2007

Applying Cultural Consensus Analysis to Marketing

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APPLYING CULTURAL CONSENSUS ANALYSIS TO MARKETING

By

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A Dissertation submitted to the Department of Marketing in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Degree Awarded:
Spring Semester, 2007

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ACKNOWLEDGEMENTS

This dissertation and my experiences in and outside of the Marketing Ph.D. program at The Florida State University would not have been possible without the support of my family, friends, and academic colleagues. I would like to thank the following people for supporting me along this journey.

First, I would like to thank my San Diego State professor Dr. Matt Aistrich who told me not to pursue a Ph.D. in Marketing, and then provided me with letters of recommendation. Second, I would like to thank my parents Steve and Debby, my sister Elaine, and my grandmother Middy for supporting my decision to attend The Florida State University and for providing me with moral and financial support along the way.

Once longitudinally adjusted to Tallahassee, Florida I met many people who became an important part of my academic life. All of The Florida State University faculty and staff were helpful and supportive. My advising professor and Dissertation Committee Chairman Dr. Michael Brady supported me throughout my entire time at The Florida State University, and I will be forever grateful for this support, the research opportunities you provided me with, and the valuable feedback you gave me on my writing during my time at The Florida State University. Also in the College of Business, I would like to thank my other Dissertation Committee Members. Thank you Dr. Hofacker for helping me decipher the consensus analysis algorithms and thank you Dr. Hartline for supporting my research and helping me through the job interview process.

Outside of the College of Business, my Support Area Advisor Dr. Michael Uzendoski introduced me to seminal and contemporary anthropology literature that I enjoyed reading. Shortly after the completion of my Support Area coursework, my former Outside Committee Member Dr. Clarence Gravlee introduced me to my dissertation topic. Without the help of both of these anthropologists, my dissertation would not have been possible and I thank both of you.

Finally, I would like to thank all of the Doctoral Business Student Association and Florida State University Men’s Rugby Club members, past and present, who befriended me and provided me with countless memorable experiences. Last but not least, I must thank my Outside Committee Member Dr. William Christiansen for his involvement in my dissertation and for the enjoyable exchanges about the San Francisco Giants that we
shared throughout my time at The Florida State University. I promise that I’ll go to some Giants games in the future.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Tables</td>
<td>x</td>
</tr>
<tr>
<td>List of Figures</td>
<td>xi</td>
</tr>
<tr>
<td>Abstract</td>
<td>xii</td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2. REVIEW OF THE LITERATURE</td>
<td>8</td>
</tr>
<tr>
<td>3. RESEARCH METHODOLOGY</td>
<td>49</td>
</tr>
<tr>
<td>4. ADDRESSING THE LIMITATIONS OF CONSENSUS ANALYSIS</td>
<td>101</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>108</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>111</td>
</tr>
<tr>
<td>BIOGRAPHICAL SKETCH</td>
<td>125</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. Folk Medicine Applications of Consensus Analysis.................................................31
2. Folk Biology Applications of Consensus Analysis.................................................35
3. Gender Studies Applications of Consensus Analysis.............................................37
4. Cultural Consonance Applications of Consensus Analysis....................................39
5. The Cultural Domain of Disney World.................................................................53
6. Regression Results..................................................................................................58
7. The Culturally Appropriate Responses to the Disney World Domain Among Florida Undergraduates.................................................................59
8. Cultural Domain Items..........................................................................................73
9. Material Goods Cultural Domain Items...............................................................91
10. Activities Cultural Domain Items........................................................................91
11. Answer Key Estimates........................................................................................92
12. Correlation Table of the Variables in the Study....................................................96
LIST OF FIGURES

1. A Graphical Representation of a Sample That Does Exhibit Consensus……………..19
2. A Graphical Representation of a Sample That Does Not Exhibit Consensus………20
3. Free Listing Results for the Cultural Domain of Disney World……………………52
4. Non-Metric MDS Results for the Pile Sort Data……………………………………55
5. PROFIT Analysis Results…………………………………………………………56
6. Sources of Intracultural Variation …………………………………………………58
7. Answer Key Estimates for the Documentary Viewers………………………….75
8. Consensus Analysis Results………………………………………………………76
9. Answer Key Estimates for the Negative First Factor Loading Group…………….77
10. Respondent Partitions……………………………………………………………78
11. Answer Key Estimates for the Neutral and Anti-Wal-Mart Cultural Groups……79
12. Cultural Consonance in College Lifestyle Research Model…………………..88
13. Free List Results for College Lifestyle Material Goods and Activities………….90
ABSTRACT

Consensus analysis methods are commonly used by anthropologists to study cultural knowledge. Consensus analysis has been used to study intracultural variance, intercultural variance, and cultural consonance across a variety of contexts. However, the cultural consensus model and other consensus analysis methods have not become methods that are commonly used by marketing researchers to study cultural knowledge. This dissertation reviews the theoretical and methodological foundations of the cultural consensus model in order to shed light on a method that marketing researchers could use to statistically estimate various aspects of cultural knowledge. In addition, this dissertation reviews how the cultural consensus model has been applied by anthropologists and discusses how the cultural consensus model could be applied to study consumer culture, organizational culture, and national culture. In order to illustrate how consensus analysis can be used to study intracultural variance, intercultural variance, and cultural consonance three original empirical studies are performed. Finally, based on methodological issues encountered during the three empirical studies, this dissertation identifies important considerations a researcher should bear in mind when performing an ethnographic study that uses consensus analysis methods.
CHAPTER ONE
INTRODUCTION

“Consensus analysis answers what may be the single most important question of ethnography: Who agrees with whom about what and to what degree (Handwerker and Borgatti 1998, p. 569).”

Over the course of many years anthropologists have developed and adopted various consensus analysis methods to study cultural knowledge (Borgatti 1994; D’Andrade 1995; Dressler et al. 2005b; Handwerker 2002; Romney, Batchelder, and Weller 1987; Romney, Weller, and Batchelder 1986; Ross 2004; Weller 1987, 1998; Weller and Romney 1988). These consensus analysis methods help anthropologists answer fundamental ethnographic questions in a systematic and objective manner. For example, ethnographers are faced with questions such as what are the beliefs that a cultural group shares? To what extent do the individuals in a cultural group share the group’s cultural beliefs? Furthermore, what are the backgrounds, life experiences, or other variables that lead people to share a group’s cultural beliefs? The consensus analysis methods used by anthropologists to answer these questions (Handwerker 2001, 2002; Handwerker and Borgatti 1998; Romney, Batchelder, and Weller 1987; Romney, Weller, and Batchelder 1986; Weller 1987) offer marketing researchers new tools that can be used to study cultural knowledge in a systematic and objective manner (Romney 1999; Weller and Romney 1988). If marketing researchers find these new tools as helpful as anthropologists have (as alluded to in the opening quote), then this research will offer a valuable contribution to the marketing literature.

Cultural research has received a great deal of attention in marketing recently in the areas of consumer culture (Arnould and Thompson 2005), organizational culture (Webster 2005), and national culture (Steenkamp 2005). However, consensus analysis is rarely used in these areas of marketing (Schwartz and Bardi 2001; Sirsi, Ward, and Reingen 1996). The consensus analysis methods developed by anthropologists offer marketing researchers the ability to examine consumer culture, organizational culture,
and national culture from new perspectives. While the majority of the anthropological
studies that use consensus analysis have focused on studying the shared knowledge
structure of third world people in areas such as animal and plant species (folk biology)
(Atran, Medin, and Ross 1999; Boster 1991), and illnesses and diseases (folk medicine)
(Baer et al. 1999, 2003, 2004; Weller et al. 1999), anthropologists have also used
consensus analysis to study the culture of more modern people in areas that are more
relevant to marketing. For example, anthropologists used consensus analysis to study
brands (Furlow 2003), organizational culture (Jaskyte and Dressler 2004), medical
services (Swora 2003), and materialism (Dressler, Dos Santos, and Baliero 1996).

Consensus analysis provides ethnographers with a transparent, replicable, and
objective method to study culture (Romney 1999). *Culture’s Consequences’* (Hofstede
1980) huge social citation index of 3115 demonstrates the popularity of cultural research
methods that can statistically estimate aspects of culture in an objective manner. The
purpose of this dissertation is to 1) explain the consensus analysis methods used by
anthropologists (Dressler et al. 2005b; Handwerker 2001, 2002; Romney, Batchelder, and
Weller 1987; Romney, Weller, and Batchelder 1986; Weller 1987), 2) discuss how these
methods may be applied to the study of consumer culture, organizational culture, and
national culture research in marketing, and 3) demonstrate three marketing applications
of consensus analysis across three independent studies.

**Research Objectives**

The manner in which the three research objectives identified in the previous
paragraph will be accomplished is outlined in this section.

**A Review of Consensus Analysis**

To accomplish the first research objective, a review of the assumptions,
algorithms, and outputs of the consensus analysis techniques is offered (Handwerker
2001, 2002; Romney, Batchelder, and Weller 1987; Romney, Weller, and Batchelder
1986; Weller 1987). The three primary consensus analysis methods were developed
around the type of data (level of measurement) that each method handles. The original
consensus analysis method—the cultural consensus model (Romney, Weller, and Batchelder 1986)—was developed to perform consensus analysis on nominal data. This original cultural consensus model was subsequently altered to accommodate ordinal (Romney, Batchelder, and Weller 1987) and interval (Weller 1987) data.

These three consensus analysis algorithms (Romney, Batchelder, and Weller 1987; Romney, Weller, and Batchelder 1986; Weller 1987) can be used to examine the shared knowledge of a group of people. Subsequent research has extended these techniques to provide a more comprehensive view of a cultural domain. For example, if the consensus analysis suggests that a group of people do share a set of beliefs, then the *intracultural* heterogeneity of the group can be examined empirically. In addition, Handwerker (2001, 2002) has forwarded a method that uses consensus theory to examine *intercultural* variation. Finally, Dressler et al. (2005b) have coined the term “cultural consonance” (p. 331),” or the extent to which a person approximates in their own belief or behavior the cultural model that a group shares. Dressler et al. (2005b) measure cultural consonance using the estimates provided by consensus analysis. The manner in which consensus analysis is used to examine 1) intracultural heterogeneity, 2) intercultural differences, and 3) cultural consonance is discussed in greater detail in Chapter Two.

**Potential Applications to Marketing**

The consumer culture, organizational culture, and national culture research areas have made a great deal of progress in the marketing literature. The use of consensus analysis (Romney, Batchelder, and Weller 1987; Romney, Weller, and Batchelder 1986; Weller 1987) would continue the progression of these three research areas by providing these areas with a new method to study culture. The issues that consensus analysis could address and the questions that consensus analysis can help answer in consumer, organizational, and national culture research areas are reviewed in Chapter Two.

Consensus analysis is rarely used in marketing, and has not been formally used in the manner that anthropologists recommend. For example, one study compares two consumer cultures with different worldviews on food (macrobiotics versus animal rights activists) and applies consensus analysis to measure knowledge levels (Sirsi, Ward, and Reingen 1996, p. 350). The study does not, however, fully consider all of the consensus
analysis assumptions and outputs. Likewise, in a study of national culture, consensus analysis is used to examine responses to national values in various countries (Schwartz and Bardi 2001). The consensus analysis method used by Schwartz and Bardi (2001), however, is not consistent with the consensus methods used by cognitive anthropologists (Romney, Batchelder, and Weller 1987; Romney, Weller, and Batchelder 1986; Weller 1987). Finally, although organizational culture researchers have suggested that an organizational cognition paradigm may be a useful way to study organizational culture (Deshpande and Webster 1989, Webster and Deshpande 1990), marketing researchers have not applied consensus analysis to study organizational culture. Based on this brief review of consensus analysis in cultural research, it is evident that the consensus analysis methods used by anthropologists could be applied to consumer culture, organizational culture, and national culture studies.

Three Applications of Consensus Analysis

In order to demonstrate the relevance of consensus analysis to marketing researchers, three separate studies are performed. The first study uses consensus analysis to examine the cultural domain of Disney World among Florida undergraduates. A second study examines the shared beliefs that Florida undergraduates have regarding Wal-Mart’s corporate social responsibility (CSR) practices. Finally, a third study uses consensus analysis to examine how cultural consonance in college lifestyle among FSU undergraduates impacts the educational satisfaction and other marketing outcomes of FSU undergraduates. Combined, these three studies will use consensus analysis to study 1) intracultural variance, 2) intercultural variance, and 3) cultural consonance.

Study 1: The Cultural Model of Disney World among Florida Undergraduates

The purpose of this study is to follow the three phase methodology outlined in Systematic Data Collection (Weller and Romney 1988) that describes how an ethnographic study that uses consensus analysis should be performed. These three phases include a cultural domain identification phase, a phase that examines the structure of the items in the cultural domain, and a phase that examines the structure of informant agreement with respect to a cultural domain. This study both identifies and estimates the
extent to which the cultural domain of Disney World is shared by undergraduate students at a major Southeastern University.

This study is presented in three phases. First, to identify the cultural domain of Disney World, this study uses the cultural domain identification methods of free listing. Second, pile sort data is gathered to examine the structure of the cultural domain items using multidimensional scaling and property fitting (PROFIT) analysis. Third, to test the patterns of agreement among Florida undergraduates with respect to the cultural domain of Disney World, this study uses consensus analysis to compute three statistical estimates of cultural knowledge: 1) the extent to which Florida undergraduates share a single cultural model of Disney World, 2) the cultural competence of each individual in the group of informants, and 3) the answer key, or the culturally appropriate answers to each question. Finally, regression analysis is used to investigate sources of intracultural variation.

Study 2: Using Consensus Analysis to Examine the Impact of Media on the Beliefs that Consumers Share about a Company

The purpose of study 2 is to demonstrate how Handwerker’s methods (2001, 2002) can be used to examine intercultural variation. Handwerker uses consensus analysis to examine whether or not more than one cultural group may be present among a group of people, and to evaluate the influence of a cultural intervention (2001, 2002). More specifically, Handwerker describes how consensus analysis can be used to partition people into various cultural groups (2001, 2002). Based on the group partitions, Handwerker then describes how logistic regression can be used to examine intercultural differences and possible independent variables that may influence the cultural group to which people belong (2001, 2002). This method of studying intercultural differences is applied to an examination of how the viewing of an anti-corporate documentary (*Wal-Mart: The High Cost of Low Price*) can influence the CSR beliefs that consumers share about the target company (Wal-Mart).

Study 3: The Impact of College Lifestyle Cultural Consonance on Service Satisfaction, Attitude Towards the Service Provider, and Advocacy/Word of Mouth

The purpose of the third study is to introduce Dressler et al.’s (2005b) variable of cultural consonance to marketing researchers. Dressler et al. (2005b) define cultural
consonance as the extent to which a person approximates in their own belief or behavior the cultural model that a group shares. The addition of the conceptual and operational definitions of cultural consonance to the marketing literature offers an important contribution to marketing researchers. Marketing researchers have proposed research models that include constructs similar to the construct of cultural consonance (Holt 2004), but have not evaluated these models by estimating them statistically. The method Dressler et al. (2005b) use to measure cultural consonance could be used to evaluate theoretical models that include the construct of cultural consonance.

This study demonstrates how college lifestyle cultural consonance of FSU undergraduates can be measured, and investigates the extent to which college lifestyle cultural consonance is related to common marketing outcome measures. This study will follow the methods that have been used in the past to study cultural consonance in lifestyle among Brazilians (Dressler et al. 2005a, 2005b, 2004).

Summary

This dissertation contains four chapters. Chapter One has introduced us to the anthropological method that is the focus of the dissertation, and was outlined the three studies that will be used to demonstrate various different capabilities of consensus analysis methods. In Chapter Two, we review both the anthropological literature that pertains to consensus analysis and the marketing literature streams of consumer, organizational, and international culture research. In Chapter Three, three empirical studies are performed in order to demonstrate how anthropologists use consensus analysis to measure 1) intracultural variance, 2) intercultural variance, and 3) cultural consonance. The results, managerial implications, and limitations of these three empirical studies are also discussed in Chapter Three.

Finally, in Chapter Four, the limitations of the consensus analysis studies performed in Chapter Three are discussed in order to plan how future studies that use consensus analysis could overcome these limitations. It is important to note that, while we review the consumer, organizational, and international culture marketing literature streams and discuss how consensus analysis could benefit each of these three areas in
Chapter Two, the empirical studies that are performed in Chapter Three are not intended to cover the three marketing areas of consumer, organizational, and international culture. As stated a priori, these studies are designed to apply consensus analysis methods to the study of 1) intracultural variance, 2) intercultural variance, and 3) cultural consonance.

This dissertation is important because it reviews how anthropologists are using consensus analysis in a variety of ways in which it has not been used by marketing researchers. While consensus analysis has been used once by marketing researchers (Sirsi, Ward, and Reingen 1996), consensus analysis has not been used to its fullest potential or discussed in enough depth. The theory, algorithms, assumptions, and methodological extensions that are possible with consensus analysis will be reviewed in this dissertation in order to provide marketing researchers with a complete understanding of how anthropologists are using consensus analysis to answer fundamental ethnographic questions in an objective manner.
MacKenzie (2003) states it is important for the operational definition of a construct to match the construct’s conceptual definition. Therefore, before applications of consensus analysis are discussed, it is important to review the conceptual nature of culture. Anthropologists have proposed a variety of definitions of culture. For example, Kroeber and Kluckohn (1952) review more than 200 definitions of culture in their book. The lack of agreement about a definition of culture has led some anthropologists to call for the abandonment of the culture concept (Brumann 1999), yet it remains a central concept to the discipline of anthropology. In order to move towards defining culture, let us examine how Sherry (1986, 1995) conceptualizes culture and anthropological research.

Sherry states that culture “is composed of, and in turn, composes two significant human phenomena: meaning systems and material flows (1986, p. 574).” In order to study these meaning systems and material flows, Sherry divides anthropological research into the four sub-fields of sociocultural, linguistic, biological, and archeological research. In this dissertation, we use a definition of culture from the sociocultural sub-field of anthropology that is more in line with the meaning systems perspective of culture.

One way to begin to think about a conceptual definition of cultural knowledge is to think about what culture is not; that is, innate biological knowledge. In 1973, Clifford Geertz wrote “between what our body tells us and what we have to know in order to function, there is a vacuum we must fill ourselves, and we fill it with information (or misinformation) provided by our culture (p. 50).” Here we see that cultural knowledge is not innate knowledge, or “what our body tells us,” such as hunger or thirst. Therefore, at one end of the spectrum of knowledge we have innate knowledge and at the other end of the spectrum we have cultural knowledge.

One of the early anthropologists to forward a cognitive, or knowledge-based, conceptualization of culture was Goodenough (in D’Andrade 1984), who stated that a
society’s culture is composed of the knowledge one must know or believe to behave and operate in an acceptable manner. Based on this conceptualization of culture as knowledge, cognitive anthropologists define cultural knowledge as knowledge that is socially transmitted (learned) and shared among a group of people (D’Andrade 1995).

This conceptualization of culture as knowledge is described by D’Andrade (1995):

“Most of what any human ever thinks has been thought before, and most of what any human ever thinks has been learned from other humans. Or, to put it another way, most of what anyone knows is cultural knowledge. Cognitive anthropology investigates cultural knowledge, knowledge which is embedded in words, in stories, and artifacts, and which is learned from and shared with other humans” (p. xiv).

D’Andrade recently stated (2004) that A. K. Romney is the anthropologist who has contributed most to the development of anthropological methods in the twentieth century. In the rest of this section, one of A. K. Romney’s major methodological contributions, the cultural consensus model (Romney, Weller, and Batchelder 1986), and other consensus analysis methods that have been developed after the cultural consensus model to measure cultural knowledge (e.g., Dressler et al. 2005b, Handwerker 2001, 2002; Romney, Batchelder, and Weller 1987; Weller 1987) are discussed.

**Consensus Analysis**

In this section, the consensus analysis methods used by cognitive anthropologists to study cultural knowledge are reviewed (Dressler et al. 2005b, Handwerker 2001, 2002; Romney, Batchelder, and Weller 1987; Romney, Weller, and Batchelder 1986; Weller 1987). This review begins by presenting the three consensus analysis algorithms that are used to produce the consensus analysis statistical estimates on nominal (Romney, Weller, and Batchelder 1986), ordinal (Romney, Batchelder, and Weller 1987), and interval (Weller 1987) response data.
After these algorithms have been reviewed, the manner in which consensus analysis is used to study 1) intracultural heterogeneity, 2) intercultural differences, and 3) cultural consonance are discussed. In addition to reviewing how consensus analysis is used to study these three aspects of culture, issues related to consensus analysis, such as obtaining the items to be used in a consensus analysis, examining the structure of the items in a consensus analysis, and sampling are also discussed. Then, four tables that summarize how forty studies have applied consensus analysis to the fields folk biology, folk medicine, gender studies, and to measure the construct of cultural consonance (Dressler et al 2005b) are presented. Finally, some of the criticism that these consensus analysis methods have received is discussed.

**An Overview of Consensus Analysis**

To begin our discussion of consensus analysis, let us review some of the basic questions that ethnographers typically face, whose answers may be statistically estimated using consensus analysis. Consensus analysis produces three primary statistical estimates that address the following three questions:

1. Does a single cultural model of shared beliefs exist among a group of people? Instead of assuming that respondents share a set of beliefs, consensus analysis estimates the extent to which a single underlying model describes the agreement pattern exhibited by informants (Ross 2004).

2. To what extent does each respondent agree with the group’s cultural beliefs? This estimate is referred to as cultural competence (Romney, Weller, and Batchelder 1986), estimated competence (Romney, Batchelder, and Weller 1986), and proportion of shared knowledge (Weller 1987).

3. What are the culturally appropriate answers to each item? This estimate is referred to as the answer key (Romney, Weller, and Batchelder 1986) or the correct ranks (Romney, Batchelder, and Weller 1987).

The algorithms used to calculate these three estimates vary depending on the type of data, or level of measurement, that has been gathered (nominal, ordinal, or interval).
Therefore, in the next section we review the consensus analysis algorithms for nominal (Romney, Weller, and Batchelder 1986), ordinal (Romney, Batchelder, and Weller 1987) and interval (Weller 1987) data.

**Consensus Analysis Algorithms and Assumptions**

The conceptualization of cultural knowledge is modeled slightly differently across these three data types. Because of this, the algorithms and statistical outputs that estimate cultural knowledge vary depending on whether the data are nominal (Romney, Weller, and Batchelder 1986), ordinal (Romney, Batchelder, and Weller 1987), or interval (Weller 1987). In order to review how cultural knowledge is modeled across the three data types, we review the nominal, ordinal, and interval models in separate sections.

