural knowledge increases accuracy, the discipline of socio-cultural intelligence can also be developed and formalized. Though there are examples in current military conflicts where socio-cultural intelligence is being used, it is very limited and is not uniform or formal. By having a clear answer to understand if socio-cultural information increases accuracy in intelligence estimates, this can then begin the process of developing the discipline of socio-cultural intelligence.

**Assumptions and Limitations**

The main assumption in this study include:

1) Socio-cultural knowledge will have some effect on intelligence estimates, whether or not it is statistically significant.

The rationale behind the assumption is that since socio-cultural intelligence is a new and fast growing field, with a variety of government, military and business organizations focusing on developing it, the socio-cultural information used to provide estimates to the decision makers in these fields must be useful. Also given that the Army and other groups use this information to make more informed decisions (US Army, 2005) (Friedland, 2007) and others have seen historical examples where using socio-cultural information has proved beneficial (Delp, 2008) (Gavriel, 2010).

Delimitation in this study is conducting an experiment at Mercyhurst University. The experiment uses a potentially small sample size by only asking students in the Intelligence Studies program at Mercyhurst University, which will affect the statistical robustness of the results.

The study findings can be easily applied to different types of organizations including the Intelligence Community, the military and business organizations. Decision makers in all these organizations have the desire and need for all available information and analysis, and the need to develop the field of socio-cultural intelligence. The findings of this study can help develop the field and begin to address the intelligence gap for decision makers.

## Organization of the Study

Following this introduction will be a review of the literature available both in terms of theory and methodology. The next chapter is an explanation of the study's methodology in detail including the experimental questions. The fourth chapter contains the results of the experiment. Finally, the last chapter contains the conclusion, which includes discussion section as well as suggestions for further research.

# LITERATURE REVIEW

## Introduction to the Literature Review

Since the end of the invasion of the Iraq War, coalition forces have been fighting a complex war against an enemy they do not understand. Many authors and military officials have advocated that countering the insurgency in Iraq requires cultural and social knowledge of the adversary. According to McFate (2005), none of the elements of the U.S. national power, whether it be diplomatic, military, intelligence or economic explicitly take the adversary's culture into account when making assessments and estimates.

## Theoretical Framework

Being culturally aware is a more complex issue today than ever before, and without this understanding the United States cannot develop and execute effective strategies to win the War on Terrorism. Sun Tzu proclaimed over 2000 years ago, "if you know yourself but not the enemy, for every victory gained, you will also suffer defeat" which can be interpreted as it is hard to defeat an enemy you do not understand. Based on this statement, cultural awareness has been researched in its application to military strategies and military doctrine.

### Definition of Culture

Before discussion of cultural awareness and its importance in military strategists, it is key to define what culture is. There are various definitions of culture, for one definition can include knowledge, belief, law and customs acquired by man as a member of society (Tylor, 1873). Goodenough (1957) concludes that culture can also include the discussion as the necessities that one must know in order to behave appropriately in any

of the roles assumed by any member of a society. Culture can also consist of origins, values, roles and material items associated with a particular group of people. This definition can include thoughts, behaviors, and patterns of communication, customs, beliefs, values and institutions (Arcuri, 2007). But it is clear to note that some anthropologists suggest that culture is not any collection of things but rather it is a process that aids to provide partial solutions to frequently encountered problems (Hutchins, 1995). Through all these definitions and ideas on culture, one commonality is the discussion of standards, norms and rules defining what entities and actors exist in a system and how they operate and relate with each other.

In order to be a participant in the international sphere, there is a requirement to operate effectively which involves an understanding of the various political, economic and cultural factors that influence decision-making in other countries. Simple misunderstanding of culture at the strategic level can produce policies that aid an insurgency, little cultural knowledge an operational level can lead to negative public opinion thus hindering a mission, lack of cultural awareness at the tactical level can endanger both civilian and troops (McFate, 2005). Cultural awareness provides a force multiplier, for cultural awareness aids in creating alliances, leveraging nonmilitary advantages, building trust and converting opinions.

**Theory of Cultural Awareness**

Cultural awareness has been defined as the ability to recognize and understand the effects of culture on people's values and behaviors (Wunderle, 2007). As with Wunderle's definition of cultural awareness, the author implies that an understanding of cultural terrain in terms of military operations is necessary and knowledge of cultural

factors are important for a given situation, and a specified level of understanding for a target culture.

To understand cultural awareness, it is necessary to understand the levels of the cognitive hierarchy. The cognitive hierarchy dictates that levels of understanding can seen as four levels:

1) Data, which consists of informational signals detected through human, mechanical or electronic means.
2) Information, which the next level where the data has been processed to provide further meaning.
3) Knowledge, which is the information is analyzed to provide meaning and value, or evaluated as to implications for the operation.
4) Understanding, is knowledge that has been synthesized and had judgment applied to it in a specific situation to allow for comprehension of situation's inner relationships.

With this information, the cultural awareness can be understood in a similar hierarchy. In terms of a military context, information gives structure and shape to military operations and this model of cultural awareness can be used as a framework for training, planning and executing military operations. It is important to note that the capabilities of understanding cultures are symbolized here as levels in the pyramid because personnel with different types of responsibilities require different levels of cultural awareness (Eldridge and Neboshynsky, 2008).

The levels of cultural awareness is not a simple do or do not do kind of knowledge, but one that provides various levels of capabiltiies for understanding cultures and applying one's understanding to the situation at hand (Wunderle, 2007). An explanation of the levels is as follows:

- Cultural Consideration ("How and Why") is knowing how and why to study culture and where to find cultural factors and expertise.

- Cultural Knowledge (Specific Training) is exposure to the recent history of a target culture (including cultural niceties and survival language skills).
- Cultural Understanding (Advanced Training) refers to a deeper awareness of the specific culture that allows general insight into thought processes, motivating factors and other issues that directly support the decision-making process.
- Cultural Competence (Cultural Intelligence) is the fusion of cultural understanding with cultural intelligence that allows focused insight into planning and decision-making for current and future operations.

This theory of cultural awareness explains that an understanding of cultures is critical to the War on Terror being conducted today for it is crucial to the long-term relationships that the United States has with the local populations it works with as well as the strategic level with producing policies to outthink the enemy.

**Theory of Cultural Awareness and Its Link To Cultural Intelligence**

Cultural Awareness, as previous discussed can be a force multiplier for it has the ability to reduce battlefield friction and the fog of war. It can also improve the military's ability to accomplish its mission by providing insight into the intent of the groups in battle, thus allowing military leaders to outthink and outmaneuver them (Wunderle, 2007). Cultural awareness is also necessary for post-conflict stability and support operations, much like the ones that is occurring more frequently in world.

Understanding an adversary requires more than intelligence from agencies and satellite imagery; it requires an understanding of their interests, habits, intentions, beliefs, social organizations and political systems in other words their culture (Lister, 2011). The military and intelligence agencies relied on intelligence-gathering tools and methods left over from the Cold War, an enemy and a culture we could understand. An intelligence specialist could use data collected from overhead sensors and satellites to spot convoy

movement or count vehicles halfway around the globe. But despite this information, he could not predict how the enemy intended to fight (Arcuri, 2007). The military is still fighting an enemy they do not know or understand.

The lessons are clear, there is no substitute for human eyes and brains. As seen in a comment by a returning commander from the 3rd Infantry Division who observed: "I had perfect situational awareness. What I lacked was cultural awareness. I knew where every enemy tank was dug in, only problem was, my soldiers had to fight fanatics charging on foot or in pickups and firing AK-47s and rocket-propelled grenades. Great technical intelligence, wrong enemy" (McFate, 2005). As his statement indicates, simply understanding enemy's location or weaponry does not dictate the style of fighting or possible adaptations necessary. Rather, it requires understanding of their culture, which will better understand what motivates them. This will not necessarily always enable military and intelligence analysts to predict what the enemy and noncombatants will do, which is where Socio-Cultural Intelligence steps in.

## Review of the Critical Literature

Socio-Cultural Intelligence as a formal form of analysis has been examined in extremely limited historical situations where it has been used and successfully aided in war or rebuilding efforts. Limited research has also been completed to understand what the outlook of a situation would be if socio-cultural intelligence would have been applied. Thirdly, there are growing examples where forms of socio-cultural intelligence are currently being utilized but it is too early to tell whether culture changes intelligence assessments. Finally, businesses have begun to realize the need to understand culture and

societies but thus far the field of international marketing research has frameworks that are individualistic in nature and not considering culture as a whole.

**Limited Historical Examples**

One well-documented success of using socio-cultural information to make assessments was the use of global scouts in the British Army in the late 19th century who produced their socio-cultural intelligence estimates that assisted British military in their strategies and ventures. These scouts were bright English officers sent to various corners of the world to immerse themselves in the cultures of the empire. One very famous British Global Scout was T.E. Lawrence who worked for the British Army as an intelligence officer in Egypt in 1914. Great Britain's success in Basra can be linked to the knowledge of the foreign culture in order to make an accurate assessment (Kleiner, 2008).

Socio-cultural intelligence has been applied in various war and peacetime efforts throughout history.  In World War II, anthropologists were recruited from universities and other forms of academia to assist in the war effort. More than half of American anthropologists used their knowledge, skills, and methodologies in social research; this proved to be extremely beneficial to the US military. They helped gather military intelligence, including using their first-hand knowledge of a given culture to pinpoint possible social weaknesses in enemy nations.

Anthropologists also participated in more facets than military intelligence. Price (2008) states that particular anthropologists used their cultural knowledge to "spread lies under OSS black-propaganda operations" (p.120). Another particular anthropologist, Philleo Nash, whose primary duty at the Office of Facts and Figures was to compile

public and secret reports on domestic wartime racial clashes for President Roosevelt's administrative assistant. In August 1943, Nash monitored increasing racial hostilities in Detroit as unemployment and rationing increased. Nash was able to identify animosity between blacks and whites, resulting in a mob attack. Nash's work was described as "tracking and analysis of the rumors surrounding these events allowed the government to identify specific locations where violence was likely to occur (p. 139)." This is one example that Price highlights that anthropologists used socio-cultural information to form an assessment. This assessment was successfully used and provided law enforcement with knowledge on a specific area and or target.

After World War II, the United States was responsible for rebuilding Japan. American forces entered a very different world and began a nation-building mission unlike any other in previous US history. General MacArthur and his mixture of military and civilian personnel were tasked with shaping and governing a foreign society unlike their own.

Multiple organizations were responsible for presenting "civil intelligence", in terms of processing social science research and provided MacArthur's headquarters with vital socio-cultural intelligence key to assessing Japanese behavior patterns and reactions to occupation reforms. In the research conducted by Meyer (2009), the Research and Analysis Branch of the Civil Intelligence Section's Operations Division provided classified intelligence reports. Meyer (2009) also concluded that the Public Opinion and Social Research Division of the Civil Information and Education Section, relied on poll data and more scientific sociological research methods to produce unclassified assessments.  Finally, the Civil Intelligence Section's Research and Analysis Branch

produced quality reports and assessments summarizing and analyzing threats to demilitarization, named "Occupational Trends," by reading newspapers, government papers and talking to the local population (Meyer, 2009).

These analytic organizations centered on using socio-cultural information to provide assessments on the Japanese thought process and societal dynamics that were essential in the successful demilitarizing and democratizing in Japan. It is also important to note that the analytic framework established by these organizations headed by MacArthur serves as a model of how to process and produce foreign socio-cultural intelligence and research during a nation-building campaign.

**The Absence of Application of Socio-Cultural Intelligence and Implication**

There are scarce case studies, analyzing the use of socio-cultural intelligence and its success in terms of war or nation building. However, a few authors have researched socio-cultural intelligence and how its application in an historical situation, such as a war or invasion might have changed the results. One example includes the Cuban Project, otherwise known as Operation Mongoose. This operation was an example of how the United States assumed that they possessed all the hard intelligence that was necessary to spark a revolt in Cuba. After the failure with the Bay of Pigs, the United States was growing extremely concerned about Cuba's growing ties with the Soviet Union and the potential influence that the Communists would have on Castro's Cuba. In attempt to develop support from the Cuban people, the United States arranged to have operatives placed in the country. However; due to the act that very little was known or understood about the people of Cuba, their patriotism and their dedication to Castro and his regime, the attempt to launch the desired revolution failed" (Sorrentino, 2011, p. 3).

As clearly indicated above, if socio-cultural intelligence would have been gathered along with geographic and historic information, the Cuban Project might have had a greater possibility of being successful.

One large-scale failure that could have been prevented, if socio-cultural information had been used, was the invasion of Iraq in 2003. Laughrey (2008) concluded that the US's strategic assessment of Iraqi culture was flawed on two counts. First, the intelligence community and the military interpreted membership in the Ba'ath Party as being "Pro-Saddam" instead of realizing that some individuals were members for employment purposes. The second flawed assessment was that interpretation of anti-Saddam attitudes as pro-American attitudes, which resulted in the Iraqis' resentment of foreign forces in their country. By not fully understanding the population that the US military would encounter, there was miscalculation in the initial invasion and nation re-building within Iraq. According to Delp (2008), the War on Terror has achieved limited success due to a lack of cultural understanding and cultural knowledge of the native populations inhabiting the battlefield.

**Possible Applications of Socio-Cultural Information**

Other studies have examined the possibility of using cultural knowledge to assess situations. One study examined Project Camelot, which was developed in 1964, but was cancelled after Congressional hearings in 1965. The project, as Fitzgerald (2008) notes, sought to develop a general social systems model that would facilitate the prediction and influence of political change in foreign countries by examining particular cultural indicators. The development of the concept for the project was a direct result of a review by the Office of the Chief of Research and Development in the US Army. The review

revealed that there was a "very incomplete knowledge and understanding in depth of the internal cultural, economic, and political conditions that generate conflict between national groups" (Lowe, 1966, p. 44).

The first area to be studied was Chile, where a professor of anthropology had approached the Office of the Chief of Research and Development and informed the office that he would be in Chile on other business and would like to discuss the feasibility of conducting a study of social change in Chile. Ambassador Dungan of Chile came across the plan and pleaded ignorance of Camelot and suggested that Camelot was a secret operation of the CIA. Thus, according to Fitzgerald (2008), the project never made it past the planning stages. With the project never fulfilled, the Army and the rest of the intelligence community would never understand if cultural indicators could predict and influence political change in foreign countries.

Given how the formality of socio-cultural intelligence is quite new there are situations where cultural knowledge is currently being used in making assessments, but it is too early in these projects to determine if socio-cultural intelligence is beneficial. Both programs have been developed recently in response to the soldier's need for cultural knowledge in Afghanistan and Iraq.

In 2003, the Foreign Military Studies Office within the US Army established the Human Terrain System. The goal of the system is to integrate socio-cultural knowledge of the local population to military operations in support of the commander's objectives. The system deploys academics to combat zones attached to brigade and regiments, and are legally prohibited from collecting actionable intelligence. Champion (2008) notes the role of HTTs, Human Terrain Teams, is to advise soldiers and leaders on how to interact

with locals and to help them understand the problem. The idea behind the HTTs is that these teams report back cultural information to a center, which then compiles and analyzes and gives assessments to the commanders at the tactical and operational levels. Since there are only six Human Terrain Teams that have been put into place since 2003, it is too early to tell how cultural knowledge affects the assessments that HTT's produces. The number of teams is too small to understand if the Human Terrain System is beneficial to the heads of military.

There have been many arguments for and against the Human Terrain System. Anthropologists state that the Army program violates the American Anthropological Association's Code of Ethics and recommends that commanders should focus on training military intelligence personnel in anthropology and sociology (Champion, 2008). Other military authors, such as Connable (2009), have stated similar actions including that the military has cultural information inextricably linked to the intelligence process already. The next step would be to simply conduct training and education in-house in order to gather and process cultural information for assessment and estimates. Finally, Connable (2009) also argues that Human Terrain System does not follow intelligence doctrine and thus cannot be supported by the current military system. In other words, HTT is a poorly thought out effort to bridge the gap that undermines sustainable military cultural competence. By only attempting to bridge the gap, and to not use current military intelligence protocols and methods already in place, it will be an uphill challenge for socio-cultural intelligence as a discipline.

In 2008, the DOD's Division of Research and Engineering created the Human Social Culture Behavior (HSBC) Modeling program. This program relies on the Socio-

Cultural Behavioral Capability Areas Framework that has four sets of capabilities which include: capabilities to support thorough perception and comprehension of the socio-cultural features and dynamics in an operational environment; capabilities to discover, collect, process and analyze socio-cultural behavior data; capabilities to track and forecast change; and the capabilities to develop, prioritize, execute and measure COAs grounded in the social and behavioral sciences. The Human Social Culture Behavior Modeling program is more of the foundational building blocks necessary to continue the research and development of socio-cultural intelligence compared to the Human Terrain System. This system, unlike Human Terrain System, is examined and analyzed uses current doctrine and protocols to achieve results and is seen as a sustainable solution as seen by Military Foreign Area Officers. Schmorrow (2011) advocates that this is simply the start and, since it is too new, it cannot be fully analyzed.  Though, the author does state that DOD would benefit from having a broadly accepted vision for a Department-wide socio-cultural behavioral capability. This possibility of application would be very beneficial for the discipline of socio-cultural intelligence as it is grounded in academia.

**Lack of Socio-Cultural Research in the Field of Business**

In the field of international marketing research, culture has been studied and analyzed for the failure to take cultural differences between countries into account has been the cause of many business failures. Though the topic of culture has been researched and understood to be a powerful force shaping people's perceptions, dispositions and behaviors, there is limited research in the role of national culture in international marketing research. Currently, there are two main national cultural frameworks used in businesses (Steenkamp, 2001).

Hofstede developed one national cultural framework in the early 1990s that has been the most influential national cultural framework. Hofstede derived and defined four dimensions of cultural variation: individualism/collectivism, power distance, masculinity/femininity and uncertainty avoidance. Using a combination of qualitative and quantitative research, Hofstede analyzed that these dimensions are based on four fundamental problems which society faces: the relationship between the individual and the group, social inequality, social implications of gender and handling of uncertainty inherent in economic and social processes. The issue with Hofstede's research when comparing it to the undeveloped field of socio-cultural intelligence is that Hofstede's work is focused on the individual versus the collective including the goals of the individual versus the goals of the collective (Steenkamp, 2001). The research doesn't take into account the norms by which dictate the dimensions, only that the dimensions exist. The national framework does not answer the why question to which socio-cultural intelligence aims to answer, only that there is a difference in the culture.

The second national cultural framework was developed by Schwartz, whose research is based on human values but is not well known in marketing. He identified three basic social issues: relations between individual and group, assuring responsible social behavior and the role of humankind in the natural and social world. Schwartz's research focuses on the role of the individual within society and examines the extent to which a society views the individual (Steenkamp, 2001). This research again delves into the topic of the individual within the society but not the society as a whole and the how and why societies and cultures do what they do.

If the field of international marketing research would continue to research the topic of culture and society beyond the limited research examined, businesses would have the ability to understand the why factor. This includes why a particular culture has a particular norm and beliefs not just that there is a difference between beliefs and norms. This is where socio-cultural intelligence can begin to assist strategic decision makers in the business field to become more focused on culture beyond the individual.

## Review of the Methodological Literature

Socio-cultural intelligence, as seen with the applications previously explained above, has never been formally researched and thus the analysis of cultural information when applied to assessments can only be explained in a limited scope when examining case studies. There are three reasons why an experiment in is the best way to study the effect of cultural information when applied to assessments. First, the application of socio-cultural information is not formal and thus not uniformly and adequately used in historical and current situations previously discussed. Second, socio-cultural information is not straightforward enough and with current literature the limited number of socio-cultural assessments is difficult to analyze the overall effect. Thirdly, the Joint Doctrine definition of intelligence does not emphasize culture enough to understand the effect of cultural information on assessments, thus not aiding to research using the previous historical examples. Finally, without the assistance of academia to further socio-cultural intelligence and due to ethical scandals in the past, it will be challenging to examine this topic in the form of case studies.