**Consensus Analysis for Nominal Data—The Cultural Consensus Model**

The cultural consensus model was developed by Romney, Weller, and Batchelder (1986). The cultural consensus model that estimates the level and patterns of shared knowledge on nominal data was the first of the three consensus analysis methods developed.

**Notation**

- **Informants.** $N$ is the total number of informants $i = 1, 2, \ldots, N$ in the analysis.
- **Questions.** $M$ is the total number of questions $k = 1, 2, \ldots, M$ in the analysis.
- **Nominal Response Categories.** $L$ equals the number of possible responses to question $k$ in the analysis. $L$ is the same for questions $k = 1, 2, \ldots, M$.
- **Response Data.** $X = (X_{ik})$ where $X_{ik}$ is informant $i$'s answer to question $k$.
- **Answer Key.** $Z = (Z_k)$ where $Z_k$ is the culturally appropriate response to question $k$ that is not known a priori.
- **Response Bias.** $g_{il}$ is the bias that informant $i$ has to respond to any of the $L$ possible alternatives. The true value of $g_{il}$ ranges from 0 to 1, and no bias is present when $g_{il} = 1/L$. In the case of dichotomous (e.g. “true”/“false”) data, an unbiased response from informant $i$ to a question that informant $i$ does not know the answer to exhibits an equal likelihood of $g_{il} = 1/L = 1/2$ of answering the $L$ alternatives. Also, the sum of $g_{il}$ across all $l$ possible outcomes is 1.
• Cultural Competence. $D_i$ equals the likelihood that informant $i$ knows, without guessing, the answer to a question, where $0 \leq D_i \leq 1$. Negative $D_i$ values indicate that the model does not offer an appropriate fit to the data, or that the informants do not share a single cultural model.

• Matching Indicator. $M_{ij,k}$ is 1 if individuals $i$ and $j$ match on question $k$, and $M_{ij,k}$ is 0 otherwise.

• The Proportion of Matches. The proportion of matches between individuals $i$ and $j$ is $M_{ij}$.

• The Proportion of Matches Corrected for Guessing. The proportion of matches corrected for guessing between individuals $i$ and $j$ across items is $M_{ij}^*$.

The Three Basic Assumptions of Consensus Analysis

The original cultural consensus model (Romney, Weller and Batchelder 1986) that was developed to estimate cultural knowledge using nominal response data contains three basic assumptions. These three assumptions are provided in both mathematical notation (Romney, Weller, and Batchelder 1986) and paraphrased (Weller 1987) below:

Assumption 1:

*Common Truth.* There is a single answer key that applies to each and every informant. It is assumed that the same cultural reality exists across each informant. More formally,

$$Z_k$$

is the same for all informants $i$.

Assumption 2:

*Local Independence.* Informant responses are not conditional upon the responses of other informants.

$$\Pr[(X_{ik})(Z_k)] = \prod_{i=1}^{N} \prod_{k=1}^{M} \Pr (X_{ik})(Z_k)$$

Assumption 3:

*Homogeneity of Items.* The cultural competence of each informant is the same for all questions.

Every informant $i$ has a fixed level of cultural competence $D_i$ across all questions $k$. 
One common violation to these assumptions occurs when negative cultural competence ($D_i$) scores are present. Negative competence scores may indicate assumption 1 or assumption 3 may have been violated. If there is a high level of disagreement among informants, then informants may not share a single answer key. Alternatively, negative competence scores may suggest that informants may be responding to items with varying levels of cultural competence.

The Cultural Consensus Model

Cultural competence ($D_i$) is defined as the probability that an informant $i$ “knows,” without guessing, the answer to a question. Therefore, in order to determine the proportion of responses that an informant responds to correctly, a correction for guessing must occur in order to ensure that $D_i$ is not inaccurately inflated due to guessing. Correcting for guessing can be done while examining the possible combinations between informants that may lead to their sharing of the same answer to a question. The three possible combinations that can lead to two informants ($i$ and $j$) sharing the same answer are outlined in the four situations below. These situations are expressed in terms of $D_i$ and $D_j$, respectively.

1) Both informants know the answer to the question, with the following probability,
   \[ D_i D_j \]

2) One informant knows the answer to the question and the other informant guesses the answer to the question correctly. This can occur in two ways. First, when informant $i$ knows the answer and informant $j$ correctly guesses. Second, when informant $j$ knows the answer and informant $i$ correctly guesses.
   \[ D_i (1-D_j)/L \]
   \[ D_j (1-D_i)/L \]

3) Both informants guess the same response without knowing the correct answer.
   \[ (1-D_j) (1-D_i) \sum_{k=1}^{L} (1/L)^2 = (1-D_i) (1-D_j)/L \]

The probability that a match between informants $i$ and $j$ occurs ($M_{ij,k} = 1$) can be expressed as the sum of the four above equations:

\[ \Pr(M_{ij,k} = 1) = D_i D_j + D_i (1-D_j)/L + D_j (1-D_i)/L + (1-D_i) (1-D_j)/L \]

This expression can be reduced to:
\[
Pr(M_{ij,k} = 1) = D_i D_j + [1 - D_i D_j/L]
\]

Since \(M_{ij,k}\) is not a function of \(k\), we solve for \(D_i D_j\), solely in terms of \(M_{ij}\), where \(M_{ij}\) is the proportion of matches between informants in the response data \(X\). Solving for \(D_i D_j\) provides an estimate of the situation in which both informants know the correct answer to a question, without guessing. Therefore, we can substitute the expression \(M_{ij}^*\) for \(D_i D_j\).

\[
D_i D_j = (LM_{ij}-1)/(L-1) \quad \text{(Romney, Weller, and Batchelder 1986, p. 320)}
\]

Or,

\[
M_{ij}^* = (LM_{ij}-1)/(L-1) \quad \text{(Romney, Weller, and Batchelder 1986, p. 320)}
\]

If each \(M_{ij}^*\) term is expressed in matrix form, we obtain the following (Romney, Weller, and Batchelder 1986, p. 320):

\[
\begin{pmatrix}
D_1^* & M_{12}^* & \ldots & M_{1j}^* & \ldots & M_{1N}^* \\
M_{21}^* & D_2^* & \ldots & M_{2j}^* & \ldots & M_{2N}^* \\
& \ddots & \ddots & \ldots & \ddots & \ddots \\
M_{ji}^* & M_{i2}^* & \ldots & M_{ij}^* & \ldots & M_{iN}^* \\
& \ddots & \ddots & \ldots & \ddots & \ddots \\
M_{N1}^* & M_{N2}^* & \ldots & M_{Nj}^* & \ldots & D_N^*
\end{pmatrix}
\begin{pmatrix}
D_1 \\
D_2 \\
\vdots \\
D_i \\
\vdots \\
D_N
\end{pmatrix}
= \begin{pmatrix}
D_1 \\
D_2 \\
\vdots \\
D_i \\
\vdots \\
D_N
\end{pmatrix}
\]

Although \(D_i\) and \(M_{ij}^*\) cannot be solved for exactly, the estimates \(\hat{D}_i\) and \(\hat{M}_{ij}^*\) can be obtained using least squares estimation. More specifically, The first factor of a minimum residual factor analysis (Comrey 1962) can be used to estimate \(\hat{D}_i\) values. The \(D_i\) values that maximize the explained variance in \(M^*\), or \(D_i^T M^* D_i\), subject to the constraint that \(D_i^T D_i = 1\), can be used to estimate \(\hat{D}_i\) values.

Due to the fact that the first factor loadings are used to estimate cultural competence, it is important that the first factor loadings explain a large proportion of the interinformant agreement. Romney, Weller, and Batchelder (1986) recommend that the
ratio between the eigenvalues of the first and second factor should exceed 3:1. This ratio is used as a guideline to estimate whether or not informants have a strong agreement pattern and operate under a single cultural model. In addition to the 3:1 eigenvalue ratio guideline, the authors state that competence scores should all be positive, with a mean above .5 in order for the conclusion to be made that the group of respondents share a single cultural model.

Finally, in order to estimate the answer key $Z$, Bayes’ Theorem is used. Bayes’ Theorem is used to estimate the conditional probability of one event given another event. In our case, we want to estimate the probability that each answer $Z_k$ equals one of the possible nominal outcomes $l$, which is conditional upon the response data $X_{ik}$ being equal to one of $l$ responses for each question $k$.

The probability of each outcome $l$, denoted $P_l$, for each question $k$ is a function of the responses to each question $k$ in $X_{ik}$.

For each question $k$,

$P_l = \Pr(Z_k = l \mid <X_{ik}> \text{ for } i = 1, 2, \ldots, N)$. If we apply Bayes’ Theorem,

$$\Pr(Z_k = l \mid <X_{ik}> \text{ for } i = 1, 2, \ldots, N) = \frac{\Pr(<X_{ij}> \mid Z_k = l)P_l}{\sum_{z=1}^L \Pr(<X_{ij}> \mid Z_k = z)P_z}$$

In the denominator, $P_z = 1/L$, and the numerator can be solved by summing the conditional probabilities $\Pr(<X_{ik}> \mid Z_k = l)$ by adding the probability of the outcomes for which $\Pr(<X_{ik}> \mid Z_k = l)$ and $\Pr(<X_{ik}> \mid Z_k = l, 2, \ldots, N \neq l)$ using competence estimates $\hat{D}_i$ in the following manner:

$$\Pr(<X_{ik}> \mid Z_k = l) = \prod_{i=1}^N \left[ \hat{D}_i + \frac{(1-\hat{D}_i)}{L} \right]^{X_{ik,l}}$$

This expression can be reduced to:

$$\Pr(<X_{ik}> \mid Z_k = l) = \prod_{i=1}^N \left[ \frac{\hat{D}_i(L-1)+1}{(L-1)(1-\hat{D}_i)} \right]^{X_{ik,l}} \frac{(1-\hat{D}_i)(L-1)}{L}$$
Essentially, the answer key is computed by taking the responses to each question $k$ and weighted by the competence scores of each individual $i$ such that larger weights are given to the responses of individuals with greater competency (Romney, Weller, and Batchelder 1986).

Consensus Analysis for Ordinal Data—The Data Model

The Data Model was developed by Romney, Batchelder, and Weller (1987) to allow consensus analysis to be performed on ordinal data.

Notation

- Informants. $N$ is the total number of informants $i = 1, 2, \ldots, N$ in the analysis.
- Items that are Ranked. $M$ is the total number of items $k = 1, 2, \ldots, M$ in the analysis.
- Ordinal Response Data. $X = (X_{ik})$ where $X_{ik}$ is informant $i$'s rank for item $k$.
- Inter-informant correlation. $R_{ij}$ is the correlation between any two informants $i$ and $j$.
- Estimated Competence. The estimated correlation of each informant $i$ with the true rank order $t$ is $r_{it}$s.
- True rank order. The true rank order $T_k$ ranges from 1, 2, $\ldots$, $M$.
- Estimated true rank order. The correct ranks are estimates of the true rank order and are denoted $\tau_k$ for each item $1, 2, \ldots, M$.

Assumptions

In addition to the three assumptions outlined in the previous section of 1) a common truth, 2) local independence, and 3) the homogeneity of items, another important assumption is made in the ordinal data model. This assumption is that “all true correlations among informants are mediated entirely by their separate correlations with the hypothetical truth (Romney, Batchelder, and Weller 1987, p. 172).” This assumption is expressed mathematically as $r_{ij} = r_{it}r_{jt}$, or the correlation between two informants $i$ and $j$ is an approximation of the correlations that each individual has with the hypothetical truth. Therefore, the $r_{ij}$ values become tantamount to the proportion of matches $M_{ij}$ values in the previous section. It is important to note here that there is no correction for guessing in the case of rank order data.

The Data Model for Ordinal Data
This section describes the algorithms that Romney, Batchelder, and Weller (1987) use to estimate cultural knowledge for ordinal data. As in the previous section, $X_{ik}$ is the response data, except now $X_{ik}$ contains ordinal ranks as opposed to nominal responses to questions. To estimate cultural knowledge, the authors first center and standardize $X_{ik}$, and the correlation between two informants $i$ and $j$ is expressed as $r_{ij}$.

With the data model, because there is not formal correction for guessing, the estimated competence (not cultural competence) for each individual is computed. Estimated competence scores $r_{is}$ can be estimated in several ways, the most common of which is reviewed here. Estimated competence scores can be calculated by using minimum residual factor analysis (Comrey 1962) to compute the first factor of the $R$ matrix. The first factor loadings produced by the minimum residual factor analysis can be used to estimate competence $r_{is}$. If the first factor loadings are all positive, then the $r_{is}$ estimates can be used as competence estimates because the model’s common truth assumption is met.

In order to estimate the correct ranks (like the answer key in the nominal model), a linear combination of the informant ranking $z$ scores may be taken where $\tau_k = \sum \beta_i z_{ik}$, with $\beta_i$ denoting the informant weights, and $z_{ik}$s representing the standardized informant ranks. Romney, Batchelder, and Weller (1987) discuss several ways to assign appropriate weights $\beta_i$ to each informant, one of which is to use the estimated competence values for each informant as weights, or $\beta_i = r_{is}$.

**Consensus Analysis for Interval Data—The Process Model**

The process model was developed by Weller (1987) to allow consensus analysis to be performed on interval data.

**Notation**

- Informants. $N$ is the total number of informants $i = 1, 2, \ldots, N$ in the analysis.
- Questions. $M$ is the total number of questions $k = 1, 2, \ldots, M$ in the analysis.
- Shared Knowledge Parameter. $S_i =$ the proportion of knowledge an individual $i$ has in common with the common pool of knowledge.

**Assumptions**

As in the previous section, in addition to the three basic consensus assumptions, no corrections for guessing is made because the assumption is made that $S_i$ values are
already representative of the proportion of knowledge that individual $i$ has in common with the pool of cultural knowledge.

**The Process Model for Interval Data**

In order to estimate cultural knowledge with interval data, Weller (1987) describes a series of steps that can be followed to estimate the extent to which an individual’s answers are consistent with the group. It is important to note that this conceptualization of cultural knowledge is slightly different from the previous definition of cultural knowledge (i.e., the probability an informant “knows” the culturally appropriate answer to a question) (Romney, Weller, and Batchelder 1986). More specifically, Weller defines cultural knowledge in the case of interval data as the “proportion of elements that are common to both an individual” and “the pool of cultural knowledge that is represented with a set of elements” (Weller, p. 179).

In Weller’s (1987) process model, cultural competence ($D_i$) is likened to $S_i$, and $S_i$ is estimated several ways. First, $S_i$ can be estimated by taking the square root of an individual’s inter-informant reliability ($\sqrt{r}$). An individual’s inter-informant reliability can be measured as the extent to which an individual’s responses are correlated with the aggregate responses from the rest of the group. With competence estimates for each informant obtained, the answer key can be computed using Bayes’ Theorem (as described in the nominal data section) by substituting $S_i$ for $D_i$ and the number of interval response options for $L$.

**Using Consensus Analysis to Study Intracultural Variation, Intercultural Variation, and Cultural Consonance**

The manner in which consensus analysis can be used to 1) examine intracultural variation, 2) identify intercultural variation among two or more cultures, and 3) measure cultural consonance is discussed in this section.

*Intracultural Variation – Evidence of a Single Culture*

The data suggest that the group of people being studied share a single cultural model when the ratio between the eigenvalues of the first and second factor exceed 3:1, the competence scores are all positive, and the competence scores have a mean value above .5. If these conditions are met, the intracultural variance of the first factor
competence scores may then be examined in further detail. It is important to note here that the term cultural competence (Romney, Weller, and Batchelder 1986) is used interchangeably with estimated competence (Romney, Batchelder, and Weller 1986) and proportion of shared knowledge (Weller 1987).

Handwerker (2001) offers a graphical representation of what the first and second factor loadings should look like when there is evidence of a single culture. Figure 1 provides an example of what evidence of a single culture would look like. The first factor loadings are all positive and the mean first factor loadings are is above .5.

In the following section we examine how Handwerker (2001, 2002) recommends using consensus analysis to investigate the presence of more than one culture. But, for now, let us return to our discussion of how intracultural variation can be analyzed. Once consensus has been found, the cultural competence estimates can be modeled in a variety of ways. For example, the cultural competence scores may be modeled as a dependent, independent or moderating variable, and empirically tested using OLS regression or ANOVA. In one such study Romney (1999) uses ANOVA to show that there is a
significant relationship between the number of children that informants have and the cultural competence of each informant.

**Intercultural Variation - Evidence of Multiple Cultures**

Handwerker (2001, 2002) describes a series of analyses based on consensus theory that may be performed to examine intercultural variation when the data suggest that a sample is composed of more than one culture with respect to a given cultural domain. Evidence of more than one cultural group is present when there is less than a 3:1 first to second factor eigenvalue ratio, negative first factor loadings, or a mean first factor loading of less than .5. When these conditions occur, Handwerker (2001) recommends that a combination of visual inspections and secondary consensus analysis calculations be used to partition the original sample into multiple subgroups.

In order to communicate his idea about how more than one cultural group may be present in a sample, Handwerker (2001) presents a graph that shows how the factor 1 and factor 2 loading combinations may cluster around nine different locations on a two dimensional graph (Handwerker 2001, p. 196). This graph is reproduced in Figure 2. According to Handwerker (2001), if the data were to suggest the pattern shown in Figure 2, nine cultural subgroups could be present.

![Figure 2](image)

**Figure 2**
A Graphical Representation of a Sample That Does Not Exhibit Consensus
In order to determine if more than one cultural group is present, Handwerker (2001, 2002) recommends a rather subjective, visual inspection of the first and second factor loadings. Handwerker (2001) uses a factor 2 loading of .5 as a cutoff value to distinguish between cultural groups. Alternatively, Handwerker (2002) recommends that cultural groups be identified based on a combination of factor 1 and factor 2 loadings. For example, Handwerker (2002) uses this method of intercultural analysis to identify two subculture groups. One of these groups he labels a “Separate but Equal” culture that has high loadings on factor 1 and low loadings on factor 2, while he labels the second group “Mutual Decision Makers” that has low loadings on factor 1 and high loadings on factor 2. In another similar study, Handwerker (2001) uses the same type of graphical analysis to identify a group of “Basic Students” and “Serious Students.”

After a visual inspection has been used to separate the sample into multiple subgroups, Handwerker (2001, 2002) recommends that a secondary principal components analysis should be conducted on the informant similarity matrices of the subsamples in order to verify that there is consensus among the separate groups (Handwerker 2001, 2002). If the intracultural variation in this secondary analysis suggests that there again may be more than one cultural group present, the process of partitioning a single group into smaller groups should continue until consensus on a single cultural model in each of the subgroups is identified.

With the original sample partitioned into multiple subgroups, the subgroups can be numbered 1, 2, ..., n. This cultural group variable can then be modeled as an independent variable using ANOVA, or as a dependent variable using logistic or multinomial regression (Handwerker 2001). Finally, Handwerker (2001) describes a slight variation on intercultural analysis in which the impact of a cultural intervention can be assessed. For example, if a researcher is interested in how to get people to participate in a certain culture (such as believing in the importance of bike helmets or knowing the correct way to perform a physical self-examination), the researcher can have a stimulus group of people go through a cultural training program, and a control group not go through a cultural training program. Then, the researcher can use consensus analysis to examine the extent to which a cultural training program influences individuals to share
the appropriate cultural beliefs. The influence of a cultural intervention can be examined using logistic regression, where the independent variable of cultural training (1 = received training, 0 = did not receive training) can be modeled as an independent variable, along with other control variables, and the association of these independent variables on the dependent variable of cultural group participation (1 = successful cultural training group, 0 = unsuccessful cultural training group) can be assessed (Handwerker 2001).

Cultural Consonance

The construct of cultural consonance was developed in the anthropology literature when researchers realized that socioeconomic status and other traditional epidemiological variables alone did not fully explain the health problems of local communities (Dressler 1991b) and, simultaneously, a method to quantify cultural knowledge became available to anthropologists (Romney, Weller, and Batchelder 1986). While studying a rural African American community in Alabama, Dressler and colleagues (1991a, 1991b, 1993, 1998, 2000) theorized that the disproportionate health problems that the community was experiencing could be due to the inability of community members to conform to the cultural landscape to which they belonged. Using ethnographic research methods that included consensus analysis (Romney, Weller, and Batchelder 1986), Dressler (1991a, 1991b, 1993) was able to demonstrate that the extent to which individual community members followed the culturally appropriate beliefs of the community was related to the blood pressure of community members. Therefore, cultural consonance could be conceptualized as a source of anxiety or tension that community members have to cope with on a daily basis.

Dressler et al. (2005b) define cultural consonance as “the degree to which an individual approximates in his or her own behavior or belief the shared cultural model in some domain” (p. 331). Dressler and colleagues have performed extensive work on using the variable of cultural consonance in a variety of cultural contexts, such as Brazil, Mexico, Jamaica, and Alabama, and in a variety of domains, such as lifestyle, social support, family life, and national characteristics (Dressler et al. 2005; Dressler and Bindon 2000; Dressler, Bindon, and Neggers 1998; Dressler, Chavez, and Dos Santos 1991; Dressler, Dos Santos, and Baliero 1996; Dressler, Grell, and Viteri 1995).
In this paragraph the three primary steps involved in measuring cultural consonance are presented. Further details on how each of these three steps are accomplished are described in the remainder of this section. To measure cultural consonance, first, a cultural domain must be identified (through depth interviews, free listing, etc.). Second, consensus analysis (Romney, Weller, and Batchelder 1986) is used to estimate the intracultural variation and the culturally appropriate answers to a domain. Third, the extent to which each individual’s beliefs or behaviors correspond to the culturally appropriate answers estimated in the previous step are assessed, providing the researcher with a measure of cultural consonance.

Cultural research recognizes the importance of considering the local context that a researcher is studying. The cultural domain analysis techniques presented by Weller and Romney (1988) describe how free lists can be used to identify the domain items that are important to a group of people in a specific context. Dressler et al. (2005b) describe how free lists regarding which material goods and possessions people must have to enjoy a good life and the activities that people typically participate in during their free time to assess the material goods and leisure activities relevant to the lifestyle cultural domain. Likewise, free lists regarding the problems that people usually ask others to help them with and the people that a person might turn to for help to identify the social support cultural domain (Dressler et al. 2005b).