**Informality and Inconsistent Application of Socio-Cultural Information**

As previously discussed, socio-cultural information has been applied to assessments made in historical situations, but as also observed in these cases, the information was not uniformly applied. In the case of Japan in 1945, analysts were polling the local population and reading newspapers to understand the culture and society. In the case of World War II, anthropologists used their previous and academic knowledge of the German culture to produce assessments made during the war effort. Patton (2010) argues that if socio-cultural intelligence were to be formalized, then the application of cultural information to intelligence estimates would be uniform and thus easier to apply to current situations such as the Iraq War. This is because socio-cultural intelligence as an official function of the intelligence elements provides the additional data that "would enhance decision makers' situational awareness, bettering their abilities to succeed" (p. 25). The cultural information and data would be clearly uniform across all branches of military and across the intelligence community.

According to Delp (2008), socio-cultural intelligence has not been adequately used to gather information on the human terrain. Because of this, there are limited methodologies to examine if socio-cultural intelligence has been used to its best advantage. By conducting an experiment, it would be clear in the results whether applying cultural information to an assessment would be create more accurate estimates and assessments.

The application of cultural data to assessments has not been used uniformly across various conflict and crisis situations, and thus understanding the use of cultural data on

the production of assessments has not been clearly seen throughout history. McFate

(2005) states that:

> Although success in future operations will depend on application of cultural
> awareness on knowledge of the enemy, the DOD currently lacks the programs,
> systems, models, personnel and organizations to deal with either the existing
> threat or the changing environment (p. 46).

In the current state, there are a large number of different modeling frameworks,

approaches, programs and systems that are not widely accepted across the broad

collection of people who develop and use this type of information across the agencies

(Pool, 2011). By having one system or program that can be used by all agencies, the use

of cultural information in making assessments will be more uniform and thus easier to

study. Conducting an experiment would allow research into the application of cultural

information, thus allowing the reader to clearly understand the results of one type of

application of cultural information on an assessment.

**Flaws with Socio-Cultural Data**

There have been various conferences and discussions on what socio-cultural

intelligence and cultural information and data are, so inherently there are questions about

what exactly constitutes sociocultural data. Pool (2011) clearly states that the major

reason for the debate and questioning is that socio-cultural data is not straightforward or

concrete; the data is inherently debatable.  By not having information or data that is clear

and concrete, it is hard to apply the information to an assessment. Creating an experiment

using socio-cultural information in its application to an assessment will allow further

research to be conducted on the topic, since the experiment will contain only one

example of socio-cultural information.

In 2006, the MITRE Corporation hosted a conference on the discussion of Socio-Cultural Intelligence with a goal to define what the intelligence is and begin the conversation regarding culture, analysis and its application. At this conference, the topic of data was discussed and debated because again, new socio-cultural data is not straightforward. As Friedland (2007) states, the conclusion of the debates and discussion of the conversation is that the data necessary is best collected by immersion in the target environment, and has a strong emphasis on HUMINT. The collection of the data is labor intensive, and has a temporal dimension, and thus we "need to have a baseline in order to recognize significant change over time and grasp the significance of the change" (Friedland, 2007, p. 14). Since this is a new kind of data than that of the Cold War as the author suggests, it is not helpful to examine previous applications of socio-cultural data on assessments and thus experimentation would be the only true way to understand the effect of socio-cultural information on assessments.

Finally, the raw socio-cultural data that has previously been gathered in addition to analyzed socio-cultural data is not easily accessible. With the newly created Human Terrain System Project, there are only six teams in the field and only one reach back center to gain the analysis once completed by the reach back cell (Human Terrain System Project). By not being able to access the final products of the reach back cell easily, researchers cannot analyze the final product or the socio-cultural information gathered along with the confidence of the user. This further diminishes the possibility of studying the current examples of the application of socio-cultural data. An experiment would be capable of indicating the effect of using socio-cultural information on an estimate.

**Lack of emphasis on Socio-Cultural Information**

The final reason why conducting an experiment using socio-cultural information on assessments will be the best way to research the effect of the information on assessments is that the Joint Doctrine definition of intelligence does not emphasize the need to understand foreign cultures. Without the necessary emphasis to apply cultural theory and cultural information to estimates, socio-cultural information has not been adequately applied to previous assessments. Coles (2006) states that the lesson of including cultural intelligence into joint intelligence effort and doctrine has not been learned and thus not seen in history. Historically, cultural knowledge and the application of cultural information to assessments has never truly been a priority within the Department of Defense and many of the current U.S. military intelligence disciplines are techno-centric, relying on Cold War tools and methods (Kleiner, 2008). Using case studies to examine where cultural information has been applied to assessments does not provide enough examples in history to fully understand its effect. Intelligence doctrine for process and planning does not "adequately direct the join force commander's intelligence establishment to prepare estimates on the characteristic features of foreign peoples (including civilizations, beliefs and social institutions)" (Cole, 2006, p. 7).

**Lack of Assistance from Academia for further development**

Applying socio-cultural information on assessments is based on an anthropological research method, and this raises ethical issues when applying anthropological techniques to counter-insurgency operations. It is important to note that anthropological and ethnographical information applied to assessments and estimates for the purpose of pacification has been done in the past. This was mainly seen in World War

II, but due to ethical scandals and other ideological issues anthropologists have since condemned the U.S. military's use of anthropologists to effectively spy on the enemies (Tyrell, 2007). By not having academic support where this type of information and techniques derive from, it will be challenging to study previous historical situations and develop the field. This reason is why conducting an experiment will be much more beneficial to study the effect of socio-cultural information on assessments and estimates.

Socio-cultural information is not straightforward enough and due to the inherent nature of the information, it is not as easily applied to assessments as other forms of information. As stated previously, the Joint Intelligence Doctrine does not emphasize culture enough and thus not aiding to research using previous historical examples. Experimentation is the best way to understand the effect of socio-cultural information on assessments. Finally, due to previous historical situations of using anthropology and anthropologists, there is now a strong disconnect between academia and the field of intelligence including military intelligence that inhibits examining previous historical situations.

## Chapter 2 Summary

Though the application of socio-cultural information to assessments is thought of to be important in regards to its impact upon decision makers throughout time, this field has not been widely researched and examined. Through these minimal historical examples, it is clear that the application of socio-cultural information to assessments and estimates is not formal and not uniform. This leads to further research on the matter being conducted in the form of an observational experiment in order to understand the effect of the application of socio-cultural information on assessments.

Also as stated previously, there were conversations and conferences discussing what socio-cultural information is and what it is not. Authors have concluded that the data is not as straightforward as other types of intelligence information is, and thus not inherently debatable. This is challenging in terms of finding analysis of historical applications of socio-cultural information to assessments but also is challenging for current research in this topic. In addition, there are challenges when examining current applications of socio-cultural information for the ability to access the analysis of those who used socio-cultural data and information. Programs are either too new or too small to fully understand the effect that socio-cultural information has on the estimates they have produced. By conducting an experiment with defined socio-cultural information, research can be conducted on the effects of the information on assessments.

Finally, with the DOD's and Joint Intelligence Doctrine's lack of emphasis on the need to develop the discipline of socio-cultural intelligence and the application of socio-cultural information, there is a lack of understanding on how socio-cultural information truly impacts assessments and estimates given to decision makers. Conducting an experiment would be the best way to clearly see and analyze the effect of cultural information on assessments.

# METHODOLOGY

## Introduction

The goal of the research was to understand the effects of socio-cultural intelligence on analytic assessments through an observational experiment. The experimented consist of unprocessed information on the current situation in Mali as well as historical and cultural information to be given to the experimental group. The research design aimed to analyze the effect of cultural information on assessments by identifying whether or not this type of information leads to more accurate and reliable assessments. In theory, decision makers will have a better knowledge of a situation, beyond the current activity at the time and thus have a greater potential to possibly end a conflict without violence or to have a quicker resolution.

The experimental question related to the recent situation in Mali regarding whether or not the government will enter autonomy talks with the separatist group, the Tuaregs. This question was developed to capture both the complexities of the current situation and the intricate requirements needing to answer the question, including understanding of the culture and history of the area. This question was given to undergraduate and graduate students in the Intelligence Studies and Applied Intelligence programs at Mercyhurst University due to the access to a maximum number of desired participants. Once estimates along with questionnaire forms were completed and the event had concluded, the results from the two groups were analyzed using statistical software. The goal of the statistical analysis was to understand the effect of socio-cultural intelligence on analytic estimates and to measure direction of observed change, the

amount of the change, and the ease which the participant used the socio-cultural information.

## Research Design

This study used an experiment to answer the research question. The author first began researching current situations covered by the news. The goal of the news search was to find a situation with enough coverage to make the results meaningful. But the topic chosen had to be one that was not being covered daily and that not everyone would know in great detail, thus impacting the experiment and the results of the estimate.

The second impact on the research design was to pick a topic that had the potential to be repeated. The author began focusing on international crises involving some cultural aspect that either had the potential to spawn other international crises, such as the Arab Spring. From there, the author began the focus in detail on African nations, and in particular the situation in the country of Mali. Due to the military takeover of the Malian government in early March 2012, the country has been unstable. The Tuareg rebels, similar to the ethnic situation with Kurds in Iraq, had declared independence of 'Azawad state' in the northern half of the country. Once independence was declared, the Saharan branch of al-Qaeda quickly took over, effectively ruling the northern area of Mali and establishing a harsh form of Islamic law. The nomadic Tuareg population has been fighting over land and cultural rights since the early 1990s, (BBC News Africa Mali Profile). If the Mali government grants independents or recognition to these people such as other countries have done, other separatist groups in the region might attempt to declare independence of their region as well. This potentially could cause instability within the region.