After the items in a cultural domain have been identified, the researcher must determine whether or not a group of people share beliefs about a cultural domain, and what the culturally appropriate responses to the cultural domain items are. Consensus analysis (Romney, Weller, and Batchelder 1986) is able to statistically estimate the answers to both of these issues. Once these issues have been addressed, the researcher can measure cultural consonance by creating a measure of the responses of individuals in a culture compare to the culturally correct answers.

The measurement of cultural consonance varies slightly depending on the cultural domain that is under investigation due to how the consensus estimates are calculated in the previous section (with nominal, ordinal, or interval data), and whether or not consonance in beliefs, behaviors or a combination of the two is being measured. Dressler et al. (2005) offer a more detailed description of how cultural consonance in lifestyle is
measured, which essentially involves computing the correspondence between an individual’s responses and the answer key estimates.

**Additional Consensus Analysis Considerations—Sampling and the Cultural Domain Identification Process**

Before examining several tables that identify how consensus analysis has been used in previous studies, we review additional considerations that consensus analysis studies must address, which includes sampling and the cultural domain identification process.

*Sampling*

The authors of the cultural consensus model perform Monte Carlo simulations across various cultural competence levels, sample sizes, and response data types to investigate appropriate sample size requirements (Batchelder and Romney 1988; Weller 1987). These simulations on nominal and interval data demonstrate that the average intercorrelation among informants across various levels of shared knowledge ($D_i$ and $S_i$) converges at relatively small sample sizes. More specifically, Weller (1987) identifies 15 informants as an adequate number of informants on which to perform consensus analysis. In addition to the Monte Carlo simulations, Weller (1987) also provides theoretical support based on the Spearman-Brown Prophesy Formula. This formula is usually applied in item reliability analysis to estimate the number of items needed to obtain desired reliability levels. The Spearman-Brown Prophesy Formula can also be applied to estimate sample size requirements for varying levels of informant agreement (Weller 1987).

In addition to sample size, other sampling considerations must be considered. For example, sample design should be based on the research question, and Handwerker (2005) tells us that because cultural data by definition lacks independent error terms and is autocorrelated, so samples do not require random selection (Handwerker 2001; Handwerker 2005; Handwerker, Hatcherson, and Herbert 1997). Because cultural data reflect the social interactions in which knowledge is transmitted, what one person knows is a function of other people’s knowledge, and this knowledge pool changes over time. Handwerker tells us that because cultural variation emanates from variation in life
experiences, it is important to design a sample around similar or different life experiences (2005). A random sample would not necessarily yield a group of people who shared different life experiences. Therefore, Handwerker (2005) recommends that judgmental quota samples be used based on people’s contrasting life experiences. This sampling method ensures that either a very specific group is sampled or a large amount of heterogeneity is included in a sample (Handwerker 2005).

Cultural Domain Identification

It is important to recognize that before a consensus analysis can be performed, a list of items has to be generated that can be used to assess informant beliefs. Various methodologies have been proposed that guide the researcher through the cultural domain identification process (Borgatti 1994; Handwerker 2001; Weller and Romney 1988).

The goal of the exploratory domain identification phase is to select a set of items to further examine with consensus analysis (Borgatti 1994; Weller and Romney 1988). The three primary methods that have been used to identify cultural domains that will be discussed in this section are 1) the systematic approach of free lists and pile sorts (Weller and Romney 1988), 2) the use of structured and unstructured interviews, and 3) the use of previously established cultural domains.

Systematic Data Collection—Free Lists and Pile Sorts

Cognitive anthropologists offer a complete description of how to use free lists and pile sorts to identify the items to include in a cultural domain and the structure of the items in the cultural domain (Borgatti 1994; Weller and Romney 1988). The title of Weller and Romney’s book is *Systematic Data Collection*, and throughout the book they emphasize their desire to make cultural research as transparent and replicable as possible. In order to be systematic, the authors recommend the collection of free list and pile sort data (Weller and Romney 1988). Furthermore, the authors explain how to incorporate statistical methods that include multidimensional scaling analysis (MDS) and property fitting (PROFIT) analysis to examine the structure of a cultural domain (Borgatti 1996 1994; Weller and Romney 1988). The first step in identifying a cultural domain in cultural domain analysis is to use a free list (Weller and Romney 1988). The free list method has a long history in anthropology (Romney et al. 1979). A more recent
assessment of how to use free lists to identify cultural domains is offered by Quinlan (2005).

There is a variety of information that can be obtained from free list results. The most commonly used information from free list results are the salience, or position of an item in a free list (Smith 1993), and the frequency, or proportion of free lists in which an item occurs (Weller and Romney 1988). A high correlation between the salience and frequency measures of the free list items indicates a coherent domain (Romney, Brewer, and Batchelder 1996). Additional information from the free list, such as the order in which items are recalled can be used to assess the cognitive structure of informants (D'Andrade 1987a; Romney 1989).

An advantage of using free listing to identify the content and boundaries of a cultural domain is that free list results are quantifiable. Thus, the steps that were followed to identify a cultural domain can be provided by the researcher and replicated. For example, Romney (1999) describes how one study used free lists to identify a cultural domain by including the 27 items with the highest frequency and that were present on at least 15% of respondents’ lists. The cutoff of a 15% occurrence rate and a frequency in the top 27 could be used by another researcher to replicate this study.

Another issue that arises when gathering free list data is how to handle domains that are not coherent. When phrases, as opposed to single words, are gathered with a free list the results may be idiosyncratic. Although free lists that yield single words may produce hundreds of different words, free lists of statements can produce thousands of different statements. Because it is not feasible to evaluate cultural domains that contain an extremely large number of items, the researcher must code free list results that have numerous idiosyncratic statements. Guidelines on how to code statements exist (Romney et al. 1979; Weller and Romney 1988), but in the end there are no exact steps that can be followed to code statements. Depending on the nature of the domain, the required sample size of free lists varies, but Weller and Romney (1988) state that obtaining 100 free lists from informants is usually sufficient to explore all possible components of the domain.

After the free list process has been completed and a cultural domain is identified, Weller and Romney (1988) recommend that the structure of the domain items be examined. This is done by using pile sorts or triad comparisons so that the researcher can
gain a better idea of the structure and content of the items in the cultural domain. Pile sorts and triad comparisons provide a monadic (Borgatti 1994) item-by-item similarity matrix that can be examined with a variety of statistical techniques.

Pile sorts and triad comparison can be administered in a variety of ways in order to accomplish different research objectives. The most basic type of pile sort is the “single sort” in which subjects are asked to read all of the items and then sort them into piles where items in one pile are more similar to each other than items in the other piles (Romney et al. 1979). More complicated pile sorts that include successive pile sorts can be used to construct cluster dendrograms and perform different variations of cluster analysis, but these methods are more complicated and time consuming than traditional pile sorts.

Triad comparisons are another method that is commonly used by anthropologists to collect similarity data (Weller and Romney 1988). In triad comparisons, informants are presented with three items and asked to identify which of the three items is most different from the other two. As a domain increases in size (number of items), it becomes more difficult to administer triad comparisons, but a randomized incomplete block designs can be used to reduce the burden on informants. Finally, it is also important to note that Weller and Romney (1988) recommend that after a pile sort or triad task exercise is completed by informants, informants should be interviewed to gain deeper insights. For example, if an informant is asked why they put a certain item in a pile, a further understanding of the cultural domain can be gained.

A variety of statistical methods can be used to analyze the monadic item-by-item similarity matrix created by pile sorts and triad comparisons. Multidimensional scaling analysis attempts to identify the underlying dimensions that informants have of a cultural domain, and identifies where each item lies in the identified dimensions. Hypotheses about the specific MDS dimensions can be examined with PROFIT analysis, which treats the MDS coordinates as independent variables in a regression analysis and the attribute rankings of the hypothesized dimension as the dependent variable and estimates the strength of the linear relationship between the two (Borgatti 1994).

Depth Interviews
Depth interviews are not as transparent and systematic at identifying cultural domains as the steps described in the previous section (Weller and Romney 1988), but they are still commonly used to develop cultural domains. Depth interviews depend on the interpretation of the researcher and the validity of informant information. Depth interviews can take the form of structured interviews, unstructured interviews, or a combination of both. Studies that use depth interviews to identify a cultural domain must code the interview data into specific cultural domain items.

**Previously Established Cultural Domains**

Although most studies that use the cultural consensus model use either the free list/pile sort methods described in the first section or depth interviews to identify cultural domains, some studies have used cultural domains or scales that were established in previous studies. The limitations of using previously established domains are that they may not consider the local context of informants. Also, because cultural domains are constantly changing, it may be inappropriate to use a cultural domain that was developed too far in the past.

**Applications of the Cultural Consensus Model**

The cultural consensus model has been applied to a wide variety of cultural domains across different contexts. Tables 1, 2, 3, and 4 list a combined total of forty studies that have formally applied the cultural consensus model and cited Romney, Weller and Batchelder’s original (1986) or subsequent work (Romney, Batchelder, and Weller 1987; Weller 1987). The top row of Tables 1, 2, 3, and 4 identifies the information that is included in the tables. To begin with, the article author(s), year, and source is identified so that any of these articles can be easily referenced. Second, the cultural domain, or the phenomena, that is investigated in each study is identified. This cultural domain column is used to separate the studies into the categories of folk medicine (Table 1), folk biology (Table 2), and gender studies (Table 3). Table 4 contains studies that use consensus analysis to measure cultural consonance across a variety of cultural domains.

The next columns are separated into two major groups, each containing subcategories. These two major groups—“domain identification” and “consensus
analysis” summarize different portions of consensus analysis studies. The domain identification portion describes the method used to identify the cultural domain (free list, interview, etc.) and the method’s corresponding sample size. The consensus analysis portion of the study is summarized in eight columns. First, the data type (level of measurement) such as nominal, ordinal, or interval is identified. The following two columns identify the sample size, or the number of informants included in the consensus analysis, and the number of items in the cultural domain. Finally, the last five columns include the statistics that are typically associated with the consensus analysis estimates, which include the first to second factor eigenvalue ratio, the cultural competence mean, the cultural competence standard deviation, the range of the cultural competence estimates, and finally the number of negative cultural competence estimates.

Table 1 summarizes eighteen studies that used consensus analysis to examine folk medicine beliefs of people all over the world. Table 2 summarizes ten studies that have used consensus analysis to examine folk biology beliefs of a wide range of people. Table 3 summarizes five journal articles that study gender. Finally, Table 4 summarizes seven studies that have used consensus analysis to measure cultural consonance.

It is important to note that while many of the consensus analysis studies have followed the methodology using free lists and or pile sorts/triad comparisons outlined by Weller and Romney (1988) in their book *Systematic Data Collection*, many have not. For example, not even half of these studies use free lists to identify a cultural domain. The rest of the studies use either interviews or previously established scales, while many studies fail to specify how the items used to represent a cultural domain are obtained. Because so few studies investigate the structure of a cultural domain using pile sort or triad comparison data, a column describing the item analysis portion of the study was not included in the table.

It is also important that we review the consensus analysis estimates that are reported in the studies listed in Table 1. The sample size of the consensus analysis is reported in most, but not all, studies, and ranges from 8 to 250. Likewise, the first to second eigenvalue ratio is reported in most, but not all, studies. Alternatively, while Romeny, Weller, and Batchelder (1986) state that there should be no negative
competence values, the vast majority of these studies fail to address whether or not there were any negative competence estimates. Tables 1, 2, 3, and 4 are now presented.
Table 1
Folk Medicine Applications of Consensus Analysis

<table>
<thead>
<tr>
<th>Author(s), (Year), Source</th>
<th>Cultural Domain</th>
<th>Group(s)</th>
<th>Domain Identification</th>
<th>Consensus Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Author(s), (Year), Source</td>
<td>Cultural Domain</td>
<td>Group(s)</td>
<td>Method</td>
</tr>
<tr>
<td></td>
<td>Baer et al., (1999), Human Organization</td>
<td>Common Cold</td>
<td>Guatemalans Mexicans Texas Latinos Connecticut Latinos Tampa Latinos</td>
<td>Interview, free list</td>
</tr>
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<td></td>
<td>Baer et al., (2003), Culture, Medicine, and Psychiatry</td>
<td>Nervios</td>
<td>Connecticut Latinos Texas Latinos Mexicans Guatemalans</td>
<td>Interview, free list</td>
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<tr>
<td></td>
<td>Baer, (2004), Medical Anthropology Quarterly</td>
<td>Beliefs about AIDS</td>
<td>Mexican Physicians Mexican Layperson US Physician US Layperson</td>
<td>Previously established scale</td>
</tr>
<tr>
<td></td>
<td>Chavez et al., (1995), Medical Anthropology Quarterly</td>
<td>Breast cancer risk factors</td>
<td>Mexican and Salvadoran immigrants Anglo women Chicanas Physicians</td>
<td>Interview, free list</td>
</tr>
<tr>
<td>Study</td>
<td>Cervical cancer risk factors</td>
<td>Mexican and Salvadoran immigrants</td>
<td>Anglo women</td>
<td>Chicanas</td>
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<td>Curry et al. (2002), Social Science and Medicine</td>
<td>Middle ear infections</td>
<td>Parents in North Carolina</td>
<td>Interview</td>
<td>Binary</td>
</tr>
<tr>
<td>Daniulaityte, (2004), Social Science and Medicine</td>
<td>Causes of diabetes</td>
<td>Female patients of a social security clinic in Guadalajara Mexico</td>
<td>Interview</td>
<td>28 3-point interval</td>
</tr>
<tr>
<td>Garro, (1988), American Ethnologist</td>
<td>Knowledge about high blood pressure</td>
<td>Ojibway Indians (Canada)</td>
<td>Interview</td>
<td>Binary</td>
</tr>
<tr>
<td>Garro, (1996), Culture, Medicine, and Psychiatry</td>
<td>Causes of diabetes</td>
<td>Eastern Ojibway Indians</td>
<td>Interview</td>
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Criticism of Consensus Analysis

In *Interpretations of Culture* (1973), Geertz criticizes Goodenough’s view of culture which Geertz labels “ethnoscience” (p. 11), or cognitive anthropology. While cognitive anthropologists view cultural meaning as existing in the minds of individuals, Geertz views meaning as public, or existing in an extrasomatic sense (White 1959). Geertz also accuses cognitive anthropology of reifying and reducing culture. The reification of culture is said to occur when culture is categorized into something (D'Andrade 1999) that it is not and given culture forces of its own (Geertz 1973). For example, if we label a culture “American,” we run the risk of reifying culture into a category that may be incorrect. Finally, Geertz also claims that by limiting culture to shared cultural knowledge, culture is reduced to only a fraction of its true essence. For example, Hannerz (1992), defines three dimensions of culture. While one of Hannerz’s three dimensions closely resembles shared knowledge, another, “forms of externalization” (p. 7) is something much less related to shared knowledge.

A second criticism of consensus analysis exists between how cognitive anthropologists conceptually define culture and the operational definition of shared cultural knowledge. Marketing scholars recognize the importance of matching theoretical and operational definitions (MacKenzie 2003; Malhotra et al. 1999). If we define cultural knowledge as socially transmitted and shared beliefs, it is important to recognize that, although the cultural consensus model is able to operationalize the shared beliefs component of culture, it does not operationalize social transmission. However, because most of the knowledge that people have is cultural (D’Andrade 1995), if research is well-grounded or based on a cultural domain that is composed of socially transmitted cultural knowledge, then this limitation should not prevent the use of consensus analysis.

Summary

In his book *Culture and Cognition*, Ross (2004) refers to an analogy between the earth’s surface and culture used by previous anthropologists, in which the central question for anthropologists regarding how to distinguish between cultural groups is likened to how geographers distinguish between mountains, hills, and oceans. While it is typical for ethnographers to use nationality or race to draw cultural boundaries, national or racial groups may not share a single systems of beliefs. It is possible that other variables offer better explanations of how cultural boundaries may be drawn. Consensus analysis allows a researcher
to empirically examine the cultural mountains, hills, and oceans that may exist among a group of people. In addition to examining cultural boundaries, consensus analysis offers measurements of cultural heterogeneity that can be incorporated into marketing models and associated with important marketing outcome variables such as satisfaction or purchase intentions. Finally, the culturally appropriate answers to a set of questions can be estimated with the cultural consensus model. These estimates can be incorporated into studies that examine 1) intracultural variance, 2) intercultural variance, and 3) cultural consonance. Consensus analysis has a great deal of potential to contribute to marketing research.

**Consensus Analysis Applied to Marketing Research**

In order to discuss how consensus analysis could be used to extend research in marketing, the consumer culture, organizational culture, and national culture research streams are examined. In each of these sections, we first review the dominant methods used to study culture in each area, and then examine how consensus analysis could be used to provide additional insight in each area. That said, it is also important to remember that these three research streams are only reviewed from a theoretical standpoint in this dissertation and are not addressed empirically.

**Consumer Culture**

Recent marketing studies in the consumer culture literature examine emerging marketing and consumption phenomena, such as retro branding, Western Rodeos and trade shows, emotional branding, brand authenticity, and brand community (Brown, Kozinets, and Sherry 2003; McAlexander, Schouten, and Koning 2002; Penaloza 2000; Thompson, Rindfleisch, and Arsel 2006). These studies explain consumption phenomena in terms of the consumers who experience them in local contexts (Arnould and Thompson 2005). Consumer culture studies tend to examine culture using interpretive research methods (Hudson and Ozanne 1988), such as participant observation and depth interviews. These types of studies, however, have been criticized for their lack of objectivity (Calder and Tybout 1989; Hunt 1989). In order to respond to this criticism, consumer culture studies have developed a variety of guidelines to make their research conclusions empirically testable by others.
Numerous interpretive researchers offer guidelines to follow for conducting interpretive research and drawing conclusions (e.g., Applbaum and Jordt 1996; Arnould and Wallendorf 1994; Belk, Wallendorf, and Sherry 1989; Hirschman 1986; Spiggle 1994). Hirschman (1986), for example, identifies the criteria of credibility, transferability, dependability, and confirmability for evaluating humanistic inquiry. In a similar manner, Spiggle (1994) outlines systematic analytic operations for controlling the quality of interpretive research, which may include categorization, abstraction, comparison, dimensionalization, integration, iteration, and refutation. Arnould and Wallendorf (1994) describe how to evaluate the effectiveness of how data was collected and to evaluate the extent to which an interpretation is credible. Applbaum and Jordt (1996) discuss how cultural categories can be applied to products and services in order to make a more systematized culture construct. Finally, Belk, Wallendorf, and Sherry (1989) outline a seven step method that minimizes discrepancies in both the recording and the interpretation of data.

It is evident that a variety of guidelines for conducting interpretive research on consumer culture are available. Unfortunately, even with these systematic guidelines, interpretive research is still criticized because the results of thick descriptions do not assess measurement error (Calder and Tybout 1989; Hunt 1989). The critics of interpretive consumer research state that until a methodology is developed for objectively testing interpretive conclusions, interpretive research methods will remain incommensurable with contemporary social science research (Hunt 1989). Calder and Tybout (1989) stress the importance of error-free conclusions and call for more clarity in interpretive research methods. One main source of interpretive error that the critics of interpretive research identify is the bias of the ethnographer whose personal sentiments may mask the truth. Although the ethnographer may feel that he or she has come to the appropriate conclusion, others may find the conclusions inappropriate (Calder and Tybout 1989).

Consensus analysis could be used to provide justification for conclusions drawn from interpretive research, as it offers a set of procedures that are replicable and transparent (Romney 1999). This does not mean to imply that thick descriptions should be abandoned, but if they are used in conjunction with the cultural domain analysis methodology, consumer culture research could become more objective. For example, consensus analysis could be used to estimate the extent to which a consumption phenomena in an interpretive study is shared by a cultural group.
Consensus analysis could also be used to measure intracultural heterogeneity to test cultural models and cultural theories.

**Organizational Culture**

The main stream of organizational culture literature in marketing stems from the work of Deshpande and Webster (1989), who have contributed a great deal to organizational culture research (Deshpande and Farley 2004; Deshpande, Farley, and Webster 1993; 2000; Deshpande and Webster 1989; Webster and Deshpande 1990). Organizational culture research in marketing tends to adopt a view of culture as shared values and beliefs (Deshpande and Webster 1989). To measure organizational culture, Deshpande, Farley, and Webster (1993) use a constant sum scale and have employees of an organization divide 100 points between four statements wherein each statement is either associated with a clan, adhocracy, hierarchy, or market organization type. This division of 100 points into four categories is done across four organizational characteristics: kind of organization, leadership, what holds the organization together, and what is important (Deshpande, Farley, and Webster 1993, p. 34). This organizational culture measure is based on the work of management academics (Cameron and Freeman 1991; Quinn 1988).

Although Deshpande and Webster’s (1993) methodology for studying organizational culture continues to be used by marketing researchers (Deshpande, Farley, and Webster 2000; Hewett, Money, and Sharma 2006), organizational behavior and management researchers have recognized the need for new organizational culture measures (Deshpande and Farley 2004; Webster 2005). The management literature is focusing on measuring organizations at the group (versus individual) level, which offers potential for organizational culture research. Walsh’s (1995) review of organizational cognition studies offers interesting insight into where studies on organizations are headed. In his review of organizational studies, Walsh concludes that a fundamental empirical challenge facing management researchers is to identify content and structure of individual and supra-individual levels of analysis (1995). This distinction between individual and supra-individual levels of analysis is not mentioned by Deshpande and Webster (1989), and because culture is conceptualized as collective, or shared among a group of people, this distinction is important.

In order to measure organizational culture as a group-level construct and to examine the intracultural heterogeneity of the people within an organization, consensus analysis could be
used in a similar manner to how Jaskyte and Dressler (2004) use consensus analysis to study organizational culture. These authors survey 19 branches of the same nonprofit organization on 23 of O’Reilly, Chatman, and Caldwell’s (1991) value statements, and find that the average cultural competence level is correlated to the level of innovation in a branch of the organization.

In order to extend the work of Deshpande, Farley, and Webster (1993), instead of using a constant sum scale to measure organizational culture, a scale for each organizational culture type (clan, adhocracy, hierarchy, and market) could be developed. For example, Cameron and Freeman (1991, p. 29) list 3-4 items for each characteristic (dominant attributes, leader style, bonding, and strategic emphases) of the four organizational culture types. These items could be incorporated into scales, which could then be used in a consensus analysis.

Finally, consensus analysis would allow the researcher to examine cultural domains other than values. Although values continue to be a popular shared beliefs in organizations (Gebhardt, Carpenter, and Sherry 2006), organizational culture should not remain limited to values. Other cultural domains could be considered using consensus analysis and related to organizational performance variables.

**National Culture**

National culture research, also referred to as cross-cultural research, is dominated by the concept of national cultural values and specifically Hofstede’s measurements of national cultural values (Hofstede 1980, 19991, 2001). Hofstede (2001) identified the dimensions of power distance, uncertainty avoidance, individualism, masculinity, and long-term orientation. Most of the recent marketing research that involves national cultural values is based on Hofstede’s work (e.g., Erdem, Swait, and Valenzuela 2006; Hewett and Bearden 2001; Nakata and Sivukumar 1996; Steenkamp, Hofstede, and Wedel 1999; Tse et al. 1988). Recently, new national cultural values measures have been developed (e.g., Bearden, Money, and Nevins 2006; Schwartz and Bardi 2001; Schwartz et al. 2001).

The strengths of the national cultural values conceptualization and measurement of culture lie in its ability to provide researchers with a parsimonious means to perform cultural research in a manner that allows future researchers to validate and replicate the findings of other researchers (Bond 2002; Miller 2002; Oyserman et al. 2002; Steenkamp 2001; Williamson 2002). National culture research is dominated by studies that use statistical methods that treat
culture as an independent or moderating variable and examine how its variance influences other variables.

The main limitations associated with current national culture research methods stem from 1) the assumption that differences in value scores are the consequence of cultural differences (Holden 2004), 2) the use of political boundaries to delineate cultural boundaries (Nakata and Sivukamar 1996), and 3) the categories of national cultural values being made up by Westerners and therefore may not be sensitive to the local contexts (Holden 2004). Let us examine how consensus analysis could be used to address these criticisms.

If a comparison is made between two cultures on an attribute, the mean scores reveal nothing about the variability within each culture or whether a particular individual who is sampled is typical or atypical of a culture (Smith 2002). Oyserman, Kemmelmeier, and Coon (2002) recognize that the study of individualism and collectivism does not substitute for the study of culture. Cultural research should encompass more of the shared knowledge and meanings that gave rise to the culture concept (Holden 2004). When culture is conceptualized as shared among a group, it becomes a group-level, as opposed to an individual-level variable. The importance of future research in this area, as mentioned in the organizational culture literature, seems to be a bridge that cultural research must cross (Smith 2002).

Consensus analysis is able to statistically estimate the extent to which a group shares a set of beliefs and the level of cultural heterogeneity within a group. Therefore, instead of making the assumption that value scores are cultural, consensus analysis could be used to estimate the extent to which a group shares a set of values. Moreover, rather than using the individual value scores as measures of cultural heterogeneity, cultural competence estimates (Romney, Weller, and Batchelder 1986) could be used to measure cultural heterogeneity.

Anthropologists are critical of the use of political boundaries to delineate cultural boundaries. For example, Geertz (1973) criticizes the misleading tags and metaphysical types social scientists use to form similar groups of people. Likewise, in his book *Europe and the People Without History*, Wolf (1982) reviews how political boundaries contain many types of diverse people. Wolf’s (1982) billiard ball metaphor (p. 6-7) demonstrates that it is often inappropriate to assume that cultural boundaries are present, whether they be national political boundaries or something else. Furthermore, to reify, or name and classify cultures into categories can be misleading if the cultural research is not done carefully. Political boundaries
have always been porous, and some authors make the assertion that with today’s technological advancements, our world is becoming borderless (Holden 2004; Webster and Deshpande 1990). Thus, the assumption that political boundaries are cultural boundaries may attenuate national cultural values research and risk overethnicizing cultural research (Brumann 1999).

Instead of assuming that national borders determine whether or not a person participates in a certain culture, consensus analysis could be used to test the extent to which national borders equate to cultural borders. Schwartz and Bardi (2001) use consensus analysis, but instead of examining inter-informant correlations as is done by cognitive anthropologists, they examine the correlation of each national sample with the average national cultural value ratings of the entire sample, adding an extra level of complexity that makes their study difficult to follow (from a cultural consensus model perspective). If the consensus analysis methods used by cognitive anthropologists were applied to national culture research, the first to second eigenvalue ratio of inter-informant correlations could be used to assess the extent to which the group of people sampled in a nation share cultural knowledge. The last portion of this section will describe how consensus analysis could be used to investigate cultural domains other than values.

Hofstede’s national cultural values research is similar to Mordoch’s Human Relations Area Files in the sense that they both seek to explain cultural differences between large numbers of cultures across the globe. Murdoch’s research (1949, 1967) has been criticized because it assumes that the cultural categories made up by Westerners mean that same thing across different cultures. Furthermore, such approaches fail to address how cultures are integrated as meaningful wholes, and they fall short of looking at culture as something defined by the people who live it.

Although an assertion can be made that differences among the values that people hold may reflect cultural programming, this may leave people wondering if culture is influenced by domains other than values. Some authors recognize the existence of levels of culture (Denison 1996; Steenkamp 2001). Denison (1996) states that national culture researchers realize that values are just an intermediate cultural trait. Consensus analysis could be used to explore how people from different nations share beliefs other than values.

**Summary**
The cultural domain analysis methodology offers marketing researchers in the areas of consumer culture, organizational culture, and national culture research a new tool with which to study culture. In order to improve consumer culture research objectivity, the cultural domain analysis methodology could be used to statistically estimate the level of informant agreement and reduce the level of subjective interpretation required by a researcher to draw conclusions. In order to improve organizational culture research, the cultural domain analysis methodology could improve the fit between the conceptual and operational definitions of organizational culture. Finally, rather than assuming that political boundaries delineate cultural boundaries, the cultural domain analysis methodology could be used to empirically test whether or not national boundaries are cultural boundaries. Moreover, the cultural domain analysis methodology could be used to extend national cultural research outside of the domain of national cultural values.

In the next dissertation chapter, three empirical studies that use consensus analysis are performed in order to demonstrate how consensus analysis can be used to estimate 1) intracultural variance, 2) intercultural variance, and 3) cultural consonance. While many applications of consensus analysis to consumer, organizational, and national cultural research are possible, the three empirical studies are performed in order to demonstrate the different capabilities of consensus analysis rather than evaluate specific consumer, organizational, or national culture research issues.
CHAPTER THREE  
RESEARCH METHODOLOGY

In order to demonstrate how consensus analysis can be applied to marketing research, three marketing research studies that use consensus analysis are performed and discussed. These three studies are designed and presented with the goal of demonstrating a variety of the methodological techniques that are used in conjunction with consensus analysis.

Study 1 demonstrates how 1) a cultural domain can be identified using free listing, 2) the structure of the cultural domain items can be investigated using pile sort data and property fitting (PROFIT) analysis, and 3) informant agreement regarding the cultural domain can be investigated using consensus analysis. These three steps follow the methodological guidelines outlined in *Systematic Data Collection* (Weller and Romney 1988). Finally, the intracultural variation estimates obtained using consensus are then treated as a dependent variable in a regression analysis and modeled as a function of several background variables.

Study 2 demonstrates how consensus analysis can be used to evaluate sources of intercultural variation (Handwerker 2001). When consensus analysis results indicate that a group does not exhibit a high level of sharing (less than a 3:1 first to second eigenvalue ratio, negative first factor loadings, and a low first factor loading average), the sample can be partitioned into subgroups, and consensus analysis can be rerun on the subgroups. This allows the researcher to investigate intercultural variation by evaluate background variables that may influence intercultural variance with logistic or multinomial regression.

Study 3 uses the answer key estimate of consensus analysis to measure the construct of cultural consonance (Dressler 2005b). The answer key estimates of consensus analysis provides us with a measure of the culturally appropriate responses to a list of cultural domain items. With the answer key, cultural consonance can be measured as the extent to which individual beliefs or behaviors are consonant with the answer key estimates of a group’s beliefs or behaviors.

**Study 1: The Cultural Model of Disney World Among Florida Undergraduates**

Ethnographic research in marketing has not employed the consensus analysis methods that anthropologists have recently developed to their fullest potential (Romney, Batchelder and
Weller 1987; Romney, Weller, and Batchelder 1986; Weller 1987). In their book Systematic Data Collection (Weller and Romney 1988), the anthropologists who developed these consensus analysis methods describe a three phase methodology that can be followed in order to conduct an ethnographic study that uses consensus analysis. In order to demonstrate to marketers how anthropologists use consensus analysis in conjunction with the Systematic Data Collection (Weller and Romney 1988) methodology, we examine the cultural knowledge that Florida undergraduates share about Disney World.

In order to follow the three phased Systematic Data Collection methodology (Weller and Romney 1988), free list data were collected and analyzed in order to identify the qualities that Florida undergraduates associate with Disney World. After identifying a list of cultural domain items, an ethnographer investigates the structure of the cultural domain items in the minds of a group of people. Pile sort data were collected and analyzed using non-metric multidimensional scaling analysis. This analysis examines the underlying dimensions of the cultural domain items and assesses their similarity in the minds of Florida undergraduates. After having identified a list of cultural domain items and examined the structure of the items, the focus then becomes the structure of informant agreement with respect to the cultural domain.

The third objective in an ethnographic study using consensus analysis is to determine the pattern of shared beliefs that the cultural group under investigation exhibits towards the cultural domain items. Likert rating scale data were collected and analyzed with consensus analysis in order to investigate the shared beliefs of Florida undergraduates. This three phased methodology is described in three separate sections titled cultural domain item identification, cultural domain item analysis, and cultural domain informant analysis. After these three sections, the methodological contributions, managerial implications, and limitations of this study are reviewed.

**Cultural Domain Item Identification**

In order to follow the methodology outlined in Systematic Data Collection (Weller and Romney 1988), an ethnographer must first identify the cultural domain items to include in the study. For this study, we wanted to investigate the brand meaning that Florida undergraduates share about Disney World. Therefore, the first step was to use free list data to determine the items that will represent the cultural domain of Disney World. Free listing is the best way to
make sure that culturally relevant domain items are included in an ethnographic study that uses consensus analysis (Weller and Romney 1988). Free listing provides two useful types of measures that can be used to determine which cultural domain items to include in a consensus analysis study: item frequency and item salience (order properties) (Borgatti 1996b).

While marketing researchers are accustomed to examining frequency values of qualitative data, such as in content analysis (Brady and Cronin 2001), salience values are not as common in the literature. In comparison to the open ended qualitative responses that are typically collected in marketing studies, free list data contains order characteristics. Smith (1993) discusses how the order in which each of the free list statements occurs can be measured and calls this measure salience. Another way that salience can be conceptualized is how close each free list item is to the top of mind. For example, when respondents were asked to list qualities that people associate with Disney World, if the first item to be free listed was “The Happiest Place on Earth,” then this item would have the highest salience measure of all the free listed items.

One hundred and nineteen undergraduate students were asked to “list the qualities that people associate with Disney World.” The 119 free lists produced 1,245 unique items. The frequency at which each item was mentioned was divided by 119 to calculate the percent of respondents who mentioned each item. The results from this analysis, conducted using ANTHROPAC 4.9 (Borgatti 1996a), are shown in the lower line in Figure 3. For example, the most frequently listed item was “fun,” which was included on approximately 33% of the 119 free lists.
Because many of the responses to the free list questions produced idiosyncratic phrases, the phrases were simplified into categories whenever possible in order to make the data more consistent. For example, in addition to “fun,” many respondents listed idiosyncratic phrases such as “have fun,” “fun times,” and “fun place.” This process involved one researcher going through the 1,245 items several times to group similar words and phrases into more consistent categories. This process reduced the number of unique items from 1,245 to 1,000 and increased the frequency of many of the free list results. The results of this item cleaning and categorizing process are shown in the upper line in Figure 3. For example, the most frequently listed item “fun” had its frequency increase to 67% of the one hundred and nineteen respondents. The frequency and salience of the free list results (post-cleaning) were calculated with ANTHROPAC 4.9 (Borgatti 1996a; Smith 1993), and were correlated at 0.98. This high
The correlation between item frequency and salience indicates consistency in the free list results (Weller and Romney 1988).

The thirty-nine most frequently listed items (post-cleaning) were selected to represent the cultural domain of Disney World (see Table 5). The thirty-nine items were selected based on an analysis of the scree plot shown in Figure 3 (post-cleaning). Before the thirty-ninth item, the number of items that have frequency ranges from one to four. However, after the thirty-ninth item, the number of items that have the same frequency increases to twelve, then to fifteen, and then to twenty-five. This demonstrates that after the thirty-ninth item, the remaining items become less unique (Weller and Romney 1988). These items are included in Table 5, along with their frequency and salience measures.

<table>
<thead>
<tr>
<th>Cultural Domain Item</th>
<th>% of Respondents</th>
<th>Salience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Fun</td>
<td>67</td>
<td>0.54</td>
</tr>
<tr>
<td>2 Expensive</td>
<td>53</td>
<td>0.31</td>
</tr>
<tr>
<td>3 Characters</td>
<td>45</td>
<td>0.21</td>
</tr>
<tr>
<td>4 Kids</td>
<td>40</td>
<td>0.27</td>
</tr>
<tr>
<td>5 Families</td>
<td>40</td>
<td>0.29</td>
</tr>
<tr>
<td>6 Magical</td>
<td>39</td>
<td>0.28</td>
</tr>
<tr>
<td>7 Vacation</td>
<td>39</td>
<td>0.25</td>
</tr>
<tr>
<td>8 All Ages</td>
<td>24</td>
<td>0.13</td>
</tr>
<tr>
<td>9 Long Lines</td>
<td>21</td>
<td>0.09</td>
</tr>
<tr>
<td>10 Food</td>
<td>20</td>
<td>0.09</td>
</tr>
<tr>
<td>11 Happiness</td>
<td>18</td>
<td>0.14</td>
</tr>
<tr>
<td>12 Exciting</td>
<td>18</td>
<td>0.13</td>
</tr>
<tr>
<td>13 Huge</td>
<td>17</td>
<td>0.08</td>
</tr>
<tr>
<td>14 Orlando, Florida</td>
<td>17</td>
<td>0.08</td>
</tr>
<tr>
<td>15 Crowded</td>
<td>16</td>
<td>0.08</td>
</tr>
<tr>
<td>16 Diverse People</td>
<td>16</td>
<td>0.07</td>
</tr>
<tr>
<td>17 Rides</td>
<td>14</td>
<td>0.09</td>
</tr>
<tr>
<td>18 The Happiest Place on Earth</td>
<td>14</td>
<td>0.10</td>
</tr>
<tr>
<td>19 Educational</td>
<td>13</td>
<td>0.04</td>
</tr>
<tr>
<td>20 Every Child Has To Experience It At Least Once</td>
<td>12</td>
<td>0.04</td>
</tr>
<tr>
<td>21 Imagination</td>
<td>11</td>
<td>0.06</td>
</tr>
<tr>
<td>22 Makes You Feel Younger</td>
<td>10</td>
<td>0.07</td>
</tr>
</tbody>
</table>
Having identified a list of cultural domain items, the next objective is to identify the structure of the cultural domain items. In order to examine the structure of the cultural domain items obtained from the free listing results, a new group of forty Florida undergraduates performed pile sorts on the thirty-nine Disney World cultural domain items. Pile sorts (along with triad comparisons) are typically used in cultural domain analysis to construct an item-by-item similarity matrix whose structure can be analyzed using multidimensional scaling (MDS) analysis (Borgatti 1994; Weller and Romney 1988). The thirty-nine Disney World domain items were written on cards and ordered randomly. Respondents were instructed to place the cards into similar piles based on the meaning of each item so that the items in the same piles were more similar to each other than items in the different piles (Romney et al. 1979). To analyze the pile sort data, the non-metric MDS function of ANTROPAC 4.9 (Borgatti 1996b) was used. The stress of the MDS analysis in two dimensions was 0.22, which is less than the cutoff value of 0.349 provided by Sturrock and Rocha (2000), indicating an acceptable fit between the data and the two dimensional MDS model. The MDS results are shown in Figure 4.
MDS analysis is an analytical method with which marketing researchers are very familiar (Borgatti 1994). The MDS analysis does not measure the structure of informant agreement as is done with consensus analysis (Romney, Weller, and Batchelder 1986). The reason MDS is used in cultural domain analysis is to provide the researcher with a visual representation of how the cultural group that is under investigation organizes the cultural domain items in their minds. Therefore, MDS simply provides additional information about the structure of the items that were identified in the free listing portion of the study.

In order to identify or name the dimensions that informants use to sort cultural domain items into different piles, anthropologists have used property fitting (PROFIT) analysis (Borgatti 1994; Gravlee 2005). PROFIT analysis uses the coordinates of an MDS analysis as independent variables in a regression model to determine whether or not the coordinates influence an outcome variable that is hypothesized to be a dimension of the MDS analysis (Borgatti 1994). After examining the MDS Disney World results, some of the items at opposite ends of the MDS graph appear to be inversely related. For example, the “huge,” “clean,” and “safe,” items on the right of the MDS graph are more realistic aspects of Disney World, whereas “the happiest place on earth” and “where dreams come true” items on the left of the MDS graph are more associated
with fantasy. The extent to which Florida undergraduates evaluate the Disney World cultural domain items along this reality/fantasy dimension were statistically estimated using PROFIT analysis.

A group of fifty-eight students were asked to rate the extent to which each of the thirty-nine items were real or fantasy. Informants rated each Disney World characteristic on a nine point scale anchored by “reality” (-4) and “fantasy” (+4). The results of the PROFIT analysis, computed using ANTHROPAC 4.9 (Borgatti 1996a) indicate that the reality/fantasy ratings were explained by the MDS coordinates ($R^2 = 0.55, p = 0.001$). Figure 5 shows the vector along which the reality/fantasy lies (identified by the PROFIT analysis).

![Figure 5: PROFIT Analysis Results](image)

**Cultural Domain Informant Analysis**

In the third phase of this study, we examined the structure of informant agreement regarding the cultural domain of Disney World using consensus analysis. Consensus analysis provides an estimate of the group’s agreement level (first to second factor eigenvalue ratio), the extent to which each individual agrees with the group (cultural competence), and the culturally appropriate answer to each cultural domain item (answer key). In order to obtain these three estimates, sixty-four undergraduates were asked to rate each of the thirty-nine items on a seven
point scale that read “How much do people associate each of these qualities with Disney World?” The scale points were anchored by “Not At All Associate” and “Very Strongly Associate.” The randomize function of ANTHROPAC 4.9 was used to generate four different versions of the questionnaire to control for question order bias. The data were analyzed using the consensus function in ANTROPAC 4.9 (Borgatti 1996b). The algorithms behind these consensus analysis methods are described in the “The Process Model for Interval Data” section of Chapter 2.

The first statistical estimate provided by consensus analysis, the first to second factor eigenvalue ratio, examines the level of group agreement. The results revealed a 4.7:1 eigenvalue first to second factor eigenvalue ratio, a mean cultural competence score of .58 (σ = 0.15), and all positive competence scores. These findings suggest that the Florida undergraduates share a high level of agreement regarding the cultural domain of Disney World.

The second statistical estimate provided by consensus analysis, the estimate of each individual’s cultural competence, allows the researcher to evaluate possible sources of intracultural variation. Cultural competence allows for theories about intracultural variation to be empirically evaluated. Whereas most empirical studies in marketing treat culture as an independent or moderating variable, cultural competence estimates allow for cultural knowledge to be treated as a dependent variable so that variables such as differences in life experiences (Handwerker 2001) can be measured and modeled as independent variables.

In this study, the extent to which intracultural variance in the cultural competence scores was explained by background information variables was examined in a regression analysis. Specifically, the relationship between the cultural competence estimates and ethnicity, geographic distance from Disney World in high school, and the number of visits to Disney World that students had made was assessed (as seen in Figure 4). Rationale for the selection of these variables is as follows.

Strauss and Quinn (1997) identify geographic distance as a factor that influences the beliefs that a group of people share. Therefore, the geographic between the high school that students attended and Disney World was assessed. Ethnicity is a variable that marketers have typically equated to cultural belongingness, such as in cross-cultural research. Finally, the number of visits variable was also included in the model based on the notion that consumers gain knowledge about Disney World when they visit the theme park.
The model shown in Figure 6 was empirically tested using regression analysis. The *number of visits to Disney World* and the *geographic distance* variables were measured as ratio variables and the *ethnicity* variable was measured as a nominal variable that included the categories as “White,” “African American,” “Hispanic,” “Asian,” and “Other.” The results of this regression analysis, which the Ethnicity variable was modeled using four dummy variables, are shown in Table 6.

**Table 6**  
Regression Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>( \beta )</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Visits to Disney World</td>
<td>-0.26*</td>
<td>-2.14</td>
<td>0.04</td>
</tr>
<tr>
<td>Geographic Distance</td>
<td>-0.20</td>
<td>-1.63</td>
<td>0.11</td>
</tr>
<tr>
<td>Ethnicity (1 = White, 0 = Non-White)</td>
<td>0.13</td>
<td>1.07</td>
<td>0.29</td>
</tr>
<tr>
<td>(1 = African American, 0 = Non-African American)</td>
<td>0.12</td>
<td>0.98</td>
<td>0.33</td>
</tr>
<tr>
<td>(1 = Hispanic, 0 = Non-Hispanic)</td>
<td>0.11</td>
<td>0.93</td>
<td>0.36</td>
</tr>
<tr>
<td>(1 = Asian, 0 = Non-Asian)</td>
<td>-0.20</td>
<td>-1.72</td>
<td>0.09</td>
</tr>
</tbody>
</table>

* \( p < .05 \)
The results in Table 6 demonstrate that the number of visits to Disney World that students have made is negatively related to their level of agreement with other students regarding their beliefs about Disney World. The implications of these results are discussed in the discussion section. Let us now examine the results of the third output of consensus analysis.

The third statistical estimate provided by consensus analysis is the answer key. The answer key is computed using Bayes’ Theorem wherein the cultural competence scores are used to weigh the responses to each cultural domain item across all the individuals in the group in order to estimate the culturally appropriate answers that the group exhibits to each cultural domain item. The responses from the informants with higher cultural competence scores are weighted more heavily than the informants with lower cultural competence scores. The answer key estimates for each item are shown in Table 7. These estimates indicate the extent to which people agree (7) or disagree (1) with whether or not people associate the cultural domain items with Disney World.