From there, the author had to narrow down the topic further to include a situation that was resolvable by February 2013; this would determine which of the estimates produced during the experiment were either correct or incorrect. The experimental question is "Will Mali government enter autonomy talks with the Tuareg population by February 15th?"

Once the topic was decided upon and the experimental question formed, the author gathered news coverage from various open source outlets and historical and cultural informational from reputable sources. Though both groups would have differing information, whether it be socio-cultural information and news or just news on the topic, both had the same amount of data over all in order to produce their estimate.

## Selection of Participants or Cases

The population for the experiment was the undergraduate and graduate students in the Mercyhurst University Intelligence Studies and Applied Intelligence programs. The characteristics of the participants would be students who are interested in intelligence and have prior experience and knowledge of providing intelligence estimates. The desired sample size was 100 participants. Incentives such as bonus points were used in some classes to entice more people to take part in the experiment. Inclusion criteria were those individuals that are alumni of the Mercyhurst Intelligence program. Exclusion criteria was any individual who has no previous experience or education in the intelligence field.

## Instrumentation

Since the author will be conducting an experiment, the study used a variety of questionnaires and forms for the participants to answer questions. Some forms were provided to both groups that contain the experimental question; this was used to compare

results between the two groups. Other forms were only given to only the experimental group; this included the post-experimental survey.

The background questionnaire was presented to both groups. This questionnaire consisted of four questions that are designed to determine the participants experience with intelligence estimates and the current situation in Mali. The first question asked for the year in school. The second question asked for the participants experience in producing intelligence estimates, which can range from 1 to more than 20. The next question was in regards to how many national security related intelligence estimates the participant has produced. Since most socio-cultural information is used in national security related estimates, it was necessary to understand the participant' previous experience with producing this type of intelligence estimates. The final question on the background questionnaire was meant to measure the participants' experience with the current situation in Mali. The responses that the participant can choose from are:

- I have no prior knowledge of the current situation in Mali
- I only have knowledge from news coverage on the situation
- I have completed minimal research on Mali
- I have completed a country study (or similar level of research) on Mali

It is important to note that the author did not exclude any participant due to their previous knowledge on the situation on Mali.  The question was simply to measure the participant's level of knowledge prior to the experiment.

The experimental group received a post-experimental survey in addition to the other questionnaires completed prior to the experiment. The author intended to use the survey to understand the analysts' reaction to using socio-cultural information in their experiment. The first question simply measured the ease of understanding socio-cultural information itself. The second question measured the ease of application of socio-cultural

information. This question was designed to understand if analysts have access to this type of information, will it be used or if too challenging, will it be ignored. The last question was a self-reflection on how much that participant thinks that socio-cultural information will impact their accuracy. This question was to measure the perceived idea that the participant has about the accuracy of their estimate when using socio-cultural information. This study was not designed to understand the perceived and possible overconfidence in producing an estimate, only to note that the possibility exists and thus must be accounted for.

## Data Collection

There were two sets of data being collected. One set of data was related to the estimate itself in terms of the accuracy of that estimate. This was collected from the answer from the experimental question form. The second set of data was the response to the question about the ease of which the experimental group participants use the socio-cultural information within their estimates. The experiment was conducted multiple times throughout the month of January 2013, in order to reach 100 participants.

## Pilot Testing

Four members of my cohort were used as part of the pilot test to ensure that all questions are clearly understood and easy to answer. They had limited previous knowledge on the topic of Mali and thus were good representation of the participants in the experiment. Their input ranged from critiquing of the questions on the forms as well as the experimental question itself to ensure that the study procured appropriate answers in order to understand the effect of socio-cultural information on estimates. This was a

continuous process before submission of the forms to the Institutional Review Board and the experiment itself.

## Data Analysis Procedures

The estimates were evaluated, as well as the responses from the experimental group about using the socio-cultural information with their estimates. The estimates were compared to the result of the event, thus turned into the data that will be analyzed. This raw data was organized by using an Excel worksheet, which was later used to import data into Statistical Package for the Social Sciences (SPSS).

The data was reviewed using advanced statistical techniques. Regression models were created to determine how strong the correlation is between socio-cultural information and intelligence estimates and if such relationship is significantly significant. SPSS was also used to calculate the correlation coefficients for analysis of the effect of socio-cultural information on estimates. Descriptive statistics was also used to visually represent the data and show any differences in the experimental group results compared to the control group results.

To maintain confidentiality, the only documentation containing the names of the participants is on the informed consent forms that were kept in a separate location from the rest of the data of the experiment. Also the data was collected on the aggregate level, so each participant's individual estimate is not included, they are simply labeled Estimate #1, Estimate #2 etc.. The background questionnaire and post-experimental survey was linked to the estimate given by that individual and labeled accordingly. Finally, once the data was entered into Excel, the forms were kept stationary and thus confidentiality was maintained.

## Limitations of the Research Design

One limitation with this study is that there was small data set to use based on the qualifications required to be an appropriate participant for the study. But, it is possible that although a smaller data set was used, the effects might be strong enough to show relationships and trends to continue research in this area.

The second limitation with this study is the reliance on using Mercyhurst University Intelligence Program students in attempt to control for other variables within the data set. It is possible that participants outside of the Mercyhurst program would have different experiences, knowledge base, or the possibility of being familiar with using socio-cultural information in the estimates they produce but it would be more challenging to gather data from outside the Mercyhurst Intelligence program.

## Internal Validity

It is important when conducting an experiment to fully ensure that the research has internal validity in order to conclude that the changes in using socio-cultural information potentially causes the changes in the estimates. One important element of internal validity is the random assignment of the independent variable; this was achieved in the experiment as socio-cultural information was randomly supplied to the participants. Although randomization does not perfectly balance all possible explanatory factors, it is often viewed as the best way to attempt this.

Another important element of internal validity when conducting an experiment is the discussion of blinding. By having the participants not know which group they were a part of, this again reduces internal validity error. If the participants knew which group they were in and whether or not they were given the socio-cultural information, this could

skew results as results would be examining the *effect of believing* they used the socio-cultural information to generate their estimate rather than the *effect of socio-cultural information* on the estimate.

The research was based on a double blind experiment. Participants sat at computers that were designated as control or experimental group and the author did not know which participant was a part of each group. This prevented confusion, for the while conducting the experiment, the author did not encourage the experimental group in particular to take more time since the author did not know which of the participants was in the experimental group. Using the double blind experiment also assisted in lessening the confusion during the assessment period as well.

The final item that can cause poor internal validity is the omission of a control group. By using a control group in an experiment, it represents a baseline for the subject so causality can be determined. By using a control group this minimizes internal validity error and provides a higher confidence that socio-cultural information has an effect on estimates and not simply due to other explanatory variables.

**External Validity**

When designing the experiment, the participants are the individuals who decide to take part of the experiment. By participants volunteering, this allows for external validity for participants are randomly deciding to participate in the experiment and thus the subjects are not chosen. This also helped to lower the amount of potential dropouts from the experiment, for the experiment itself did not take long, and the participant had volunteered to be a part of the experiment, though participants had the option of not completing the estimate.

One thing that may be in question is if the sample population truly represents the Intelligence Community. Given Mercyhurst Intelligence Program standards and the education the program provides, it can be understood that this population is an adequate sample of the Intelligence Community. Also if the experiment is extended to members of the Intelligence Community, the author cannot control for differences in experience, or if they use socio-cultural information or a related type of intelligence. By using the students in the Intelligence Program, the sample had the most similarities between the participants.

## Ethical Issues

Though this is an experiment, there were no harmful effects or risks anticipated to the participants. The participants who do not feel comfortable during any part of the experiment could leave without needing to provide any reason. Participants were not deceived in any manner, they were told to use only the Internet sources on their list and produce an analytic estimate.

## Chapter 3 Summary

The research design used an experiment where students of the Mercyhurst University Intelligence Program will participate. By conducting a double blind experiment, the participants were separated into two groups, and all participants were treated equally. Both groups were asked to produce an analytical estimate using only the Internet sources provided to them. Then, the experimental group were asked to complete a post experimental survey on their experience using socio-cultural information with their estimate.

The experimental question, "Will Mali government enter autonomy talks with the Tuareg population by February 15th?" conveyed the current situation in Mali. This

question was chosen due to the cultural aspect of the topic. This situation has been going on since the early 1990s and resembles the situation of the Kurdish population in Iraq. Finally, if the Mali government grants independence or recognition to the Tuareg population, this could cause instability in the region.

The analytical estimates were examined on February 15$^{th}$ to determine accuracy. Once the data was entered into Excel along with the responses to the post experimental survey, statistical analysis was run using regression models to understand the correlations, along with descriptive statistics to represent the similarities and differences between the two groups.

Due to the inherent nature of conducting an experiment, there were several threats to validity that had to be addressed. In terms of internal validity, randomness is important. Participants that have access to the socio-cultural information was determined by who sat in seats that have Internet websites containing such information. Another important element aiding to internal validity is blinding. The experiment was a double-blind study so the researcher did not know who was a part of the control group or the experimental group. Finally, in terms of external validity, participants were volunteers and thus are randomly chosen.

# RESULTS

## Introduction

After implementing the experiment, this study analyzed the responses of the participants in order to understand if socio-cultural information produces a statistically significant change in the accuracy of analytic estimates. The experimental sample is composed of 51 participants, 24 participants in the control group and 27 participants in the experimental group. Each group contained participants of a varying level of schooling and experience producing estimates. After results were gathered and entered into Excel, descriptive statistics were used to analyze the estimates provided by both groups. The estimates were categorized into five groups based on the words of estimative probability. The groups include: highly unlikely, unlikely, chances are better than even, likely and highly likely. The estimates were then examined for accuracy in terms of whether the analyst correctly predicted the event. Finally, data provided by the experimental group in their post-survey on their opinion of socio-cultural information was examined to understand the belief that the analyst had regarding socio-cultural information making their estimate more accurate.

The data was then analyzed using advanced statistics using a logistics regression. The outcome variable was whether the estimate was correct or not, and the predictor variables included: year in school, amount of estimates produced, amount of national estimates produced, the participant's knowledge of Mali and whether the participant used socio-cultural information in their estimate. The full data can be found in the appendices.

## Data and Analysis

**Descriptive Statistics**

The data was first analyzed comparing the estimates provided by the experimental group versus the control group. Each participant was asked to write an estimate using words of estimative probability including: highly unlikely, unlikely, chances are better than even, likely and highly unlikely. Once entered into Excel, these categories were then coded with the following: highly unlikely = 1, unlikely = 2, chances are better than even = 3, likely = 4, highly likely = 5. The estimates provided by the control group were analyzed against the experimental group. *Figure 4.1.* Words of Estimative Probability. This figure illustrates the number of each type of estimate provided by each group.

The experimental group, the group using socio-cultural information, stated the event was unlikely to happen, which was correct, more often than the control group. Also there were fewer participants in the experimental group that estimated that it was likely the event would occur, which was incorrect.

**Figure 4.1 Words of Estimative Probability**
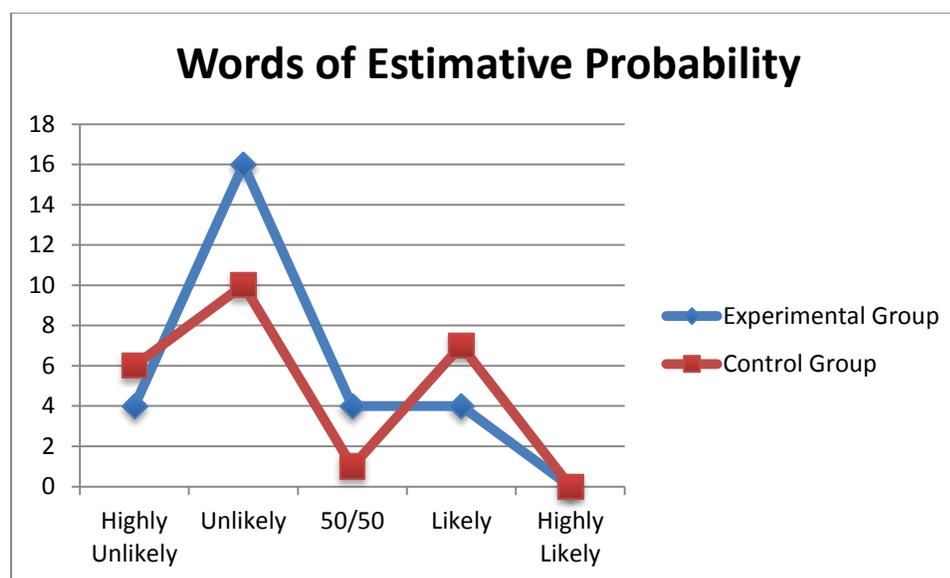
Though more participants stated the event was unlikely to occur between both groups, more participants within the control group stated the event was likely to happen, which was an inaccurate prediction.
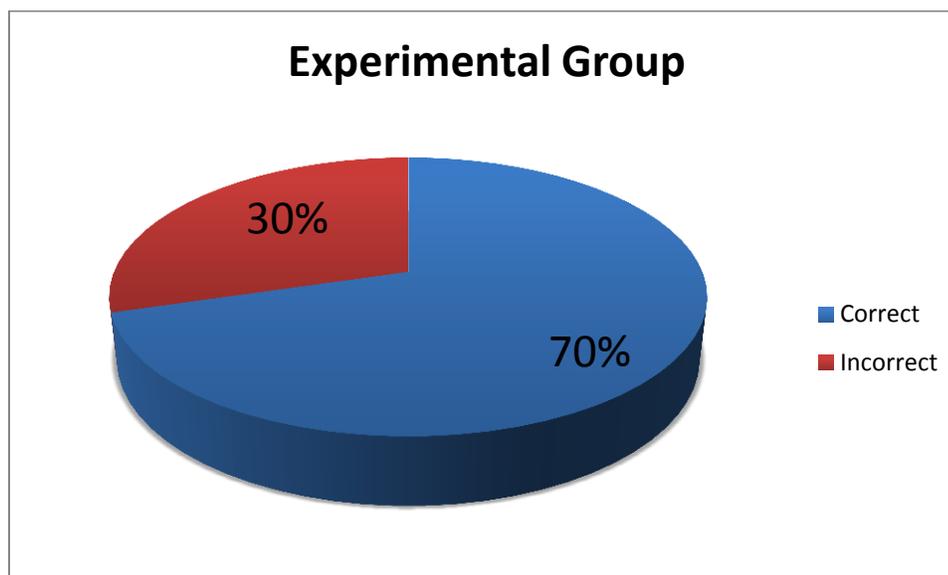
The estimates were then analyzed to understand the accuracy of the predictions. The Mali government did not enter autonomy talks with the Taureg population by February 15th. The control group's estimates were each read to determine if the participant's estimate was accurate or not. The same was done for the experimental group. On a whole, there as more accuracy in the experimental group, but the result was not statistically significant; the experimental group and the control group both had the same number of participants with incorrect estimates. *Figure 4.2.* Accuracy of Estimates. This suggests that the socio-cultural information used by the experimental group led to more accurate predictions.
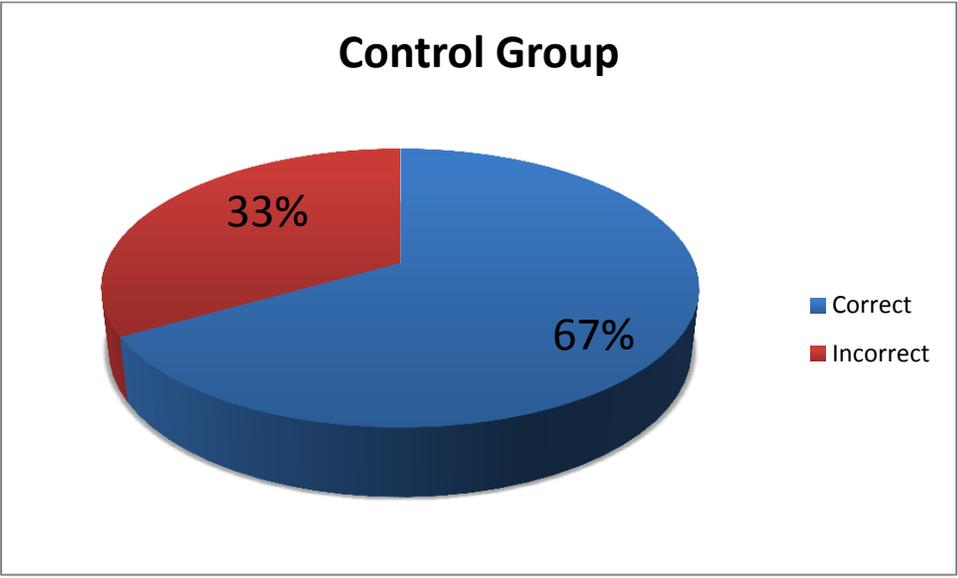
**Figure 4.2 Accuracy of Estimates**
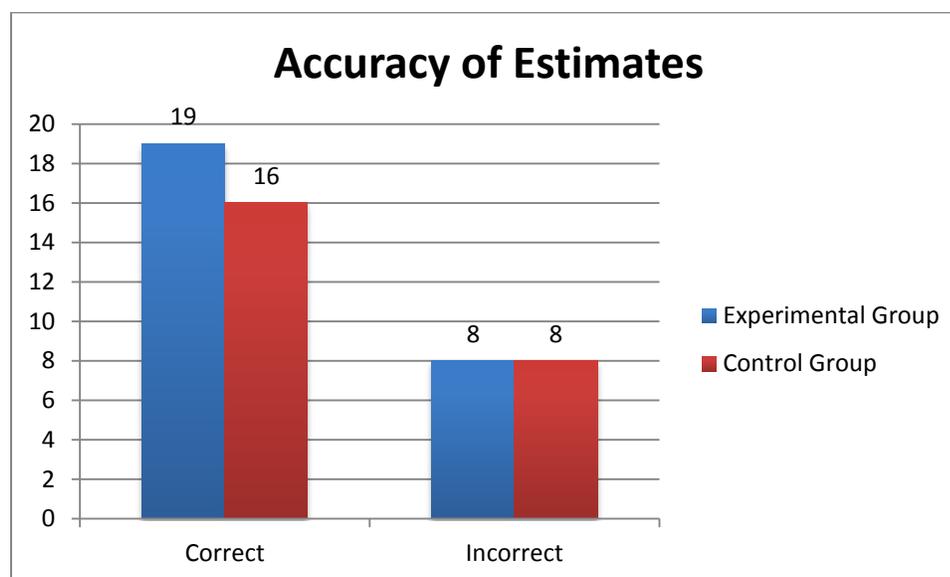
When analyzing the estimates provided by the experimental group, 19 estimates or 70 percent of the estimates were accurate in their prediction of whether the Mali government would enter into autonomy talks with the Taureg population by February 15th. *Figure 4.3*. Experimental Group Results. This figure illustrates the accuracy of the experimental group as a whole.

**Figure 4.3 Experimental Group Results**



Out of 24 participants in the control group, 67 percent or 16 participants accurately predicted the event, while 33 percent incorrectly predicted that the Mali government would enter autonomy talks with the Taureg population by February 15th. *Figure 4.4.* Control Group Results. This figure illustrates the accuracy of the control group as a whole.

**Figure 4.4 Control Group Results**



The estimates were then analyzed for accuracy across both groups examining the relationship between the amount of estimates produced and the accuracy of the participants' estimates. In general, experience with producing estimates had a positive relationship on accuracy. Though, there was one group who had the opposite effect, for the participants who said they produced between 16-20 estimates they had a greater number of incorrect estimates than correct estimates. *Figure 4.5*. Accuracy Experience. This figure illustrates the relationship between the amount of experience and the accuracy of the estimates produced.