<table>
<thead>
<tr>
<th>Cultural Domain Item</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational</td>
<td>6.60</td>
</tr>
<tr>
<td>Relaxing</td>
<td>6.60</td>
</tr>
<tr>
<td>Food</td>
<td>6.48</td>
</tr>
<tr>
<td>Hot</td>
<td>6.46</td>
</tr>
<tr>
<td>Crowded</td>
<td>6.45</td>
</tr>
<tr>
<td>Epcot</td>
<td>6.43</td>
</tr>
<tr>
<td>Childhood Memories</td>
<td>6.41</td>
</tr>
<tr>
<td>Expensive</td>
<td>6.39</td>
</tr>
<tr>
<td>Makes You Feel Younger</td>
<td>6.32</td>
</tr>
<tr>
<td>All Ages</td>
<td>6.24</td>
</tr>
<tr>
<td>Orlando, Florida</td>
<td>6.24</td>
</tr>
<tr>
<td>Vacation</td>
<td>6.19</td>
</tr>
<tr>
<td>Every Child Has To Experience It At Least Once</td>
<td>6.13</td>
</tr>
<tr>
<td>Innovative</td>
<td>6.11</td>
</tr>
<tr>
<td>Characters</td>
<td>6.10</td>
</tr>
</tbody>
</table>
Table 7 Continued

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe</td>
<td>6.00</td>
</tr>
<tr>
<td>Huge</td>
<td>5.99</td>
</tr>
<tr>
<td>Fun</td>
<td>5.96</td>
</tr>
<tr>
<td>Imagination</td>
<td>5.95</td>
</tr>
<tr>
<td>Magic Kingdom</td>
<td>5.90</td>
</tr>
<tr>
<td>Diverse People</td>
<td>5.88</td>
</tr>
<tr>
<td>Adventure</td>
<td>5.88</td>
</tr>
<tr>
<td>Entertaining</td>
<td>5.85</td>
</tr>
<tr>
<td>Clean</td>
<td>5.84</td>
</tr>
<tr>
<td>Castle</td>
<td>5.81</td>
</tr>
<tr>
<td>Family Bonding</td>
<td>5.59</td>
</tr>
<tr>
<td>Families</td>
<td>5.48</td>
</tr>
<tr>
<td>Happiness</td>
<td>5.32</td>
</tr>
<tr>
<td>Long Lines</td>
<td>5.24</td>
</tr>
<tr>
<td>Profitable Company</td>
<td>5.19</td>
</tr>
<tr>
<td>Exciting</td>
<td>5.13</td>
</tr>
<tr>
<td>The Happiest Place on Earth</td>
<td>5.10</td>
</tr>
<tr>
<td>Where You Go After You Win The Super Bowl</td>
<td>5.06</td>
</tr>
<tr>
<td>Kids</td>
<td>5.00</td>
</tr>
<tr>
<td>Where Dreams Come True</td>
<td>4.45</td>
</tr>
<tr>
<td>Tourists</td>
<td>4.19</td>
</tr>
<tr>
<td>Fantasy World</td>
<td>3.98</td>
</tr>
<tr>
<td>Rides</td>
<td>3.49</td>
</tr>
<tr>
<td>Magical</td>
<td>3.32</td>
</tr>
</tbody>
</table>

The answer key estimates provide an estimate of how a typical respondent from a cultural group would respond to each item. When studying a group of informants, anthropologists must decide which informants in the group to believe. These statistical estimates of the culturally appropriate answers to each item provide the anthropologist with an object way to estimate how a typical respondent from a cultural group would respond to each item.

The answer key results suggest that the typical Florida undergraduate agrees the most that Disney World is associated with being “educational” (6.60/7.00) and “relaxing” (6.60/7.00). Perhaps this is due to the fact that many of the Florida undergraduates have been to Disney World as part of a school field trip, or because the Epcot Center at Disney World is associated with educational. On the other hand, the typical Florida undergraduate disagrees the most that Disney World is associated with being a “fantasy world” (3.98/7.00), associated with “rides” (3.49/7.00) and associated with being “magical” (3.32/7.00). Next, we discuss the results,
review the methodological contributions, offer managerial implications, and identify limitations of this study. In Chapter Four we further address the limitations of this study in order to review how a future consensus analysis study could be conducted in a more systematic manner.

**Post-Hoc**

Marketers use a variety of methods to partition consumers into distinct lifestyle segments (Holt 1997, 1998). To demonstrate how consensus analysis could be used to profile distinct lifestyles, we used the cultural competence scores to examine distinctions between the typical (high cultural competence) and atypical (low cultural competence) informants in our sample. In order to compare the most to least competent informants, the 64 informants were split into five different categories based on their competences scores (Holt 1998). Then, the 13 most competent informants were compared to the least competent 13 informants. This comparison was done across all of the 39 items used to measure cultural competence, number of visits to Disney World, geographic distance, age, gender, and ethnicity. ANOVA was used to analyze the metric data, and crosstabulations across gender and ethnicity (white/non-white) were conducted on the categorical data.

The results from this analysis revealed significant differences across ten of the competence items, but not across any of the other variables identified a priori. Atypical informants believe that people more strongly associate Disney World with educational and relaxing, and less strongly associate Disney World with huge, imagination, Magic Kingdom, entertaining, tourists, happiness, magical, and vacation. This analysis demonstrates how consensus analysis could be used to examine differences between high and low cultural competence informants. Although no differences were identified across variables that marketers typically use to segment consumers (e.g., age, gender, and ethnicity), psychographic differences did emerge across ten of the cultural competence items. The fact that differences across age did not emerge could be due to the fact that the sample was composed of a homogeneous undergraduate sample.

**Discussion**

Following the ethnographic research methods outlined in *Systematic Data Collection* (Weller and Romney 1988), this study was able to examine the shared knowledge that Florida
undergraduates shared about Disney World. In order to identify the qualities that Florida undergraduates associate with Disney World, free list data were collected and analyzed. This process ensured that an emic, or context-specific, list of cultural domain items would be identified that could be used for subsequent analyses. The qualities that the undergraduates identified ranged from characteristics such as “hot” and “crowded” to mottos such as “the happiest place on earth” and “where dreams come true.” To further investigate the structure of the cultural domain items, pile sort data were collected and analyzed using multidimensional scaling (MDS) analysis. This allowed us to see which of the cultural domain items were similar to each other in the minds of consumers, and to test for possible dimensions that explained how the cultural domain items were arranged on the MDS map. Property fitting analysis (PROFIT) was used to demonstrate that the position of the cultural domain items on the MDS map were influenced by the extent to which they were either real or fantasy.

A key issue in ethnographic research is the study of the shared beliefs of a group of people. Therefore, the focus of the study switched to an examination of the structure of informant similarity (as opposed to item similarity). Consensus analysis was used to estimate the level of agreement that Florida undergraduates exhibit towards the qualities that they associate with Disney World, and to estimate the culturally appropriate answers that this group exhibited. The consensus analysis results suggested a high level of agreement among the Florida undergraduates about the qualities that they associated with Disney World. The typical Florida undergraduate rated “educational” and “relaxing” as highly associated with Disney World, whereas “rides” and “magical” were the least associated with Disney World. Finally, the level of intracultural variation was shown to be significantly related to the number of visits that the undergraduates had made to Disney World.

**Methodological Contributions**

The purpose of this study was to demonstrate how the three phase methodology, outlined in *Systematic Data Collection* (Weller and Romney 1988), can be used to study consumer culture. Free listing and pile sorts were used to identify the items and the structure of the items in the cultural domain of Disney World among Florida undergraduates, and consensus analysis was used to statistically estimate the extent to which Florida undergraduates share Disney World cultural knowledge.
This study began with a free listing exercise that identified thirty-nine salient qualities that Florida undergraduates associate with Disney World. The structure of these thirty-nine items was investigated by collecting pile sort data, constructing an item-by-item similarity matrix, analyzing this item-by-item similarity matrix using MDS analysis, and finally using PROFIT analysis to test the extent to which the MDS coordinates were explained by a reality/fantasy dimension. Then, the focus of the study switched to the structure of informant (informant-by-informant similarity) agreement and used consensus analysis to analyze the informant agreement structure.

Cultural consensus analysis indicated that the Florida undergraduates share a single cultural model of Disney World. Cultural competence, or the extent to which each individual agrees with the culturally appropriate model of Disney World, was estimated to provide a measure of intracultural variance. In addition, the cultural competence estimates were regressed on three background variables in order to analyze sources that influence intracultural variance. Finally, the answer key estimates to each item were calculated in order to estimate how a typical informant would respond to each of the cultural domain items. As a whole, the methods and results of the three phases provide a clear illustration of how Weller and Romney (1988) recommend a consensus analysis study be performed.

Managerial Implications

In this section, the managerial implications of the results obtained in the three phases discussed a priori are offered. Each phase offers insight into the minds of consumers that Disney World managers could use to their advantage. Let us now review the managerial implications of the cultural domain identification phase.

The free list results have two important managerial implications. First, they illustrate the breadth and depth of the meaning that Florida undergraduates associate with Disney World. The free list results of 119 students yielded 1,245 unique qualities that people associate with Disney World. This large number of unique qualities shows how pervasive Disney World is in the minds of Florida undergraduates. Second, the high correlation of .98 between the frequency and salience of the free list items indicates that there are a coherent set of qualities students most strongly associate with Disney World. Thirty-nine of these qualities are listed in Table 5, and includes qualities that Disney World promotes, such as “where dreams come true,” and “the
happiest place on earth,” qualities associated with the location and weather of Disney World such as “hot” and “Orlando, Florida,” physical qualities of the people and structures at Disney World such as “Epcot” and “tourists,” and even negative qualities of Disney World such as “crowded” and “expensive.” The structure of these thirty-nine items was analyzed in the second phase of the study.

The MDS graph produced from the pile sorts (Figure 4) demonstrates which items are similar to and different from each other in the minds of undergraduates based on how close they are to each other on the MDS graph. For example, the items “safe” and “clean” are similar to each other in the minds of undergraduates, possibly because they are both items that undergraduates associate with security. The emotional qualities of “happiness,” and “exciting” are also close to each other on the MDS graph. A manager could use this and the rest of the information in the MDS graph to better understand how undergraduates view the similarities and differences between some of the qualities that undergraduates most often associate with Disney World. PROFIT analysis was used to empirically test possible dimensions that customers use to classify the thirty-nine items. A reality/fantasy dimension was empirically tested and had significant results, which confirms the notion that managers need to consider both the tangible and intangible aspects of consumption associated with Disney World.

In the third phase of this study, the shared knowledge of undergraduates was analyzed using consensus analysis, which yielded several managerial implications. First, the high level of consensus among a group of undergraduates showed that Florida undergraduates have a high level of agreement about the qualities that they associate with Disney World. This high level of agreement tells Disney World managers that Florida undergraduates are homogeneous with respect to the thirty-nine cultural domain items. Then, the cultural competence scores of the consensus analysis were used to model intracultural variation. A regression analysis revealed that the number of visits a person had made to Disney World lowered the extent to which individuals shared beliefs about Disney World, and that ethnicity and geographic distance were not related to intracultural variation. This significant relationship between the number of visits to Disney World an undergraduate has made and their level of agreement with the rest of the group makes intuitive sense, because the undergraduates who visit Disney World frequently are likely to be very emotionally attached to Disney World and know the amusement park more intimately than other students who do not go to Disney World as often. These results also show
that ethnicity is not related to cultural knowledge. Some managers will make the assumption that
ethnic boundaries delineate cultural boundaries, but these results show that this assumption may
not be appropriate. Finally, the answer key estimate of how typical undergraduate would agree
or disagree about how strongly each of the thirty-nine items is associated with Disney World was
produced using consensus analysis.

The fact that the typical undergraduate has a highly agrees that Disney World is
“educational” and “relaxing” and that the typical undergraduate has less agreement with Disney
World being associated with “fantasy world,” “rides,” and “magical” could be used to help
managers guide business decisions. For example, the fact that “rides” is not a characteristic that
college students associate with Disney World suggests that a promotional campaign aimed at
college students should not focus on rides, perhaps due to the fact that the competition is
positioning itself as having better rides than Disney World. Perhaps a promotional message that
describes what college students could learn by visiting Disney World would be more appropriate.

Limitations

The primary limitations of this study surround the two issues of how the thirty-nine
cultural domain items were selected out of thousands of possible cultural domain items, and how
the study’s sample was not representative of Florida undergraduates. These two limitations are
discussed briefly in this section, and then elaborated upon further in the following chapter. Let
us first examine the limitation surrounding how the thirty-nine cultural domain items were
identified.

The first phase of the study, the domain identification phase, is important because the
following two phases are based on the findings from this first phase. However, there is no single
rule to follow when attempting to reduce a long list of free list items to a smaller list of cultural
domain items that will be used in the following phases of a consensus analysis study. Weller and
Romney (1988) state that simply selecting the most frequently listed items from free list results
does not guarantee that the appropriate cultural domain items will be selected. In some cases the
authors state that it is appropriate to include low-frequency items in a cultural domain in order to
ensure that a variety of items are included. The authors admit that “There are no absolute rules
for inclusion and exclusion of [cultural domain] items” and that “there are no generally
recognized ways to check the statistical reliability of the free listing task” (Weller and Romney
These weaknesses of the domain identification phase are elaborated upon in Chapter Four.

The second major weakness of this study pertains to the fact that a convenience sample was used in the third phase of the study to analyze the shared knowledge of Florida undergraduates. Handwerker discusses important sampling considerations that must be addressed when using consensus analysis (2001, 2005). Because the goal of a consensus analysis is to examine the dimensionality of a group of informants in order to determine whether or not the group shares a single cultural model, it is important to purposely include a heterogeneous mix of informants in a sample, or to sample people with similar life experiences. A heterogeneous sample ensures that diverse informants are included in the analysis. With a proper sample, the consensus analysis can properly determine whether or not a group of diverse people share a single cultural model. While this study claimed to examine the group of people referred to as Florida undergraduates, a heterogeneous group of all Florida undergraduates was not sampled. These sampling issues are also discussed in Chapter Four.

**Study 2: Using Consensus Analysis to Examine the Impact of Media on the Beliefs that Consumers Share about a Company**

The April 1, 2006 cover story of *Marketing News*, titled “Wal-Mart: Limping All The Way To The Bank,” discusses how an anti-Wal-Mart movement gained momentum in the early 1990’s as Wal-Mart pushed its way into major urban areas. Lee Scott, the CEO of Wal-Mart, called this anti-Wal-Mart movement “one of the most organized, most sophisticated, most expensive corporate campaigns ever launched against a single company” (The Economist 2005). One of the methods used against Wal-Mart was the creation of an anti-Wal-Mart film. The independent film *Wal-Mart: The High Cost of Low Price* (Brave New Films 2005) targeted the public’s view of Wal-Mart’s corporate social responsibility (CSR) practices.

Wal-Mart is not the only company that has been the target of a documentary film whose creators have the goal of raising public awareness about the CSR practices of a major company. General Motors was attacked by Michael Moore in the film *Roger and Me* (Warner Brothers 1989) and again in *Who Killed The Electric Car?* (Sony Pictures 2006). Monsanto was criticized in *The Corporation* (Big Picture Media Corporation 2004) and *The Future of Food* (Lily Films 2006).
McDonald’s was negatively portrayed in *Fast Food Nation* (Fox Searchlight Pictures 2007) and *Super Size Me* (Samuel Goldwyn Films 2004). Michael Moore’s next film, *Sicko*, is likely to target many of the business practices of health care and pharmaceutical companies.

The box-office success of some of these documentaries has been impressive, which suggests that these types of documentaries are likely to continue. Some of these documentaries have brought in millions of dollars in domestic box office ticket sales alone. *Super Size Me*, for example, had gross domestic ticket sales of $11,536,423, which is particularly impressive given that its production budget was only $65,000 (Box Office Mojo 2007). *Roger and Me* ($6,706,368) and *The Corporation* ($3,493,516) were also very successful (Box Office Mojo 2007). The question then becomes, what happens when consumers see these documentaries? Are these documentaries able to coalesce consumer beliefs about their target, or do they polarize consumers into various subgroups who agree and disagree with the messages in the documentary?

Past CSR research has alluded to the increased media attention that CSR is receiving (Luo and Bhattacharya 2006, Porter and Kramer 2006), but the influence of the media on a group’s CSR beliefs has not been empirically examined in the marketing literature. Most empirical research to date treats CSR practices or consumer beliefs about CSR as an independent variable, and investigate how these CSR measures impact customer or financial outcome measures (e.g., Bhattacharya and Sen 2003; Berens, Van Riel, and Van Bruggen 2005; Brown 1998; Brown and Dacin 1997; Sen and Bhattacharya 2001; Luo and Bhattacharya 2006). Research that empirically examines the antecedents that influence the CSR beliefs of consumers has rarely been performed. Research methods advanced in anthropology, such as the cultural consensus model (Romney, Weller, and Batchelder 1986), offer marketing researchers a new tool that can be used to examine the shared beliefs of groups.

New research methods based on consensus analysis (Romney, Weller, and Batchelder 1986) are becoming more popular in cognitive anthropology (Handwerker and Borgatti 1998; Sirsi, Ward, and Reingen 1996). These methods provide a tool that allows us to treat the beliefs consumers share about a company’s CSR practices as a dependent variable. By treating CSR shared knowledge as a dependent variable, we can examine how independent variables, such as exposure to an anti-corporate documentary, influence the beliefs that consumers share about the CSR practices of a firm. This study highlights how the media has been thought to influence a
cultural studies in marketing relate to, and can benefit from, the theoretical and empirical contributions of cognitive anthropology and consensus analysis, and describes the consensus analysis methods that are gaining popularity in the anthropology literature (Romney, Weller, and Batchelder 1986; Romney, Batchelder, and Weller 1987; Weller 1987). Then, two propositions on how the viewing of an anti-corporate documentary influences the knowledge consumers share about the CSR practices of firm are proposed and empirically examined. The study concludes with a review of the methodological implications, managerial implications, and limitations of this study.

The Media and Culture

Communication media include a variety of sources, such as radio, print, television, and the Internet. Research on how television programs (Murry and Dacin 1996) influence individual psychological factors such as emotions and attitudes has been conducted, but the impact of other media sources on shared knowledge has not been studied. Cultural research is concerned with the analysis of groups of people who share a culture. Although there are many different definitions of culture (Brumann 1999), an important difference between cultural and psychological research is that cultural research pertains to the study of that which is shared by a group of people (Handwerker 2002; Jaskyte and Dressler 2004). One the other hand, psychological research tends to examine the relationships between constructs that exist in the minds of individuals.

Researchers seem to accept the fact that the media, and documentaries in particular, influence large groups of people (Schneider 2001) even though the accuracy of much of the information contained in documentaries is questionable (Winston 2000). Indeed, documentaries are referred to by critics as “docudramas,” because the information in a documentary may be inaccurate and the producers of a documentary may have biased perspectives or hidden agendas. Unfortunately, there are no empirical studies that examine the impact that documentary films have on the shared knowledge of a group of viewers.

Modern media sources, such as documentaries, are reaching almost everywhere in the world today (Hannerz 1992). As a result, Hannerz has coined the term “machineries of meaning,” to describe the media, and has called for cultural research on the media (1992). While personal ties such as kinship have been a traditional focus on how meaning spreads through a
culture, the media is an obvious source of meaning that influences cultural beliefs. Because of this influence, there is a need for researchers to study how media sources impact the manner in which meaning is distributed among a group of people (Hannerz 1992). Let us now review some of the developments in cognitive anthropology to see how we might be able to investigate the manner in which meaning is distributed among a group of people.

**Developments in Cognitive Anthropology**

The diverse field of anthropology studies culture from a variety of different perspectives (Sherry 1995). One of these perspectives is a cognitive theory of culture, which treats cultural knowledge as knowledge that is socially transmitted (or learned) and shared among a group of people (D’Andrade 1995). Cognitive anthropologists have recognized that there is a need in cultural research for methods that can evaluate cultural theories by comparing them against predictions and observations (Romney 1999; Ross 2004). The marketing literature, however, contains very few examples of studies that treat culture as shared knowledge and evaluate theories regarding this shared knowledge (Sirsi, Ward, and Reingen 1996).

Handwerker (2002) emphasizes the distinction between ethnology and ethnography to make the point that cultural research should be more than just descriptive. The anthropology literature, like the marketing literature, has many examples of ethnographic studies that describe a culture. However, very few studies are ethnological, or explanatory investigations that examine how the life experiences and background variables of people influence the cultural knowledge of a group (Handwerker 2002, Ross 2004, Strauss and Quinn 1997).

One exception is a study by Sirsi, Ward, and Reingen (1996), who conceptualize culture based on a philosophy that treats culture from a cognitive perspective, and they measure cultural knowledge. These authors state that “variation in cognitions…suggests the importance of understanding culture as a distribution of knowledge” (1996, p. 346). This cognitive perspective of culture has an established literature base in the field of cognitive anthropology (D’Andrade 1995; Ross 2004; Shore 1996; Strauss and Quinn 1997). Sirsi, Ward, and Reingen (1996) use social network analysis to measure cultural knowledge. Social network analysis examines causal reasoning structures, such as “Animals are living beings like us” → “Humans should not use animals as resources” → “[Animals are] unethical to eat” → “Never consume [animals]” (Sirsi,
However, social network analysis is not the only method that cognitive anthropologists have developed to study cultural knowledge.

The cultural consensus model (Romney, Weller, and Batchelder 1986) is a specific method within a larger group of methods referred to as consensus analysis and has been used considerably by cognitive anthropologists. Some anthropologists have gone so far as to claim that consensus analysis “answers one of the single most important questions of ethnography: Who agrees with whom about what and to what degree?” (Handwerker and Borgatti 1998, p. 569).

Sirsi, Ward, and Reingen (1996) refer to a study by a cognitive anthropologist named Susan Weller (1983). Weller’s study received a great deal of attention recently in an article by Romney (1999) that discusses the cultural consensus model and how it can be used to statistically estimate various aspects of shared knowledge. Since the development of the cultural consensus model (Romney, Weller, and Batchelder 1986), cognitive anthropologists have extended consensus analysis methods to accommodate different levels of measurement (Romney, Batchelder, and Weller 1987; Weller 1987), to study different aspects of cultural knowledge (Handwerker 2001, 2002), and to operationalize the construct termed cultural consonance (Dressler et al. 2005b). Consensus analysis produces three statistical estimates that address the questions:

1. Does a single cultural model of shared beliefs exist? Instead of assuming that respondents share a set of beliefs, consensus analysis estimates whether a single underlying model describes the agreement pattern exhibited by informants (Ross 2004).

2. To what extent does each respondent agree with the group’s cultural beliefs? This estimate is referred to as cultural competence (Romney, Weller, and Batchelder 1986), estimated competence (Romney, Batchelder, and Weller 1986), and proportion of shared knowledge (Weller 1987).

3. What are the culturally appropriate answers to each item? This estimate is known as the answer key (Romney, Weller, and Batchelder 1986).