**Figure 4.5 Accuracy and Experience**
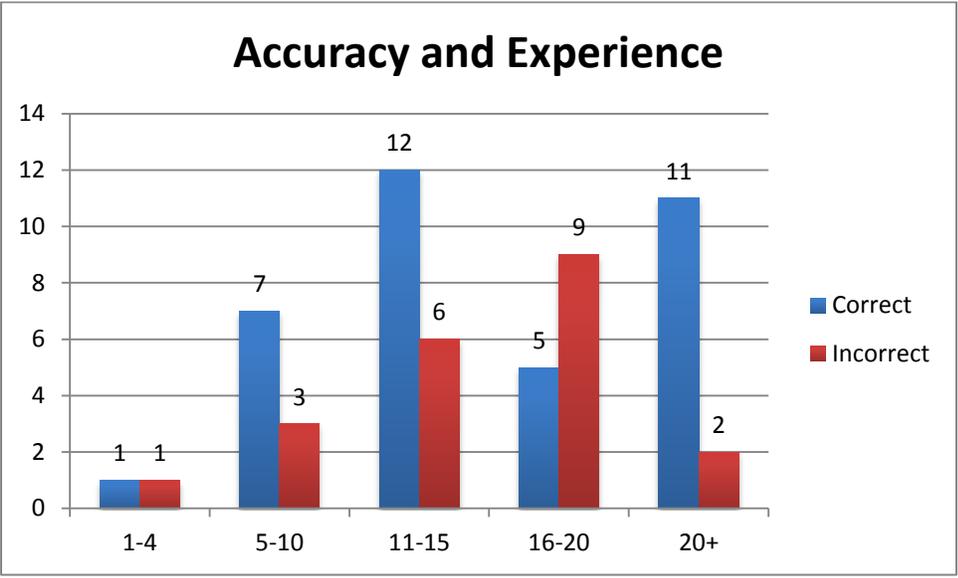


Using the data provided by the experimental group in the post-experiment survey, the participants answered whether they think their estimate will be more accurate using the socio-cultural information provided. The possible answers were: yes they believe it will increase their accuracy, 50/50 the socio-cultural information will increase their accuracy or, no they do not believe that socio-cultural information will increase the accuracy of their estimate. By understanding how the participant viewed the application of socio-cultural information to their estimate, it indicates if the participant thought the information was useful to producing their estimate. *Figure 4.6.* This figure illustrates the responses of the participants using socio-cultural information.

**Figure 4.6 Accuracy using Socio-Cultural Information**
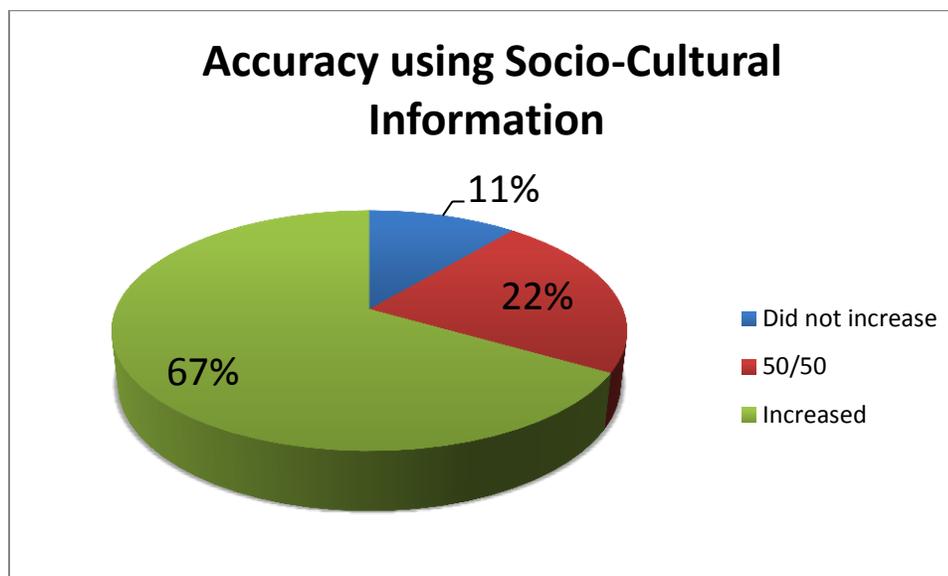


Of the 27 participants, 67 percent or 18 participants believed that using the socio-cultural information provided increased accuracy of their estimate.

Then, while examining this question in particular, it was useful to understand if the socio-cultural information produced an over-confidence in the results, indicating that the use of additional information and or techniques has potential negative affects on analysts' confidence. Out of the 27 participants that used socio-cultural information, 6 participants or 22 percent stated that socio-cultural information would increase their accuracy and the got the answer wrong. Out of the 27 participants, 12 participants said that using the socio-cultural information would increase the accuracy in their estimate, and their estimate was correct. The results indicate that when the analyst used the socio-cultural information, the analyst feels that the estimate will be more accurate because using the socio-cultural information but does not cause the analyst to become overconfident for the analyst was accurate in their prediction. *Figure 4.7.* Confidence in

Estimates. This figure illustrates the analysis ran to understand if there are instances of over confidence in the analysts' estimates by using socio-cultural information.

**Figure 4.7 Confidence in Estimates**
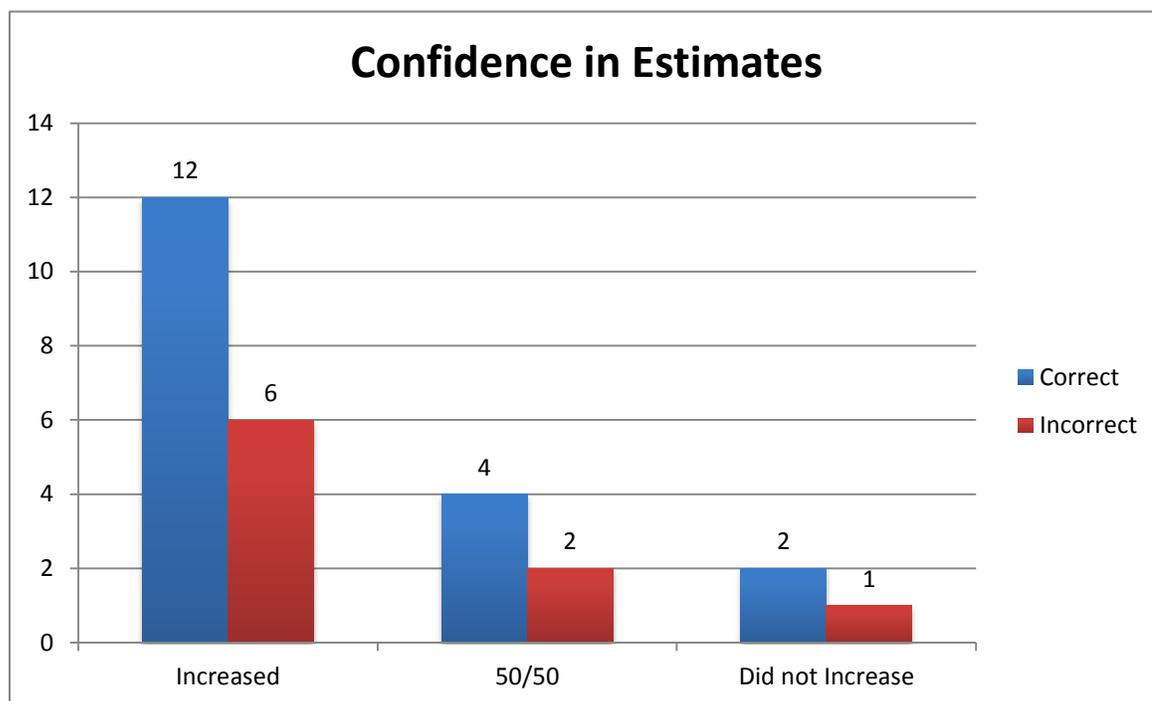


**Inferential Statistics**

The outcome variable, whether the estimate was correct or not, is a binary variable. A logistics regression was run using the advanced statistical program STATA. A logistic regression, also called a logit model, is used to model dichotomous outcome variables. The predictor variables include: the participants year in school, the amount of estimates the participant has produced prior to the experiment (which was scaled), the amount of national security related estimates the participant has produced, (scaled), the participants prior knowledge of the situation in Mali and finally, whether or not the

participant used socio-cultural information in their estimate. Below is the discussion of the results of the regression.

The first variable, year in school, indicates that for every one-year increase in year in school, the probability of producing a correct estimate increased by .255. This shows that with more education and training in producing estimates, a participant had more accurate estimates. This confirms a commonly held belief regarding education and the training students receive in the program.

The second variable was the amount of estimates the participant had completed prior to the experiment. For every additional estimate produced, the probability of producing a correct estimate increased by .397. This indicates that the more practice a participant has with producing estimates, the more accurate the estimate is. Again, this confirms a commonly held belief regarding practice students receive in the program.

The third variable examined was the amount of national security related estimates the participant had produced prior to the experiment. This actually had an interesting effect on the correctness of estimates; for every one increase in the amount of national security related estimate produced, the probability of producing a correct estimate decreased by .18. This was an interesting finding and contradictory to the previous principal, that the more practice one has with producing national security related estimates, the more the accurate the estimate.

The fourth variable examined the knowledge the participant had of Mali that prior to the experiment. This variable was scaled: 1 = meant no prior research, 2 = the person knew about the situation in Mali, 3 = they had completed minimal research on Mali and a 4 = the participant had done research equivalent to a 10 week country study on Mali. For

one increase in knowledge of Mali, the probability of producing a correct estimate

increased by 1.5. This variable also was statistically significant at the .01 level. This

effect of this variable on the probability of producing a correct estimate was to be

expected.