Research Propositions
Although there is little previous research that examines how a media exposure can impact intercultural differences, evidence and anecdotal information from past studies is drawn upon in order to formulate the two research propositions. One study that examines how shared knowledge is influenced by a media exposure is that of Alvarado (1997), who uses consensus analysis to examine emotional responses to film clips. High and relatively high levels of consensus emerge across seven out of the nine emotion scales, indicating that viewers’ emotional ratings of responses to film clips are consensual a majority of the time. However, no consensus across measures of “interest” and “arousal” are found in this study (Alvarado 1997). A major difference between the present study and Alvarado’s study (1997) is that emotional responses are investigated in Alvarado’s study, whereas agreement or disagreement with the CSR practices of a company are investigated in the present study. Emotional responses to a film clip are emotional responses to a brief stimulus, whereas agreement or disagreement about a company’s CSR practices involves attitudinal responses to a much longer stimulus.

The manner in which consumers perceive the CSR initiatives of a firm vary a great deal across different consumer groups (Sen and Battacharya 2004). Because of this, “one size does not fit all” when it comes to CSR initiatives (Sen and Battacharya 2004, p. 10). In this study, we propose that viewing an anti-corporate documentary can contribute to this heterogeneity by leading a specific group of consumers to share a negative set of beliefs about the CSR practices of a firm after they view an anti-corporate documentary. Therefore, based on the manner in which film clips were able to make consumers exhibit consensus regarding emotional responses and the notion that consumers can be molded into believing what they see in an anti-corporate documentary, we propose the following:

Proposition 1a: Viewing an anti-corporate documentary will lead a group of consumers to share a single cultural model about the CSR practices of a target company.

Proposition 1b: When examined simultaneously, anti-corporate documentary viewers and non-viewers will share multiple cultural models about the CSR practices of the target company.
Methodology

In order to examine the impact of an anti-corporate documentary on the shared knowledge of consumers regarding the CSR practices of a firm, a list of cultural domain items was developed. This list of cultural domain items was included in a questionnaire, and two separate classes of undergraduate students at a major Southeastern university were surveyed. One of the classes was shown the anti-Wal-Mart video *Wal-Mart: The High Cost of Low Price* (Brave New Films 2005). Consensus analysis was first performed on the class that viewed the anti-corporate documentary in order to evaluate proposition 1a. In order to examine proposition 1b, the intercultural differences among consumers who viewed and did not view the anti-corporate documentary were examined using consensus analysis. Consensus analysis was used to partition respondents into cultural subgroups. As a post-hoc analysis logistic regression was used to evaluate the impact that viewing the anti-corporate documentary had on the cultural group in which respondents were grouped. A more detailed description of the methods used in this analysis is offered in this section.

*Cultural Domain Identification*

Smith (2003) defines CSR as the obligations of the firm to society. These obligations are said to lie on a continuum ranging from policies that include good management practices, such as not lying to employees and not paying bribes, to the more ambitious policies that go well beyond ordinary decency and basic good business practices, such as corporate charity or environmental protection (The Economist 2005). The latter components of the CSR continuum are more commonly associated with CSR in our society (Battacharya and Sen 2004). Battacharya and Sen (2004) divide CSR activities into six areas that include community support, diversity, employee support, environment, non-U.S. operations, and product. These six dimensions are similar to the four dimensions of CSR offered by Brown and Dacin (1997), which include environmental friendliness, devotion to hiring and promoting diverse employees, community involvement, and involvement in philanthropic activities.

Three sources of information were used to identify the cultural domain items used in this study. These three sources included the six CSR categories offered by Battacharya and Sen (2004), information gathered from pro and anti-Wal-Mart websites, and a free listing exercise. The CSR categories offered by Battacharya and Sen (2004) include community support, diversity, employee support, environment, non-U.S. operations, and product. Although the pro
and anti-Wal-Mart websites such as walmartfacts.com (pro) and walmartwatch.com (anti) do not separate CSR categories in exactly the manner that Battacharya and Sen (2004) do, there are many similarities. Finally, in order to ensure that Battacharya and Sen’s (2004) categories and the information on the pro and anti-Wal-Mart websites were relevant to the undergraduate students, 136 undergraduates were asked to list “the obligations that a company has to society.” This free listing task confirmed that the undergraduates were aware of the CSR activities in all six of Battacharya and Sen’s (2004) categories, as well as many of the issues on the pro and anti-Wal-Mart websites. Two to four items for each of Battacharya and Sen’s (2004) six categories were taken from the free list responses and used to create an eighteen item cultural domain of Wal-Mart’s corporate social responsibility practices. These cultural domain items are shown in Table 8.

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<th>Table 8</th>
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<tr>
<td>Cultural Domain Items</td>
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<tr>
<td><strong>Community Support</strong></td>
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<tr>
<td>1. Wal-Mart supports the communities that it has stores in by donating to charities that help the disadvantaged people in a community.</td>
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<tr>
<td>2. Wal-Mart supports the communities that it has stores in by having a positive economic impact on the community.</td>
</tr>
<tr>
<td>3. Wal-Mart supports the communities that it has stores in by helping small businesses in a community grow.</td>
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<tr>
<td><strong>Diversity</strong></td>
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<tr>
<td>4. Wal-Mart does not discriminate against employees based on gender.</td>
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<td>5. Wal-Mart does not discriminate against employees based on race.</td>
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<td><strong>Employee Support</strong></td>
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<td>6. Wal-Mart provides employees with safe working conditions.</td>
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<td>7. Wal-Mart provides employees with fair pay.</td>
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<td>8. Wal-Mart provides employees with the opportunity to form unions.</td>
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<tr>
<td><strong>Environment</strong></td>
</tr>
<tr>
<td>11. Wal-Mart manages its hazardous waste in an appropriate manner.</td>
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<tr>
<td>12. Wal-Mart manages the pollution its stores cause in an appropriate manner.</td>
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<tr>
<td>13. Wal-Mart manages the recycling of its waste in an appropriate manner.</td>
</tr>
<tr>
<td><strong>Non-U.S. Operations</strong></td>
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<tr>
<td>14. Wal-Mart’s overseas labor practices are fair.</td>
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<tr>
<td>15. Wal-Mart’s overseas suppliers treat their workers fairly.</td>
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Table 8 Continued

**Service**
16. Wal-Mart stores offer a safe service environment for customers.
17. Wal-Mart’s contractors treat their employees fairly.
18. Wal-Mart competes fairly against its competitors.

**Sample**

Two separate classes of undergraduate students at a major Southeastern university were surveyed during regular class periods. One of the two classes was shown the anti-Wal-Mart video *Wal-Mart: The High Cost of Low Price* prior to responding to the questionnaire. The class that viewed the anti-Wal-Mart video yielded 107 responses, whereas the control class yielded 136 responses. Students were asked to rate on a 5-point Likert scale whether they “Strongly Disagree” (1) or “Strongly Agree” (5) with each of the 18 items in Table 8. Eighteen of these responses had to be eliminated due to missing data, resulting in 101 responses from students who viewed the anti-Wal-Mart video and 123 responses from students who did not view the anti-Wal-Mart video.

**Manipulation Check**

In order to verify that the students who viewed the anti-Wal-Mart video received the intended message, a manipulation check was performed. Students were asked to free list their responses to the question “how has Wal-Mart been accused of being socially irresponsible?” The students who viewed the anti-Wal-Mart video free listed an average of 7.5 accusations whereas the students who did not view the anti-Wal-Mart video free listed an average of 3.3 accusations. A t-test between these two averages revealed that the manipulation was successful (*t*(222) = 17.4, *p* < .001).

**Proposition 1a**

In order to evaluate proposition 1a, consensus analysis was performed on the 101 consumers who viewed the anti-Wal-Mart video. As expected, The consensus analysis results reveal a high level of agreement regarding the consumers’ evaluations of Wal-Mart’s CSR practices after viewing the anti-Wal-Mart video. ANTHROPAC 4.9 (Borgatti 1996b) results found a first to second factor eigenvalue ratio of 5.2:1, an average cultural competence level of .61, and no negative first factor loadings. The algorithms behind these consensus analysis methods are described in the “The Process Model for Interval Data” section of Chapter 2. These results suggest that the audience shared a single cultural model about Wal-Mart’s CSR practices.
In order to estimate how a typical viewer in the experimental group responded to the eighteen cultural domain items, the answer key estimates were calculated. The results, shown in Figure 7, suggest that the typical viewer had a negative opinion for all but one (item 6) of Wal-Mart’s CSR practices (see Table 6). Item 6 had to do with the safety of the work environment for Wal-Mart employees. In contrast, item 16 has to do with the safety of the shopping environment for Wal-Mart customers. The anti-corporate documentary *Wal-Mart: The High Cost of Low Price*, does not focus on the safety of the employees as much as it does on the safety of customers. There is a section of the video devoted to covering how Wal-Mart customers have been the victims of crimes that occur in Wal-Mart parking lots that range from vandalism to rape and murder. The video accuses Wal-Mart of devoting more attention to in-store security to prevent shoplifting and other types of theft than to outside-store security that does not impact Wal-Mart’s bottom line. This high level of consensus and negative answer key estimates support proposition 1a.

![Figure 7 Answer Key Estimates for the Documentary Viewers](image)

**Proposition 1b**

In order to evaluate proposition 1b, which has to do with how the shared knowledge of consumers who do not view the anti-corporate documentary compares to consumers who view the anti-corporate documentary, we followed the method of intercultural analysis described by Handwerker (2001). Handwerker (2001) outlines a method that uses consensus analysis in an iterative manner on a sample of respondents to partition a group of respondents into subgroups that exhibit consensus (greater than a 3:1 first to second factor eigenvalue ratio, no negative first
Consensus analysis was performed on all 224 respondents (anti-Wal-Mart documentary viewers and non-viewers) with respect to the eighteen cultural domain items. This initial consensus analysis resulted in a 2.1:1 first to second factor eigenvalue ratio, seven respondents with negative first factor loadings, and a mean first factor loading of .48. This consensus analysis indicates that, as expected, all 224 respondents do not share a single cultural model regarding Wal-Mart’s CSR practices. The results of this analysis are displayed graphically in Figure 8.

![Figure 8
Consensus Analysis Results](image)

In order to separate the sample into more homogeneous subgroups, the first factor loadings were used to separate the seven respondents with negative first factor loadings (“Group 1”) from the rest of the respondents. These respondents are depicted on the left hand side of Figure 8 and Figure 10. Consensus analysis was performed on the seven respondents, resulting in a 5.5:1 first to second factor eigenvalue ratio, no negative first factor loadings, and an average first factor loading of .74. Consensus analysis has been performed on small samples (less than 10) in previous studies (Caulkins and Hyatt 1999; Romney 1998; Toupal 2003), and Weller (1987) shows that when shared knowledge levels are high, as is the case here with an average
first factor loading of .74, consensus analysis can be performed on small samples. The answer key estimates of Group 1 were calculated using ANTHROPAC 4.9 (Borgatti 1996a), and are displayed in Figure 9.

![Figure 9](image)

**Figure 9**

Answer Key Estimates for the Negative First Factor Loading Group

In contrast to the answer key estimates of the documentary viewers (Figure 7), this cultural group is composed of people who do not view Wal-Mart’s CSR practices in such a negative manner. As one would expect, none of the consumers in this cultural group viewed the anti-corporate documentary. In order to identify other cultural groups in the remaining 217 respondents, additional subgroup partitions were made and consensus analyses performed.

Consensus analysis was performed on the remaining 217 respondents, but they did not share a single cultural model. The first to second factor eigenvalue ratio was 2.1:1, there were no negative first factor loadings, and the average first factor loading was .51. In such cases, Handwerker (2001) recommends that respondents be divided based on whether or not they had a positive or negative second factor loading.

Thus, the respondents with a positive second factor loading from the previous step (“Group 2” in Figure 10) were grouped together and consensus analysis was again performed. The first to second factor eigenvalue ratio was 3.6:1, there were no negative first factor loadings, and the average first factor loading was .58. Similarly, the respondents with a negative second factor loading from the previous step (“Group 3” in Figure 10) were grouped together and consensus was performed. The first to second factor eigenvalue ratio in this group was 5.3:1, there were no negative first factor loadings, and the average first factor loading was .64. In
summary, this process of partitioning and performing consensus analysis resulted in three separate groups that can be seen in Figure 10.

![Figure 10 Respondent Partitions](image)

In order to name the cultural groups, Handwerker (2001) recommends that the average responses from each of the groups be examined, and that the groups be named based on their responses. Because Group 1 was so small and composed only of non-documentary viewers, the focus for the remainder of the study was on Groups 2 and 3. Noticeable differences existed between these two groups, which are shown in Figure 11. Group 3 rated the CSR practices of Wal-Mart to be substantially lower than Group 2 for every item except for item six. Because of the distinctly negative average beliefs that Group 3 shares, Group 3 was identified as the “Anti-Wal-Mart” cultural group. Examination of Group 2’s responses suggests that the average responses of Group 2 are rather ambivalent. Eight of the eighteen items are above neutral (3), and ten of the eighteen items are below neutral. Therefore, Group 2 was renamed the “Neutral” cultural group.
In order to examine the impact that viewing the anti-Wal-Mart video had on consumers’ shared beliefs, two steps were taken. First, Figure 8 was re-plotted in terms of viewers and non-viewers. Figure 12 shows the documentary viewers in comparison to the non-documentary viewers. Further analysis indicates that the Anti-Wal-Mart group (Group 3) is composed of 90.4% of the consumers who viewed the anti-Wal-Mart documentary. In contrast, 87% of the Neutral group (Group 2) is composed of the consumers who did not view the anti-Wal-Mart documentary.
Second, logistic regression was used to examine the impact that the cultural intervention—viewing the documentary—had on consumers’ shared beliefs. As expected, the results of this analysis suggest that there is a significant relationship between viewing the anti-Wal-Mart documentary and cultural group belongingness ($\chi^2 = 145.4, p < .01$, Cox and Snell Pseudo $R^2$ value of .488). Thus, proposition 1b was supported. Next, we discuss the results, review the methodological contributions, offer managerial implications, and identify limitations of this study. In Chapter Four we further address the limitations of this study in order to review how a future consensus analysis study could be conducted in a more systematic manner.

Discussion

This study analyzed the shared knowledge that anti-corporate documentary (*Wal-Mart: The High Cost of Low Price*) viewers and non-viewers exhibited regarding the CSR practices of the anti-corporate documentary’s target company (Wal-Mart). The consensus analysis performed on the group of consumers who viewed the anti-corporate documentary are important because they demonstrated the influence that the media, and anti-corporate documentaries in particular, can have on an audience. The group of people who viewed the anti-corporate documentary shared a single cultural model composed of distinctly negative beliefs about the CSR practices of the target company. For example, the answer key estimates (Figure 7) of how a typical viewer rated eighteen of Wal-Mart’s CSR practices were distinctly negative. Fifteen out of the eighteen answer key estimates to statements such as “Wal-Mart’s overseas labor practices are fair” were estimated to be less than a two on a five point “strongly disagree” (1) and “strongly agree” scale.

In the second portion of this study we analyzed the shared knowledge of anti-corporate documentary viewers and non-viewers together. Consensus analysis was used to split consumers into subgroups. Two large groups and one small subgroup emerged in this analysis. The two large groups were analyzed in further detail and named the “Anti-Wal-Mart” and the “Neutral” groups, based on the average responses that the consumers in each of these groups exhibited. The negative beliefs of the Anti-Wal-Mart group were present across all six CSR components
regarding the community support, diversity, employee support, environmental, non-U.S. operations, and service. The significant logistic regression analysis results suggest that viewing an anti-corporate documentary can influence whether a consumer belongs to an Anti-Wal-Mart or a Neutral cultural group.

**Methodological Contributions**

Cognitive anthropologists have developed a variety of consensus analysis methods (Romney, Batchelder and Weller 1987; Romney, Weller and Batchelder 1986; Weller 1987) and applied these consensus analysis methods to studies that examine intracultural variance (Romney 1999), intercultural variance (Handwerker 2001, 2002), and cultural consonance (Dressler et al. 2005b). Marketing researchers have not taken advantage of these new research tools. This study demonstrates how marketing researchers could use the consensus analysis methods developed by cognitive anthropologists to study intercultural differences in a systematic manner. To emphasize the importance of this type of cultural research, Handwerker (2002) emphasizes the distinction between ethnography and ethnology. On one hand, an ethnography study tends to be more descriptive in nature and identifies the cultural particularities that a group of people share. On the other hand, an ethnology study attempts to explain the sources that lead to cultural differences among and between groups of people. The ability to conduct ethnological research in a systematic manner offers anthropologists and other behavioral science scholars the opportunity to enter this nascent area of research Handwerker calls ethnology (2001).

This study demonstrates how sources of intercultural differences can be evaluated with consensus analysis and logistic regression (Handwerker’s 2001, 2002). Handwerker (2001, 2002) describes how consensus analysis can be used to partition a sample into subgroups by graphically examining the first and second factor loadings of a sample (see Figure 2). After a sample has been partitioned into subgroups, Handwerker (2001) describes how logistic or multinomial regression can be used to examine the impact of variables on cultural group belongingness. In this study, we were able to demonstrate how the background variable of viewing an anti-corporate documentary impacted intercultural differences. In the future, marketing researchers could use this study, along with Handwerker’s previous studies (2001, 2002), as a guide on how to conduct ethnological research.
Managerial Implications

At the beginning of this study, we discussed how corporations are facing criticism in the media in the form of anti-corporate documentaries. These anti-corporate documentaries are making millions of dollars by making the public aware of how corporations are behaving in ways that are not socially responsible. While past studies have shown that the CSR practices of a firm are related to the profitability of a firm, there is not much research on how people form beliefs about the CSR practices of a firm. The purpose of this study was to investigate how one possible source, anti-corporate documentaries, influenced the beliefs that people share about the CSR practices of a corporation.

In the first portion of this study we found that viewing an anti-corporate documentary can coalesce an audience into sharing a negative set of beliefs about the CSR practices of the target firm. The second portion of the study also supported the notion that viewing an anti-corporate documentary leads consumers to share negative beliefs about the target firm. Therefore, while critics may maintain that anti-corporate documentaries are “docudramas,” an audience can still be influenced to share negative beliefs about the CSR practices of firm after viewing an anti-corporate documentary. While some managers are quick to dismiss the criticism that their firm may receive in the media, it is important that this information is not ignored; because, as this study demonstrates, consumers do not ignore this information that they receive from anti-corporate documentaries. After viewing an anti-corporate documentary, the shared beliefs of the audience were distinctly negative about the CSR practices of the target firm.

This study found that customers shared negative views about the target company across seventeen of the eighteen CSR practices of the target firm that they were surveyed on. In order to manage the threat that an anti-corporate documentary can be, managers must have public relations officials dedicated to addressing the concerns of the public and media producers in particular. If too many of the public’s concerns go unnoticed, a grassroots movement could lead to the production of one of these anti-corporate documentaries. By then, it may be too late for a company to avoid having its reputation tarnished.

If we turn the table and consider this study from the perspective of the anti-corporate documentary producers who want to market their ideas about how corporations are socially irresponsible then a different set of managerial implications emerge. The results that the shared beliefs were negative across seventeen out of the eighteen CSR practices and that the logistic
regression results were significant at determining whether or not consumers were part of an Anti-Wal-Mart or a Neutral culture suggests that the documentary producers are doing a good job at getting their messages across to consumers. However, the results do suggest that there could be room for improvement. Anti-corporate documentary producers who want to coalesce an audience into believing that the target company has bad CSR practices should be sure to include portions in their films that address all of the dimensions of CSR. For example, this study found that the anti-corporate documentary *Wal-Mart: The High Cost of Low Price* failed to focus on the safety of Wal-Mart employees, and because of this the audience did not share negative beliefs about the CSR practice related to the safety of Wal-Mart employees. Perhaps a portion of the film could have been dedicated to how Wal-Mart employees were developing medical problems due to substandard working conditions.

**Limitations**

While the consensus analysis results of the consumers who viewed the anti-corporate documentary suggest that the viewers ended up sharing negative views about the target company, these results could be attributable to confound effects that were not controlled or due to error associated with the study being performed in a classroom lecture hall. Demand artifacts such as the viewers wanting to show the instructor that they had watched the video so that they would receive extra credit could have been present. Also, viewing the video in a classroom setting in a large lecture hall is different than the manner in which most people view documentaries. Perhaps the fact that the video was viewed in a classroom could have given the video more credibility in the minds of viewers.

Another limitation of this study was the cultural group partitioning method that was used. While Handwerker (2001) contends that a graphical analysis can be used to identify intercultural variance, this method is very subjective and not as straightforward as Handwerker (2001) claims. Perhaps Handwerker’s (2001) graphical analysis method would have been more appropriate if Figure 8 would have identified several distinct clusters (as shown in Figure 2). These limitations of Handwerker’s (2001) intercultural analysis methods are revisited in Chapter Four.

A final limitation is that a within-subjects design was not used to assess the impact of the anti-corporate documentary on subjects. A similar study in the future would be more robust if
measurements of subjects’ beliefs about Wal-Mart were taken before they viewed the video and again after they viewed the video in order to control for the level of error in the study.

**Study 3: The Impact of College Lifestyle Cultural Consonance on Service Satisfaction, Attitude Towards the Service Provider, and Advocacy/Word of Mouth**

The purpose of this study is to introduce the marketing literature to the ethnographic methods that can be followed to measure the variable of cultural consonance (Dressler et al. 2005b). Dressler et al. (2005b) define cultural consonance as “the degree to which an individual approximates in his or her own behavior or belief the shared cultural model in some domain” (p. 331). Cultural consonance has been measured across a variety of cultural domains, such as lifestyle, social support, family life, and national characteristics, in a variety of contexts, such as in Brazil, Mexico, Jamaica, and Alabama (Dressler et al. 2005b; Dressler and Bindon 2000; Dressler, Bindon, and Neggers 1998; Dressler, Chavez, and Dos Santos 1991; Dressler, Dos Santos, and Baliero 1996; Dressler, Grell, and Viteri 1995). The construct of cultural consonance was developed in the anthropology literature when researchers realized that socioeconomic status and other traditional epidemiological variables alone did not fully explain the health problems of local communities (Dressler 1991b). At this same time, a method to quantify cultural knowledge became available to anthropologists (Romney, Weller, and Batchelder 1986). While studying a rural African American community in Alabama, Dressler (1991a, 1991b, 1993) theorized that the disproportionate health problems that the community was experiencing could be due to the inability of community members to conform to the cultural landscape to which they belonged. Using ethnographic research methods that included consensus analysis, Dressler (1991a, 1991b, 1993) was able to demonstrate how individuals’ cultural consonance, the extent to which individual community members followed the culturally appropriate beliefs of the community, was related to the blood pressure of community members. Based on this finding, Dressler conceptualized cultural consonance as a source of anxiety or tension with which community members have to cope on a daily basis (1991a, 1991b, 1993).

In order to introduce cultural consonance to the marketing literature, we conduct an empirical study that measures college lifestyle cultural consonance, a construct similar to lifestyle cultural consonance (Dressler et al. 2005b). Before this study is described, we first
provide a conceptual review of cultural consonance. The addition of the conceptual and operational definitions of cultural consonance to the marketing literature offers an important contribution to the marketing literature. Having reviewed the conceptual nature of cultural consonance, we begin the next section by describing the manner in which cultural consonance is operationalized by Dressler et al. (2005b) is reviewed in greater detail. Then, the research model for this study is presented and empirically tested. The research model is centered around the variable of college lifestyle cultural consonance. Finally, a discussion of the methodological implications, the managerial implications, and the limitations of this study are offered.

Measuring Cultural Consonance

In order to measure cultural consonance, three primary steps must be followed. First, a context-specific domain must be identified. Second, consensus analysis (Romney, Weller, and Batchelder 1986) is used to estimate intracultural variation and the culturally appropriate answers to the cultural domain that was identified in the previous step. Third, the extent to which each individual’s beliefs or behaviors correspond to the culturally appropriate answers estimated in the previous step are assessed. This third measure provides the researcher with a measure of cultural consonance. Further details on how each of these three steps are accomplished are given in this section.

Domain Identification

Cultural research recognizes the importance of considering the local context that a researcher is studying. The cultural domain analysis techniques presented by Weller and Romney (1988) describe how free lists can be used to identify the domain items that are important to a group of people in a specific context. Dressler et al. (2005b) describe how free lists regarding the material goods and activities that people need to possess and engage in to live a good life are collected. The free list data are then used by the researcher used to identify the material goods and leisure activities that pertain to the cultural domain of lifestyle.

Consensus Analysis Estimates

After the items in a cultural domain have been identified, the researcher must then determine whether a group of people share a single cultural model about the domain and estimate the culturally appropriate answers to the cultural domain items. Consensus analysis (Romney, Weller, and Batchelder 1986) statistically estimates both of these unknowns. Once the
researcher estimates the answers to these questions, the researcher can then create a measure of how individuals within the cultural group under investigation compare to the culturally correct answers, or measure cultural consonance.

**Cultural Consonance**

The measurement of cultural consonance varies slightly depending on the cultural domain that is under investigation due to how the consensus estimates are calculated in the previous section (i.e., with nominal, ordinal, or interval data), and whether or not consonance in beliefs, behaviors, or a combination of the two is measured. Dressler et al. (2005a, 2005b) offer a detailed description of how cultural consonance in lifestyle, social support, and family life are measured. In order to provide an example of how Dressler et al. (2005b) measure cultural consonance in the lifestyle domain, we measure the cultural consonance that Florida State undergraduates exhibit in a domain similar to the lifestyle domain.

**College Lifestyle**

In this section we discuss how Dressler et al.’s conceptual definition of lifestyle (1996, 2005b) was modified. Dressler et al. (1996) define lifestyle as a person’s decisions made regarding material and consumer culture, and the related behaviors which define a person’s status or prestige. The lifestyle domain is said to be composed of the material goods and activities subdomains. In order to identify the cultural domain items that should be included in the lifestyle domain, Dressler et al. (2005b) collect two sets of free list data. The first free list task (material goods) asks respondents to “list material goods or possessions that people need to live a good life (Dressler et al. 2005b, p. 337-338).” The second free list task (activities) asks respondents to “list the activities in which people typically engage in their free time (Dressler et al. 2005b, p. 338).”

In order to adapt the lifestyle domain to college undergraduates, we focused specifically on the material goods and activities related to social status or prestige in college. When in college, students have not yet begun their careers and are typically dependent on their parents or the state (student loans) financially. Because of this, it is more appropriate to focus on the material goods and activities relevant to having a good college experience rather than a good life in general. A more detailed description of how the college lifestyle cultural domain items were identified and used to measure cultural consonance in college lifestyle is offered subsequently.
The Research Model

The research model shown in Figure 12 has been developed to accomplish three primary goals. First, the inclusion of college lifestyle cultural consonance allows us to demonstrate how cultural consonance is measured. Second, we perform a validity test on the college lifestyle cultural consonance variable by testing the relationship between college lifestyle cultural consonance and measures of stress and anxiety. Third, we explore the relationship between college lifestyle cultural consonance among Florida State undergraduates and several traditional marketing outcome measures.

Concurrent Validity

In Dressler et al.’s (2005b) review of cultural consonance, the authors perform a validity test in order to determine if, in fact, cultural consonance is related to the level of stress an individual feels. This study is set in Brazil, and the authors find significant negative correlations between cultural consonance in lifestyle and perceived stress and depressive symptoms. In order to replicate this validity test on the college lifestyle cultural consonance measure, we perform a similar validity test on the relationship between college lifestyle cultural consonance and perceived stress and anxiety measures. Dressler et al. (2005b) found a negative relationship between lifestyle cultural consonance and perceived stress and depressive symptoms. Therefore, the first two outcome measures associated with college lifestyle cultural consonance shown in Figure 12 are stress and anxiety, which we expect to be negative correlated to college lifestyle cultural consonance.

Marketing Variables

Although marketing scholars have not studied the construct of cultural consonance per se, cultural consonance is closely related to normative beliefs and reference groups that have been studied by marketing scholars. The theory of reasoned action (Fishbein and Ajzen 1975), for example, highlights the importance of normative beliefs as influencers of purchase intentions. To operationalize normative beliefs, Fishbein and Ajzen (1975) describe how an individual’s motivation to comply with salient referents should be assessed. The importance of salient referents on purchase decisions has also been discussed in the form of reference groups (Bearden and Etzel 1982; Childers and Rao 1992). Reference groups, salient referents, and normative
beliefs continue to be an important part of marketing research. But, marketing researchers have not included the construct of cultural consonance in this line of research.

The inclusion of the marketing outcome measures of educational satisfaction, attitudes towards the university, and advocacy/word of mouth intentions are included in order to explore whether college lifestyle cultural consonance may be related to marketing outcome measures with which the university is concerned. As service providers, universities must consider how well they are serving their students. Therefore, an important question is whether or not owning and engaging in the culturally appropriate material goods and activities is an important part determining how well a university is serving its students. Based past research that has found normative influences to relate to attitude formation (Sheppard, Hartwick, and Warshaw 1988), we anticipate that our college lifestyle cultural consonance measure will be positively related to attitudes towards the university. Attitudes have been found to be positively related to satisfaction and behavioral intentions such as engaging in word of mouth, so we also expect college lifestyle cultural consonance to be positively related to college lifestyle cultural consonance (Oliver 1980; Sheppard, Hartwick, and Warshaw 1988). This research question is empirically investigated in the research model shown in Figure 12.

![Figure 12: Cultural Consonance in College Lifestyle Research Model](image-url)
Methods

In order to test the research model shown in Figure 12, cultural consonance in college lifestyle among Florida State undergraduates was measured and the relationships between college lifestyle cultural consonance was assessed through a correlation analysis and MANOVA. More specifically, the cultural domain of college lifestyle among Florida State undergraduates was identified by collecting free list data, then consensus analysis was used to estimate the culturally appropriate answers to the college lifestyle domain, and finally cultural consonance was measured by comparing the behaviors of individuals to the culturally appropriate answers to the college lifestyle cultural domain items.

Cultural Domain Identification

In order to identify the college lifestyle cultural domain items that are salient in the minds of Florida State undergraduates, free list data were collected. Undergraduates from marketing classes were asked to free list their responses to the questions “What material goods or possessions do FSU students need to have a good college experience?” and “What activities do FSU undergraduates typically engage in during their free time?” Ninety-three responses to each of these questions were analyzed using ANTHROPAC 4.0 (Borgatti 1996b). The responses to the first question produced 189 unique items, and the responses to the second question yielded 197 unique items. These items were cleaned and grouped into similar categories in order to reduce the number of unique items and to make the more frequently listed items more easily identifiable. This process reduced the number of material goods items from 189 to 155, and the number of activity items from 197 to 161.

The results of this item cleaning and categorizing process for the material goods and activities of the college lifestyle domain are shown in Figure 13. For example, the most frequently listed material goods item “Motorized Vehicle” was free listed by 67% of the respondents. Likewise, 55% of the undergraduates free listed “Study” as an activity in which students typically engage. The correlation between the frequency and salience of the cleaned and categorized material goods and activities items was .97 and .98, respectively, indicating consistency in the free list results (Borgatti 1996a; Smith 1993).
In order to select which items should be selected as the cultural domain items to include in the later stages of a study, anthropologists recommend that the researcher examine the scree plots of the free list results and attempt to identify a sharp elbow in the plots (Borgatti 1994; Weller and Romney 1988). Unfortunately, if this heuristic were followed, only nine material goods cultural domain items would be included. In order to include more cultural domain items in the study, the 19 most frequently listed material goods were included in the study, and the 20 most frequently listed activities were included in the study. This is the same number of items (39) that Dressler, Dos Santos, and Balieiro (1996) have used in the past to study lifestyle cultural consonance. These items are listed in Table 9 and Table 10.
### Table 9
Material Goods Cultural Domain Items

<table>
<thead>
<tr>
<th>Cultural Domain Items</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Motorized Vehicle (Car, Motorcycle, Etc.)</td>
<td>67</td>
</tr>
<tr>
<td>2 Laptop Or Desktop Computer</td>
<td>65</td>
</tr>
<tr>
<td>3 Cell Phone</td>
<td>37</td>
</tr>
<tr>
<td>4 Textbooks For All Your Classes</td>
<td>35</td>
</tr>
<tr>
<td>5 Nice Clothes</td>
<td>31</td>
</tr>
<tr>
<td>6 iPod Or MP3 Player</td>
<td>28</td>
</tr>
<tr>
<td>7 Nice Place To Live</td>
<td>28</td>
</tr>
<tr>
<td>8 Television</td>
<td>27</td>
</tr>
<tr>
<td>9 21+ ID</td>
<td>13</td>
</tr>
<tr>
<td>10 Nice Shoes</td>
<td>13</td>
</tr>
<tr>
<td>11 Printer</td>
<td>11</td>
</tr>
<tr>
<td>12 Bed</td>
<td>10</td>
</tr>
<tr>
<td>13 Stereo</td>
<td>10</td>
</tr>
<tr>
<td>14 Camera</td>
<td>7</td>
</tr>
<tr>
<td>15 DVD Player</td>
<td>6</td>
</tr>
<tr>
<td>16 Nice Sunglasses</td>
<td>6</td>
</tr>
<tr>
<td>17 High Speed Internet Connection</td>
<td>6</td>
</tr>
<tr>
<td>18 Nice Backpack Or Bookbag</td>
<td>6</td>
</tr>
<tr>
<td>19 Video Game Console</td>
<td>6</td>
</tr>
</tbody>
</table>

### Table 10
Activities Cultural Domain Items

<table>
<thead>
<tr>
<th>Cultural Domain Items</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Study</td>
<td>55</td>
</tr>
<tr>
<td>2 Go To House Parties</td>
<td>54</td>
</tr>
<tr>
<td>3 Get Enough Sleep</td>
<td>54</td>
</tr>
<tr>
<td>4 Watch Television Shows (Not Movies)</td>
<td>54</td>
</tr>
<tr>
<td>5 Go Out To Eat</td>
<td>52</td>
</tr>
<tr>
<td>6 Work Out</td>
<td>47</td>
</tr>
<tr>
<td>7 Go Shopping</td>
<td>39</td>
</tr>
<tr>
<td>8 Drink At Home</td>
<td>38</td>
</tr>
<tr>
<td>9 See A Movie At The Theatre</td>
<td>29</td>
</tr>
<tr>
<td>10 Go To Sporting Events</td>
<td>28</td>
</tr>
<tr>
<td>11 Play Video Games</td>
<td>27</td>
</tr>
</tbody>
</table>
Table 10 Continued

<table>
<thead>
<tr>
<th></th>
<th>Lifestyle Cultural Domain Items</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Play Sports</td>
<td>25</td>
</tr>
<tr>
<td>13</td>
<td>Read Books Or Magazines For Fun</td>
<td>25</td>
</tr>
<tr>
<td>14</td>
<td>Go Out To Bars</td>
<td>24</td>
</tr>
<tr>
<td>15</td>
<td>Go Online For Fun (Facebook, myspace, Etc.)</td>
<td>24</td>
</tr>
<tr>
<td>16</td>
<td>Go Out To Clubs</td>
<td>23</td>
</tr>
<tr>
<td>17</td>
<td>Go to The Pool</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>Watch Movies At Home</td>
<td>14</td>
</tr>
<tr>
<td>19</td>
<td>Work (At A Job)</td>
<td>13</td>
</tr>
<tr>
<td>20</td>
<td>Listen To Music</td>
<td>13</td>
</tr>
</tbody>
</table>

Consensus Analysis

The material goods and activities items were combined to formulate the college lifestyle cultural domain. 47 undergraduates from management classes were asked “How important is it for an FSU student to have each of these Material Goods and engage in the following Activities in order to have a good college experience?” The importance of each of the thirty-nine items was measured on a four-point Likert scale where 1 was labeled “not at all important,” and 4 was labeled “very important” (Dressler et al. 2005b).

Consensus analysis was performed on the responses to the thirty-nine lifestyle cultural domain items using ANTHROPAC 4.0 (Borgatti 1996b). Results of the consensus analysis suggested that Florida State undergraduates share a single cultural model with respect to the college lifestyle cultural domain. The consensus analysis produced a 3.98:1 first to second factor eigenvalue ratio, a .61 average competence level, and no negative cultural competence values. The algorithms behind these consensus analysis methods are described in the “The Process Model for Interval Data” section of Chapter 2. This high level of consensus allowed us to use the answer key estimates of the consensus analysis to measure cultural consonance. The answer key estimates to the thirty-nine cultural domain items are shown in Table 11.

Table 11
Answer Key Estimates

<table>
<thead>
<tr>
<th>Lifestyle Cultural Domain Items</th>
<th>Answer Key Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bed</td>
<td>3.88</td>
</tr>
<tr>
<td>2 Laptop Or Desktop Computer</td>
<td>3.75</td>
</tr>
<tr>
<td>3 Cell Phone</td>
<td>3.66</td>
</tr>
<tr>
<td>4 High Speed Internet Connection</td>
<td>3.59</td>
</tr>
</tbody>
</table>
Table 11 Continued

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Study</td>
</tr>
<tr>
<td>6</td>
<td>Go To Sporting Events</td>
</tr>
<tr>
<td>7</td>
<td>Get Enough Sleep</td>
</tr>
<tr>
<td>8</td>
<td>Motorized Vehicle (Car, Motorcycle, Etc.)</td>
</tr>
<tr>
<td>9</td>
<td>Printer</td>
</tr>
<tr>
<td>10</td>
<td>Go Out To Bars</td>
</tr>
<tr>
<td>11</td>
<td>Work Out</td>
</tr>
<tr>
<td>12</td>
<td>21+ ID</td>
</tr>
<tr>
<td>13</td>
<td>Textbooks For All Your Classes</td>
</tr>
<tr>
<td>14</td>
<td>Go Out To Clubs</td>
</tr>
<tr>
<td>15</td>
<td>Go Online For Fun (Facebook, myspace, Etc.)</td>
</tr>
<tr>
<td>16</td>
<td>Nice Place To Live</td>
</tr>
<tr>
<td>17</td>
<td>Television</td>
</tr>
<tr>
<td>18</td>
<td>Listen To Music</td>
</tr>
<tr>
<td>19</td>
<td>Play Sports</td>
</tr>
<tr>
<td>20</td>
<td>Work (At A Job)</td>
</tr>
<tr>
<td>21</td>
<td>Go Out To Eat</td>
</tr>
<tr>
<td>22</td>
<td>Go to The Pool</td>
</tr>
<tr>
<td>23</td>
<td>Nice Clothes</td>
</tr>
<tr>
<td>24</td>
<td>Drink At Home</td>
</tr>
<tr>
<td>25</td>
<td>Go To House Parties</td>
</tr>
<tr>
<td>26</td>
<td>Camera</td>
</tr>
<tr>
<td>27</td>
<td>DVD Player</td>
</tr>
<tr>
<td>28</td>
<td>Watch Television Shows (Not Movies)</td>
</tr>
<tr>
<td>29</td>
<td>Nice Shoes</td>
</tr>
<tr>
<td>30</td>
<td>See A Movie At The Theatre</td>
</tr>
<tr>
<td>31</td>
<td>Watch Movies At Home</td>
</tr>
<tr>
<td>32</td>
<td>Read Books Or Magazines For Fun</td>
</tr>
<tr>
<td>33</td>
<td>Stereo</td>
</tr>
<tr>
<td>34</td>
<td>Nice Backpack Or Bookbag</td>
</tr>
<tr>
<td>35</td>
<td>Go Shopping</td>
</tr>
<tr>
<td>36</td>
<td>iPod Or MP3 Player</td>
</tr>
<tr>
<td>37</td>
<td>Nice Sunglasses</td>
</tr>
<tr>
<td>38</td>
<td>Video Game Console</td>
</tr>
<tr>
<td>39</td>
<td>Play Video Games</td>
</tr>
</tbody>
</table>

*Cultural Consonance*

In order to measure the extent to which the behaviors of undergraduates were consonant with the culturally appropriate estimates of the previous step, a different group of 56 management and marketing undergraduates were surveyed. For material goods, the
undergraduates were asked to indicate whether they possessed or did not possess the nineteen material good items. For activities, students were asked to rate how often they engaged in the twenty activities. The frequency with which students engaged in the twenty college lifestyle activities was measured on a scale where 0 was labeled “never,” 1 was labeled “once a week or less,” 2 was labeled “two times a week,” 3 was labeled “three times a week,” 4 was labeled “four times a week,” 5 was labeled “five times a week,” 6 was labeled “six times a week,” and 7 was labeled “seven times a week or more.”

Following the methods used to measure lifestyle cultural consonance outlined in previous studies (Dressler et al. 2005a; Dressler and Bindon 2000; Dressler, Dos Santos, and Baliero 1996; 2000), we selected only the 28 items with answer key estimates rated 2.00 or greater to be used in the cultural consonance calculation. The material goods were already dichotomous (possess/do not possess), but the leisure activities cultural domain items had to be dichotomized. To dichotomize the leisure activity items, the leisure activities were coded as a 1 if rated as a 2 or higher on the activities scale (see previous paragraph), and coded as a 0 otherwise. The decision to use 2 or higher to dichotomize the leisure activity items was done in accordance with the manner in which Dressler et al. (2005) dichotomize their leisure activity measure. Finally, a cultural consonance measure was calculated by adding up the number of material goods that each person possessed and the activities that were coded as 1, and then dividing by 28. This process produced a cultural consonance measure ranging from 0 to 1, with a score closer to zero indicating that a respondent has/does a low percentage of the college lifestyle cultural domain items.

Additional Variables

Stress. Individuals’ level of stress was measured using a ten item perceived stress scale (Cohen, Kamarack, and Mermelstein 1983). A sample item from this scale was “In the last month, how often have you felt nervous and ‘stressed’?” Perceived stress was measured on a five-point Likert scale where 0 was labeled “never,” 1 was labeled “almost never,” 2 was labeled “sometimes,” 3 was labeled “fairly often,” and 4 was labeled “very often.” The coefficient alpha of the perceived stress scale was .89.

Anxiety. The level of anxiety of individuals was measured using a ten-item anxiety screening scale used by the NYU school of Medicine (NYU Medical Center, 2007). A sample item from this scale was “Do you feel that you worry excessively about many things?” Anxiety
was measured on a five-point Likert scale where 0 was labeled “never,” 1 was labeled “almost never,” 2 was labeled “sometimes,” 3 was labeled “fairly often,” and 4 was labeled “very often.” The coefficient alpha of the perceived stress scale was .84.

Educational Satisfaction. Educational satisfaction was measured using a scale adapted from the cumulative satisfaction scale used by Voorhees (2006) that was originally developed by Bolton (1998). A sample item from this three item scale was “Overall, I am very satisfied with the services that I receive from FSU.” Educational satisfaction was measured on a five-point Likert scale where 0 was labeled “strongly disagree” to 4 which was labeled “strongly agree.” The coefficient alpha of the educational satisfaction scale was .87.

Attitude Towards the University. Attitude Towards the University was measured using three items adapted from the attitude toward the firm scale used by Voorhees (2006) that was originally developed by Osgood, Suci, and Tannebaum (1957). A sample item from this semantic differential scale was “my attitude towards FSU is negative/positive.” The coefficient alpha of the attitude towards the university was .92.

Advocacy/Word of Mouth. Word of mouth was measured using a scale adapted from the advocacy/word of mouth scale used by Voorhees (2006) that was originally developed by Zeithaml, Parasuraman, and Berry (1996). A sample item from this two-item Likert scale was “I recommend to friends that they attend FSU.” Word of mouth intentions was measured on a five-point Likert scale where 0 was labeled “strongly disagree” to 4 which was labeled “strongly agree.” The coefficient alpha of the word of mouth intentions scale was .92.

*Analysis*

The cultural consonance variable and five other variables presented in the previous section were centered, standardized, and correlated with one another. The results of this correlation analysis are shown in Table 12.
In addition to the correlation analysis, MANOVA was used to evaluate the research model. A median split was performed on the college lifestyle cultural consonance variable. A t-test confirmed a significant difference between the high and low groups ($t_{(54)} = 9.6, p < .01$). A MANOVA with this college lifestyle cultural consonance variable as the independent variable and the five additional variables as dependent variables was performed. The MANOVA results indicated that neither the overall model nor any of the individual relationships were significant. 