The last variable examined was the use of socio-cultural information. This

variable was binary, so the participants in the experimental group responded with a 1if

they used it and the control group was a 0. For every instance that socio-cultural

information was used, it decreased the probability of producing a correct estimate by .14.

Though it has a negative effect on the whether the estimate is correct or not, there are

several items related to the variable that are necessary to understand its effect in totality.

**Figure 4.8 Variable Descriptions**

| Variable | Description |
|---|---|
| YRINSCH | The participant's year in school, from freshman to second year graduate student |
| AMTOFEST | The amount of estimates the participant produced. Coded 1 for 1-4, 2 for 5-10, 3 for 11-15, 4 for 16-20 and 5 for 20+ |
| NATSEC | The amount of national security related estimates the participant produced. Coded 1 for 1-4, 2 for 5-10, 3 for 11-15, 4 for 16-20 and 5 for 20+ |
| KNOWLIMALI | The participant's knowledge of Mali. Coded 1 for no prior knowledge, 2 for knowledge from the news only, 3 for minimal research on Mali and 4 for 10 weeks of intense research completed |
| SOCICULT | Binary variable, whether the participant used Socio-Cultural information |

The first reason that the variable socio-cultural information had a negative effect

on the dependent variable was that the data for that variable was extremely small. In

whole, the number of observations was 51. The number of observations for socio-cultural

information is 27, the data provided by the experimental group. The second item to

discuss is that the 95% confidence interval spans from -1.54 to 1.25, a low negative to a

high positive. So, socio-cultural information can, in fact, have a positive relationship with

whether the estimate was correct or not since the confidence interval range is so large.

Finally, the coefficient was slightly below the zero point, to show that the decrease would

not be substantial.

Since the data set was small and the data set that used socio-cultural information

in their estimate was significantly smaller, the likelihood ratio chi-square of 12.81 with a

p-value of 0.02 indicates that the model, as a whole, does not significantly fit the data. In

the regression, only the knowledge of Mali variable was statistically significant, which

was to be expected when examining the data. Overall, the findings were interesting, but

given how small the data set is and that the model proved not to be a good fit of the data,

the regression was seen one method of analysis to evaluate the data. *Figure 4.9.* Output of

Regression Model. This figure is the results of the regression.

**Figure 4.9 Output of Regression Model**

| Logistic regression | | | | Number of obs | = | 51 |
|---|---|---|---|---|---|---|
| | | | | LR chi2(5) | = | 12.81 |
| | | | | Prob > chi2 | = | 0.0252 |
| Log likelihood = −25.317303 | | | | Pseudo R2 | = | 0.2020 |

| correctbin | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| yrinsch | .2553492 | .2371607 | 1.08 | 0.282 | −.2094771 | .7201756 |
| amtofest | .3971641 | .3518426 | 1.13 | 0.259 | −.2924348 | 1.086763 |
| natsec | −.1836217 | .3488896 | −0.53 | 0.599 | −.8674328 | .5001893 |
| knowlimali | 1.589582 | .6377208 | 2.49 | 0.013 | .339672 | 2.839492 |
| sociCULT | −.1439715 | .712546 | −0.20 | 0.840 | −1.540536 | 1.252593 |
| _cons | −3.715453 | 1.665467 | −2.23 | 0.026 | −6.979709 | −.4511974 |

**Chapter 4 Summary**

Using descriptive statistics, the experimental group using the socio-cultural information shows a higher number of accurate predictions, indicating that socio-cultural information leads to more accurate estimates. Out of the 51 estimates produced, 19 produced by the experimental group were correct in comparison to the 16 correct predications made by the control group. This was examined based on the words of estimative probability that all participants used during the experiment. This data suggests that having cultural knowledge and using socio-cultural information increases accuracy of intelligence estimates; however, this representation is not statistically significant.

When examining the data provided by the experimental group in their post-survey, 18 participants in that group believed that using socio-cultural information would increase their accuracy and only 6 gave an incorrect estimate. This data suggests that an analyst producing an estimate believes that using socio-cultural information increases the accuracy of their prediction.

Using inferential statistics, it was seen that socio-cultural information had a small negative effect on whether the estimate would be correct or not. Though, given the large confidence interval from the socio-cultural information variable, there is a potential that socio-cultural information can have a positive effect.

Descriptive statistics showed that there is no statistically significant change in the accuracy of estimates with using socio-cultural information. Inferential statistics showed that there is a small negative effect on the accuracy of the estimate using socio-cultural information, but with the large confidence interval the results are inconclusive. The

results from using both types of statistical methods indicate that the use of socio-cultural

information on estimates is inconclusive as a whole.

# CONCLUSION

## Introduction

Conducting an experiment has been helpful in understanding the effect of socio-cultural information on analytical estimates; however, it is important to note that this experiment produced a limited data set for analysis. After conducting the experiment, this study used descriptive and inferential statistics to analyze the responses of the participants in order to understand if socio-cultural information produces a statistically significant change in the accuracy of analytic estimates.

## Summary of the Study

The methodology used in this study was an experiment conducted in the Intelligence Studies and Applied Intelligence programs at Mercyhurst University. The 51 participants were undergraduate and graduate students within the department. During the experiment, the participants were asked several questions on a background questionnaire, and then asked to produce an estimate; the experimental group had access to socio-cultural information. The experimental group was asked to complete a post-survey giving their reaction to using socio-cultural information in their estimate.

After the results were gathered and entered into Excel, descriptive and inferential statistics were used. Descriptive statistics was used to analyze the estimates in terms of words of estimative probability, and the estimates were examined for accuracy. The data was then analyzed using advanced statistics using a logistics regression where the outcome variable, whether the estimate was correct or not, was analyzed against predictor variables. The predictor variables were: year in school, amount of estimates produced,

amount of national estimates produced, the participant's knowledge of Mali and whether the participant used socio-cultural information in their estimate.

## Discussion of the Findings

The overall findings of whether socio-cultural information increases the accuracy of analytic estimates were inconclusive. Using descriptive statistics, the experimental group using socio-cultural information produced a higher number of accurate predictions. Out of the 51 estimates produced, 19 produced by the experimental group were correct in comparison to the 16 correct predictions made by the control group. This suggests that socio-cultural information increases accuracy of intelligence estimates, although not a statistically significant change in accuracy.

When examining the data provided by the experimental group in their post-survey, the data suggests that an analyst believes that using socio-cultural information increases the accuracy of their estimate. The results indicate that when the analyst used the socio-cultural information, the analyst had greater confidence that their estimate will be more accurate because of it. However, this does not cause the analyst to become overconfident, for the analyst was accurate in their prediction.

Using inferential statistics, socio-cultural information had a small negative effect on the accuracy of the estimate. The results of the regression indicated that for every instance that socio-cultural information was used, it decreased the probability of producing a correct estimate by .14. The variable, socio-cultural information, at the 95% confidence interval spans from -1.54 to 1.25, a low negative to a high positive, so socio-cultural information has the potential to have a positive relationship with whether the estimate was correct or not because of the large confidence interval range.

Descriptive statistics showed there was a positive, but not statistically significant change in the accuracy of estimates with using socio-cultural information. Inferential statistics showed that there is a small negative effect on the accuracy of the estimate using socio-cultural information, but with the large confidence interval the results are inconclusive. The results from using both types of statistical methods indicate that the use of socio-cultural information on estimates is inclusive as a whole.

Though the findings of this study were inconclusive, this was the first time socio-cultural information was examined quantitatively. Through this study, the previous qualitative research has a foundation to begin to provide historical examples to further study the effect of socio-cultural information on intelligence estimates. Also, the results indicate that socio-cultural intelligence, as seen with previous research, needs to be studied in greater detail. In addition, methods need to be developed on how to accurately gather the information along with the analysis of it with its application to intelligence estimates.

**Implications for Practice**

This information and methodology can be used by analysts and academics looking to expand the experiment in order to understand if socio-cultural information on a larger data set of more participants. Also, the experiment can be adapted by asking the participant to produce a different type of estimate; the participants in this study were asked to produce a strategic level estimate. Previous research has shown that different levels of cultural awareness and the use of cultural information are needed at various levels of command and will be specific to the needs of the mission (Kleiner, 2008). By

conducting an experiment at the operation and tactical levels, the effect of socio-cultural information on estimates at those levels too can be studied and analyzed.

Organizations such as the Intelligence Community and the military can use the results of this experiment to further expand the topic of socio-cultural intelligence. First, these organizations can begin emphasizing the use of socio-cultural information when producing estimates. This can be a challenge for some organizations including the Intelligence Community, as seen in their joint doctrine definition of intelligence, does not emphasize the need to understand foreign cultures let alone use the information in producing estimates (Coles, 2006). By encouraging this change, this can then develop the discipline of socio-cultural intelligence in terms of teaching and training in academies, schools and in the field, suggesting a possibility of generating a standard for the application of socio-cultural intelligence.

Secondly, organizations can begin to focus on the need to gather socio-cultural data so analysts can then use it in their estimates. Distinct data collection and analysis capacities underlie the capability to understand socio-cultural behavior as well as the capability to produce socio-cultural intelligence (Schmorrow, 2011). Since socio-cultural data comes from a wide variety of sources and may have been collected at varying levels and through various intelligence disciplines, organizations need to keep developing ways to gather the data.

Finally, socio-cultural intelligence and the application of socio-cultural information can be uniform across businesses, the Intelligence Community and the military since the goal of socio-cultural intelligence is to understand the why factor as it applies to behavior of people, and the how factor that drives behavior of people through

the influence of mindsets, perceptions, beliefs, customs, ideologies and religion (Sorrentino, 2011). With the current state, there are a large number of different modeling frameworks, programs and systems that are not widely accepted across agencies, (Pool, 2011) let alone between government and businesses, but maybe possible with expanding upon this study.

While the results of this study were inconclusive, with more research and knowledge about this field, socio-cultural intelligence has great potential. With having one more intelligence discipline, that like SIGINT and IMINT, socio-cultural intelligence has the potential to assist an analyst in making more accurate estimates. At the strategic level within the Intelligence Community, socio-cultural intelligence can help to develop more well rounded National Intelligence Estimates. National Security can benefit from socio-cultural intelligence in order to help military commanders during the three phases of conflict: before, during and after (Delp, 2008). There is a large quantity of information that is transmitted through unintelligible dialects and the physical location within ethnic communities. Socio-cultural intelligence can be used in law enforcement to significantly impact the influence drug cartels have on local populations (Delp, 2008). Businesses can benefit from socio-cultural intelligence for decision makers can benefit to develop a strategic plan using socio-cultural information that is predictive in nature, including helping predict customers' reactions and the market in general. Overall, this new field has the potential to aid decision makers with making more informed decisions, thus impacting current and future crises, wars and industry changes.

**Recommendations for Further Research**

Further research can expand upon this work by conducting an experiment using a larger pool of participants. Since this study used a very small data set, it would be interesting to see if having a greater number of participants and analyzing that data, using inferential statistics, would have the same results as this study. There may be more variables that aren't explained in this study that could be seen in a larger data set. Also, using a larger data set would clearly indicate if socio-cultural information had a statistically significant effect on estimates.

Additional research should also continue to expand the understanding of socio-cultural information on estimates, for while this study focused on a strategic level estimate, an experiment can be created to understand the effect of socio-cultural information at the operational or tactical levels of intelligence. Various literature and current efforts have highlighted the need for socio-cultural intelligence and the application of socio-cultural information at the tactical and operational levels. Does socio-cultural information have a greater affect on operational or tactical level intelligence estimates?

Additional research needs to examine whether the addition of one intelligence discipline can lead to analytic overconfidence. The results from this study indicates that when an analyst uses one additional intelligence discipline, such as socio-cultural information, the analyst feels the estimate will be more accurate because of it, and they are 45 percent of the time.

Further research may also examine the application of socio-cultural information to other disciplines discussed in this study. In terms of the application of socio-cultural

intelligence to business, supplementary studies may also expand the use of socio-cultural information beyond international marketing. Currently, international marketing already understands culture and cultural information to market to people of other cultures. Marketers are constantly adjusting their efforts to cultural demands of the market, and its imperative for foreign markets to learn to appreciate the intricacies of cultures different from their own if they are to be effective in foreign markets (Cateora, Gilly & Graham, 2010).

For businesses to be effective, decision makers must use both international marketing strategies and knowledge coinciding with competitive intelligence using socio-cultural information to make their estimates. This would allow businesses to predict how consumers will react to all parts of the business, from presence in oversees markets to the products themselves, instead of being reactionary. The results from this study can be applied to developing socio-cultural intelligence within competitive intelligence to assist businesses to predict markets and customers' according to culture.

Further research may also examine the application of socio-cultural information to law enforcement as well. Since the goal of socio-cultural intelligence is to understand the why factor which is associated with the patterns of behavior in a community, law enforcement socio-cultural intelligence could be used to gain understanding of the demographic makeup of such a community. Communities such as drug trafficking and human trafficking networks, terrorist networks and gangs could all be better understood using socio-cultural information concerning the people, history, culture, religion, sectarian divides, conflicts and ideologies of these groups. Also socio-cultural intelligence when used by law enforcement can assist with future involvement,

interactions and relations and cooperation with neighborhoods and thus lead to less casualties and violence.

## Conclusions

This study is the first of its kind to examine the direct relationship between application of socio-cultural information and intelligence estimates. Based on the limited historical situations researched, socio-cultural information proved to be beneficial (Meyer, 2009; Kleiner, 2008) to assist decision makers in making more informed decisions. Other authors, including McFate (2005) have researched situations were the use of socio-cultural information and socio-cultural intelligence would have been beneficial to certain situations, such as the Iraq War. Though the results from this study were inconclusive, it highlights the need to conduct more research on this discipline and the application of socio-cultural information on estimates such as law enforcement, military, national security and business. It also highlights the need to develop socio-cultural intelligence in terms of training and educating analysts. As seen throughout this study, the use of socio-cultural information with estimates and the development of socio-cultural intelligence seek to understand the why and how factors previously not analyzed. This ultimately assists decision makers to make more informed decisions that can lead to fewer conflicts in the world.

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# APPENDIXES

## Appendix 1: Forms for Experiment

## Informed Consent Form

**Purpose of the Study:**
This is a study conducted by Emily Slegel, an Applied Intelligence student at Mercyhurst University in Erie, PA. The purpose of this study is to examine if socio-cultural information and knowledge produce a statistical significant change in accuracy and reliability of analytical estimates.

**What will be done:**
You will first be given a questionnaire that covers the topics of demographics, estimate and assessment experience, and other interests. You will then be asked to produce an estimate concerning the outcome of Mali within the next six months. You will be given a number of websites in which you are to use in order to produce your estimate. This experiment will require a time commitment of approximately one hour.

After you complete the estimate, I will compare all the estimates as well as the post-experiment survey to examine accuracy and reliability of the analytical estimates. Focus will be placed on whether socio-cultural information used in the estimates affected the accuracy and reliability of the estimates.

**Benefits of this Study:**
You will be contributing to knowledge about socio-cultural intelligence and whether this type of information and knowledge benefits or hinders intelligence estimates. By knowing the results, intelligence analysts can ensure that they make the most accurate estimates for decision makers.

In addition, you may be eligible for extra credit in one of your Intelligence Studies classes. This is dependent on whether or not your professor agreed to such terms. If you are eligible, your professor will be notified of your participation in this study upon the completion of the estimate.

**Risks or discomforts:**
No risks or discomforts are anticipated from taking part in this study. Your participation is voluntary. If you feel uncomfortable at any time, you may withdraw from the study altogether. If you decide to quit at any time before you finished the estimate, your answers will NOT be used in the study.

**Confidentiality:**
**Your responses will be kept completely confidential.** Your name will only be used to inform professors of your participation in the study so that you may receive extra credit,

as well as on this consent for to prove that you have agreed to the terms of the study. Any personal information that you may provide on the questionnaire will simply be used for statistical purposes of the study to determine any outside factors. Your name will not be included on the questionnaire along your personal information.

**How the findings will be used:**
The results of the study will be used for scholarly purposes only. The results from the study will be presented in educational settings, and the results will be published as part of my thesis requirement to complete my Master's degree in Applied Intelligence.

**Contact Information:**
If you have concerns or questions, contact Emily Slegel at
eslege04@lakers.mercyhurst.edu

**Research at Mercyhurst University which involves human participants is overseen by the Institutional Review Board. Questions or problems regarding your rights as a participant should be addressed to Mr. Timothy Harvey; Institutional Review Board Chair; Mercyhurst University; 501 East 38th Street; Erie, Pennsylvania 16546-0001; Telephone (814) 824-3372."**

_____
**Participant's Name**

_____
**Participant's Signature**

_____
**Date**

Background Questionnaire

Please circle your answer. Thank you.

1) What is your year in school?

Freshman        Sophomore        Junior        Senior        G1        G2

2) About how many intelligence estimates have you produced for class projects or at an internship?

1-4             5-10             11-15             16-20             20+

3) About how many national security related intelligence estimates have you produced?

1-4             5-10             11-15             16-20             20+

4) What is your level of knowledge on the current situation in Mali?

    I have no prior knowledge of the current situation in Mali

    I only have knowledge from news coverage on the situation

    I have completed minimal research on Mali

    I have completed a country study (or similar level of research) on Mali

Experiment Question

Will Mali's government enter autonomy talks with the Taureg's by February 15th?

Post-Experiment Survey

Please circle your answer.

1) In terms of the socio-cultural information, was it easy to understand the socio-cultural information?
   - Difficult
   - Somewhat difficult
   - Neutral
   - Somewhat easy
   - Easy

2) In terms of the socio-cultural information, was it easy to apply the information to produce an estimate?
   - Difficult
   - Somewhat difficult
   - Neutral
   - Somewhat easy
   - Easy

3) Do you believe that using the socio-cultural information provided to you will make your estimate more accurate?
   - Yes, I believe that it will increase the accuracy of my estimate
   - 50/50 that it will increase the accuracy of my estimate
   - No, I do not believe that it will increase the accuracy of my estimate

Debriefing

Thank you for your participation in this research on socio-cultural intelligence and the effect of socio-cultural information on intelligence estimates.

The goal of this study is to determine whether the use of socio-cultural information will produce a statistically significant change in the accuracy and reliability of analytic estimates. The data from your participation today will be used to compare the estimates produced using socio-cultural information versus the estimates produced without socio-cultural information.

For the purpose of this study, the outcome of Mali within the next six months will be used as the actual outcome of the event. Any information that you have provided on the post-experimental survey will be used to understand the ease at which to use socio-cultural information in an estimate.

Current research in socio-cultural intelligence is very limited and thus the results of this experiment will indicate both the accuracy and reliability of using this type of information on intelligence estimates. Your participation was important in helping to establish a baseline on the effect of socio-cultural information on intelligence estimates.

Final results will be available from the investigator, Emily Slegel, by May 19th, 2012. You may contact me at eslege04@lakers.mercyhurst.edu to receive an email copy of the final report. All results will be grouped together; therefore individual results are not available. Your participation, including your name and answers, will remain absolutely confidential, even if the report is published.

If you have any additional questions regarding this research, please contact Emily Slegel at eslege04@lakers.mercyhurst.edu

## Appendix 2: News Sources for Experiment

### Control Group:

ACLED: Armed Conflict Location & Event Dataset. (2013, January 16). Real-Time Analysis of African Political Violence. http://www.acleddata.com/wp-content/uploads/2013/04/ACLED-Conflict-Trends_No-13_April-2013.pdf

BBC News. (2012, December 4) Mali crisis: Tuareg rebels in talks with government. http://www.bbc.co.uk/news/world-africa-20604187

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**Experimental Group:**

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