**Results**

Concurrent validity. As expected, stress and anxiety were correlated with one another at .57 ($p < .01$), but neither stress nor anxiety were correlated with college lifestyle cultural consonance. Possible explanations for the lack of correlation between college lifestyle cultural consonance and stress and anxiety are offered in the discussion section. As for educational satisfaction, advocacy/word of mouth, and attitude towards the university, although none of the MANOVA results were significant, there was a significant correlation between college lifestyle cultural consonance and word of mouth intentions. This positive correlation suggests that as the proportion of the college lifestyle material goods and activities that an FSU student possess and engages in increases, the greater the frequency that an FSU student engages in positive word of mouth about FSU. While neither educational satisfaction nor attitude towards the university was correlated with college lifestyle cultural consonance, educational satisfaction, advocacy/word of mouth, and attitude towards the university were, as expected, all highly correlated with each other. Next, we discuss the results, review the methodological contributions, offer managerial implications, and identify limitations of this study. In Chapter Four we further address the limitations of this study in order to review how a future consensus analysis study could be conducted in a more systematic manner.

### Table 12
Correlation Table of the Variables in the Study

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cultural Consonance</td>
<td></td>
<td>-0.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Stress</td>
<td></td>
<td></td>
<td></td>
<td>-0.03</td>
<td>0.57**</td>
</tr>
<tr>
<td>3. Anxiety</td>
<td></td>
<td></td>
<td>0.20</td>
<td>-0.08</td>
<td>-0.17</td>
</tr>
<tr>
<td>4. Educational Satisfaction</td>
<td>0.20</td>
<td>-0.08</td>
<td>-0.11</td>
<td>0.78**</td>
<td></td>
</tr>
<tr>
<td>5. Attitude Towards the University</td>
<td>0.17</td>
<td>-0.16</td>
<td>-0.11</td>
<td>0.78**</td>
<td></td>
</tr>
<tr>
<td>6. Advocacy/Word of Mouth</td>
<td>0.33*</td>
<td>-0.10</td>
<td>-0.07</td>
<td>0.65**</td>
<td>0.76**</td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .01$

N = 56
Discussion

This study demonstrated the steps involved in measuring college lifestyle cultural consonance, and found college lifestyle cultural consonance to be correlated with the advocacy/word of mouth marketing outcome measure. To measure cultural consonance the following steps were taken. First, free list data were collected to identify the items in the college lifestyle domain. After the most frequent and salient items in the free list data were selected, these items were inserted into a questionnaire and students were asked to rate the importance level of each item in determining whether or not an FSU student has a good college experience. Consensus analysis was used to verify that the students shared a single cultural model, and to estimate the culturally correct answers to each item. The items estimated to be more important to having a good college experience were included in another questionnaire, along with the variables shown in Figure 12, and another group of FSU undergraduates were surveyed and asked whether or not they possessed the material goods and how frequently they engaged in the activities that made up the college lifestyle cultural domain. These data were used to measure college lifestyle cultural consonance, which was calculated by determining the percentage of the material goods and activities that students possessed or engaged in frequently.

The relationship between college lifestyle cultural consonance and advocacy/word of mouth was significant and positive, while neither attitude towards the university nor educational satisfaction was significantly related to college lifestyle cultural consonance. This lack of significance between college lifestyle cultural consonance and educational satisfaction suggests that students do not feel as though materialistic goods and leisure activities are key determinants of their educational satisfaction and attitudes towards the university. However, the significant positive correlation between college lifestyle cultural consonance and advocacy/word of mouth suggest that owning certain material goods and engaging in certain activities may be necessary preconditions that determine some students’ reactions to the education provided, but not sufficient conditions that determine their overall evaluation (i.e., attitude towards the university and educational satisfaction).

These results suggest that it is important for a university to ensure that students have access to certain material goods and engage in certain activities, but doing so will not ensure that students are satisfied with the university and have a positive attitude towards the university.
Therefore, it is important that universities focus on aspects other than the material goods that students own and the activities in which students engage, such as providing students with a high quality education. Many students may not recognize the importance of receiving a good education to their attitude towards a university, but if they felt that their education was substandard, their attitude towards the university may diminish.

**Methodological Contributions**

This study demonstrated how Dressler et al. (2005a, 2005b) measure cultural consonance. Dressler and colleagues have measured cultural consonance in a variety of domains, and related consonance to several health-related outcomes. Marketing researchers, however, have not investigated how cultural consonance is related to common marketing outcome measures such as satisfaction, attitude, and word of mouth. In order to demonstrate to marketing researchers how cultural consonance is measured, we modified Dressler et al.’s (2005b) measure of lifestyle cultural consonance in order to measure college lifestyle cultural consonance. This was done in order to focus this study on the material goods and activities that college students need to possess and engage in order to have a good college experience, as opposed to a good life in general.

The cultural consonance variable could be applied to a variety of marketing research studies. For example, cultural consonance could be measured in domains other than lifestyle, social support, or family life and applied to new consumer culture, organizational culture, and national culture contexts. Furthermore, while this study measured cultural consonance in behaviors (possess/not possess material goods and frequently engage/not frequently engage in activities), cultural consonance with beliefs could also be measured. Finally, because we did not find concurrent validity between college lifestyle cultural consonance and levels of stress or anxiety, future research on the validity of cultural consonance is needed.

**Managerial Implications**

The experiences that students have during their college years are thought to be some of the most important experiences of their lives. Colleges and universities spend lots of money marketing their campuses to students, and then serving their students while the students attend the school. One of the major concerns that a university has is whether or not the students become advocates of the school and tell other people, such as their friends and family, that they are enjoying their college experience.
In this study we were able to empirically demonstrate how college lifestyle cultural consonance was related to the level of advocacy/word of mouth in which students engage. Students who possessed and frequently engaged in a higher proportion of the culturally relevant material goods and activities also reported higher levels of advocacy/word of mouth about their school. This finding suggests that it is important for a university to ensure that students possess and engage in the culturally appropriate material goods and activities so that they are more likely to be advocates of the university. To ensure that this happens, universities can both manage student perceptions about what the culturally appropriate material goods and activities are, and manage the access that students have to the culturally appropriate material goods and activities.

It is common for universities to try and manage the expectations that students have about what appropriate material goods and possessions are for their students. For example, universities promote alcohol awareness issues in order to communicate to students that not all undergraduates binge drink. Likewise, some universities try to discourage students from feeling as though they need to own a car while they are a student. To manage the access that students have to the culturally appropriate material goods and activities, universities provide students with access to a wide range of material goods and activities. For example, many campuses have movie theaters, multimedia centers, and extensive public transportation. Universities also offer a wide range of organized activities for students to participate in, such as intramural sports and social events.

**Limitations**

The limitations of this study that will be discussed include how this study may not have focused enough on a particular microculture, how the answer key estimates of importance may not be specific enough, and how the concurrent validity test failed. Although not discussed in this section, the sampling methods used in this study were also not ideal. A more detailed discussion of sampling issues are offered in Chapter Four. Let us now turn to a discussion of the first limitation mentioned a priori.

This study attempted to measure the college lifestyle cultural beliefs about FSU undergraduate. While the consensus analysis results suggested students share a single cultural model about college lifestyle, there may have been a need to focus on a more particular type of FSU undergraduate, such as a male vs. female FSU undergraduates, FSU undergraduate business
majors, or FSU students that are part of a fraternity or sorority. For example, one of the material goods and activities identified as important to the college lifestyle was “video game consoles” and “playing video games.” But do these items apply equally to male and female FSU undergraduates? Likewise, many of the items in the college lifestyle cultural domain focused on drinking, but a large proportion of FSU students do not drink. This suggests that there may be a need to be more focused on a particular microculture in the future. Nonetheless, Dressler et al. (2005a) felt that they were able to identify the lifestyle cultural domain at the macro level of all Brazilians.

This study replicated Dressler et al.’s studies that measure the variable of cultural consonance in lifestyle (2005a). This study was able to clearly outline the three steps that a researcher can take to measure cultural consonance in lifestyle. However, this replication did find the need for more appropriate answer key estimates of college lifestyle cultural consonance, especially the measure of the activities portion of the college lifestyle cultural domain items. Although answer key estimates provided by the consensus analysis did estimate the importance level of each activity, they did not estimate the culturally appropriate frequency at which FSU undergraduates should engage in these activities. Because of this lack of specific activity frequency estimates, the activities portion of the lifestyle cultural consonance measure was attenuated. In the future, it may be more appropriate to separate the two subdomains of material goods and activities into separate domains so that frequency estimates (as opposed to importance estimates) can be obtained for the activities.

The final limitation discussed in this section relates to the lack of concurrent validity between college lifestyle cultural consonance and the stress and anxiety measures. While this lack of concurrent validity could be due to methodological issues, such as those discussed a priori, it could also be due to contextual differences that exist between FSU undergraduates and Brazilians. FSU undergraduates are probably some of the most privileged young adults in the state of Florida, while Dressler et al.’s (2005b) study included Brazilians from a variety of different socioeconomic backgrounds. Perhaps a future study on lifestyle cultural consonance could be performed on a group that is less privileged than FSU undergraduates.
CHAPTER FOUR
ADDRESSING THE LIMITATIONS OF CONSENSUS ANALYSIS

The focus of this section is on discussing the manner in which future consensus analysis studies could overcome the limitations that were encountered in the three empirical studies. The recommendations that we discuss include (1) avoiding idiosyncratic cultural domains, (2) identifying clear cultural boundaries, (3) sampling across clear life experience and background variables, (4) measuring external attributes as opposed to internal opinions on nominal scales, (5) partitioning a group that does not exhibit consensus into subgroups in a more systematic manner, and (6) estimating specific material good quantities and activity levels when calculating lifestyle cultural consonance. These recommendations would help make a future ethnographic study that uses consensus analysis to study intracultural variation, intercultural variation, or cultural consonance more systematic.

Avoid Idiosyncratic Cultural Domains

While Weller and Romney (1988) define a cultural domain as “an organized set of words, concepts, or sentences, all on the same level of contrast, that jointly refer to a single conceptual sphere” (p. 9), this is not the only definition of a cultural domain. More recently, Romney and Moore (1998) define a semantic domain as “an organized set of words, all on the same level of contrast, that refer to a single conceptual sphere” (p. 315). Perhaps this shift from the notion of a cultural domain to the notion of a semantic domain tacitly implies that the authors have come to the realization that consensus analysis is better suited to study domains that consist of single words as opposed to idiosyncratic phrases. Borgatti (1994) also discusses the differences between cultural domains that consist of one-word names as opposed to multiple-word phrases.

Borgatti (1994) distinguishes between cultural domains as consisting either of names or phrases. Names are specific, one-word descriptions of a possible cultural domain item. Alternatively, a phrase is a general, multiple-word description of a possible cultural domain item. After making this distinction, Borgatti (1994) tells us that the practice of using free lists to identify a cultural domain works best when a cultural domain is composed of one-word names. Cultural domains consisting of names produce fewer unique items in a free list, making the process of selecting a set of cultural domain items less complex and arbitrary. For example, in
Study 1, we attempted to clean over one thousand idiosyncratic phrases that were free listed in order to identify the cultural domain of Disney World among Florida undergraduates. This process relied on the subjective interpretation of the researcher, and therefore made the study less systematic.

Since one of the goals of ethnographic studies that use consensus analysis is to be systematic (Weller and Romney 1988), it is important that the first phase of an ethnographic study that uses consensus analysis—the domain identification phase—have the lowest amount of subjectivity as possible. Perhaps this is why ethnographic studies that use consensus analysis are most commonly performed in the areas of folk medicine and folk biology. These areas study cultural domains composed that are either semantic (name) domains (Romney and Moore 1998) of specific diseases (e.g., diabetes, cancer, smallpox) or specific animal species (e.g., dolphin, bluefish, striped mullet).

Based on this review of how the level of idiosyncrasy in a cultural domain can attenuate an ethnographic study that uses consensus analysis, we recommend that a future consensus analysis study be composed of one-word cultural domain items as opposed to more arbitrary phrases. Cultural domains that consist of names could be studied in consumer, organizational, and international culture research. In a consumer culture context this could be a list of specific brands or products. In an organizational culture study, a cultural domain of employee names or job titles could be used. Finally, in a national culture context, a cultural domain of specific cultural values could be studied in a consensus analysis study.

Identify Clear Cultural Boundaries

By definition, cultural knowledge is knowledge that is learned and shared among a group of people (D’Andrade 1995). Because of this definition of cultural knowledge, identifying a specific cultural group is a critical part of an ethnographic study that uses consensus analysis. Furthermore, as Ross (2004) states, ethnographic research should ideally include more than a student sample. While psychological studies can make the argument that a student sample can control the level of error introduced to a study, an ethnographic study must sample directly from the informants who are part of a cultural group. In Studies 1 and 2 we used Florida undergraduates as the cultural group. Unfortunately, this cultural group does not have clear boundaries. Is an undergraduate defined in terms of the number of credit hours a student has
completed, year in school, or age? However, for the purpose of demonstrating how consensus analysis can be used to study intracultural variance, intercultural variance, and cultural consonance

Based on this information it becomes apparent how important it is to clearly understand the boundaries of the cultural group that is under investigation. Many of the ethnographic studies that use consensus analysis focus on microcultures that have specific boundaries and can be sampled easily (or possibly even a census of the entire microculture could be obtained). For example, ethnographic studies that use consensus analysis have studied very small native groups such as Ojibway Indians of Canada (Garro 2000), Tzetzal Mayans (Casagrande 2004), or Lacandan Mayans (Ross 2002).

In a future consumer culture, organizational culture, or cross cultural research study, it is important that the boundaries of a cultural group be easily defined so that an appropriate sample can be obtained. A consumer culture study could focus on a specific club that meets on a regular basis, or a specific group of people who patronize the same service provider repeatedly. It would be very straightforward to use consensus analysis in an organization because the organization’s walls serve as a physical boundary that could also represent a cultural boundary. Finally, a national culture research study could focus on a specific subculture or microculture within a foreign country.

**Sample Across Life Experience and Background Variables**

In addition to defining clear cultural boundaries, it is important that purposeful sampling (Thompson and Troester 2002) be used to capture how cultural meaning differs across differences in life experiences or sociological categories such as gender, ethnicity, and age. Similarly, Handwerker (2005) tells us that because cultural data lack independent error terms and is autocorrelated, cultural samples do not require random selection (Handwerker 2001, 2005; Handwerker, Hatcherson, and Herbert 1997). Because cultural data reflect the social interactions in which knowledge is transmitted, what one person knows is a function of other people’s knowledge, and this knowledge pool changes over time. Handwerker tells us that because cultural variation emanates from variation in life experiences, it is important to design a sample around similar or different life experiences (2005). Therefore judgmental quota samples are
recommended to establish cultural boundaries based on people’s contrasting life experiences. This sampling method ensures that either a very specific group is sampled or a large amount of heterogeneity is included in a sample (Handwerker 2005) Handwerker (2005).

When performing a consumer culture, organizational culture, or national culture study, it is important for the researcher to take some time at the beginning of the study to consider what life experiences or background variables are likely to influence the intracultural or intercultural variance in a study. This process of exploring which life experience or background variables influence intracultural or intercultural variance is referred to by Ross (2004) as exploring cultural theories. Handwerker (2002) refers to this process as ethnological research, and both authors agree that this type of cultural research is needed in the future.

**Evaluate Beliefs About External Attributes as Opposed to Internal Opinions with Nominal Scales**

The first assumption of consensus analysis presented by Romney, Weller, and Batchelder (1986) is the common truth assumption. This assumption states that there is a single fixed answer key that applies to each informant. The question then becomes, are attitudes that are measured on interval scales anchored by “strongly agree” and “strongly disagree” able to measure a common truth? When we think of cultural knowledge as a common truth that a group of people share, it does not seem as though individual attitudes are part of this common truth. On the other hand, cultural knowledge is focused on the external common truth that a group of people share.

It seems as though it is more appropriate to measure cultural knowledge across specific attributes, such as “contagious” or “noncontagious” (Romney 1999), as opposed to more attitudinal “agree” and “disagree” scales. It is also important to note here that the use of dichotomous attributes allows the researcher to use the original cultural consensus model (Romeny, Weller, and Batchelder 1986), as opposed to the consensus analysis algorithms that were adapted to accommodate ordinal (Romney, Batchelder and Weller 1987) or interval data (Weller 1987).

Consensus analysis studies could easily be used to estimate the extent to which a cultural group is in agreement about certain attributes in a consumer culture, organizational culture, or cross-cultural study. For example, a consumer culture study could investigate product attributes
such as “cool” or “not cool,” “safe” or “unsafe,” “socially responsible,” or “not socially responsible.” An organizational culture study could use consensus analysis to estimate the extent to which a group of employees agrees about whether certain employees should be “promoted” or “not promoted,” or whether certain policies and workplace behaviors are “acceptable” or “unacceptable.” Finally, a national culture study could investigate the extent to which a group of people share knowledge about attributes that measure whether or not certain customs are “appropriate” or “inappropriate.”

Partitioning a Group That Does Not Exhibit Consensus Into Subgroups in a More Systematic Manner

The task of partitioning a group of people who do not exhibit consensus into multiple subgroups in Study 2 was difficult and detracted from the systematic nature of the study. Handwerker’s guidelines of intercultural analysis (2001) instruct the researcher to partition individuals into multiple subgroups after consensus analysis indicates that a group of people do not share a single set of beliefs. Handwerker (2001) recommends that this partitioning be done using a graphical analysis of the sample’s first and second factor loadings obtained in the consensus analysis. Handwerker provides a graph that identifies nine possible subgroups into which a group of people who do not exhibit consensus could be partitioned (Figure 2). However, the results of Study 2 did not separate into subgroups that were easily identifiable graphically. As a result, the three cultural groups that were chosen were somewhat subjective. Perhaps Handwerker’s method of intercultural analysis (2001) requires that a more rigorous partitioning method, such as cluster analysis, be used to partition the first and second factor loadings into subgroups.

Estimate Specific Material Good Quantities and Activity Levels When Estimating Lifestyle Cultural Consonance

A more systematic measure of lifestyle cultural consonance would be one that incorporates specific possession quantities and activity levels. One of the major methodological limitations found in Study 3 was the lack of specificity in the answer key estimates. In order to measure cultural consonance in material goods and activities, Dressler et al. (2005a) use consensus analysis to estimate the importance of each material good and activity included in the
lifestyle domain. However, this importance measure does not provide a good benchmark to measure against, which weakens the validity of the lifestyle cultural consonance measure.

This inability of importance answer key estimates to obtain a valid lifestyle consonance measure can be seen with a couple of examples. What if it is culturally appropriate to own two cars? It would not be sufficient to measure cars as own/do not own. Likewise, the culturally appropriate activity frequency level may vary across activities. Dressler, Dos Santos, and Baliero (1996) include the activity items of “attending the cinema” and “travel, international.” While people may go to the cinema on a weekly basis, they may travel internationally on a much less frequent basis. It would be more appropriate to use consensus analysis to estimate the frequency level, as opposed to the importance level, of each activity item. Likewise, it would be more appropriate to be specific about the number and type of material goods that are culturally appropriate. With more specific answer key estimates, a more valid measure of cultural consonance could be obtained.

Summary

Hopefully these recommendations are just the beginning of a literature stream that begins to incorporate consensus analysis and other cultural domain analysis research methods into marketing research. Future studies could critically examine the theoretical and methodological foundations of cultural knowledge and consensus analysis. Additional questions that could be entertained in future cultural domain analysis research include an analysis of how the relationship between the number of cultural domain items and the sample size used in a consensus analysis influences results (Stewart 1981). Furthermore, a more thorough meta analysis of all of the studies that have used consensus analysis would be a valuable contribution to the marketing literature. This meta analysis would provide other scholars with the ability to easily understand how consensus analysis has been applied in the past. Finally, a description of how other methods are used in conjunction with consensus analysis would also be beneficial. Consensus analysis is just one of many research methods that anthropologists use to study cultural knowledge and have incorporated into cultural domain analysis methods.

While writing this dissertation, other systematic research methods used by cognitive anthropologists presented themselves as useful tools that marketing researchers could use. For example, cognitive anthropologists have been able to demonstrate how cognitive structures,
measured using multidimensional scaling analysis, influence the order properties of free list results (Romney 1989; Romney, Brewer, and Batchelder 1993, 1996). While studying the domain of animals, researchers have demonstrated how people are more likely to free list similar animals in order than dissimilar animals. For example, “lion” and “tiger” are more likely to be free listed sequentially than “elephant” and “rat” due to the fact that lions and tigers are more similar to each other than elephants and rats in the minds of people (Romney 1989). It would be interesting to investigate whether or not this same effect occurs in marketer-created domains such as brands or product categories, and to investigate how early these effects occur in young consumers. Finally, in addition to examining the relationship between free list order properties and semantic structures, many other cognitive science research methods are being used by cognitive anthropologists. For example, marketing researchers could use the quadratic assignment program (QAP) (Bailenson et al. 2002; Borgatti 2002; Coley 1995, Johnson, Mervis, and Boster 1992) and property fitting analysis (PROFIT) (Gravlee 2005; Handwerker and Wozniak 1997) in marketing studies that use cultural domain analysis methods.

While this dissertation has made distinctions between cognitive anthropologists, psychologists, and marketing scholars, it is important to remember that no one discipline owns a method (Bernard 1998). Methods are tools that a researcher from any discipline can use to answer different types of questions. Each method can provide a different perspective on what is going on inside the minds of people in order to better understand the complex nature of man.
APPENDIX A

Human Subjects Approval for Study 1

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 9/7/2006

To: David Horowitz
    MC 1110

Dept.: MARKETING

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
    The Cultural Model of Disney World Among Florida Graduates

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.101(b) 2 and has been approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If the project has not been completed by 9/5/2007 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Michael Brady
    HSC No. 2006.0575
APPENDIX B
Human Subjects Approval for Study 2

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 11/8/2006

To:
David Horowitz
MC 1110

Dept.: MARKETING

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Anti-Wal*Mart Culture Among Florida Undergraduates

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.101(b) 4 and has been approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If the project has not been completed by 11/7/2007 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Michael Brady
HSC# 2006.0931
APPENDIX C

Human Subjects Approval for Study 3

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 12/13/2006

To:
David Horowitz
MC 1110

Dept.: MARKETING

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
   Measuring the Impact of Cultural Consonance in Lifestyle and Social Support on
   Educational Satisfaction and Alcohol and Tobacco Consumption

The forms that you submitted to this office in regard to the use of human subjects in the proposal
referenced above have been reviewed by the Secretary, the Chair, and two members of the Human
Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(b) 7 and has
been approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to
weigh the risk to the human participants and the aspects of the proposal related to potential
risk and benefit. This approval does not replace any departmental or other approvals, which
may be required.

If the project has not been completed by 12/12/2007 you must request renewed approval for
continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the
project to the Committee for approval. Also, the principal investigator must promptly report, in writing,
any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is
reminded that he/she is responsible for being informed concerning research projects involving human
subjects in the department, and should review protocols of such investigations as often as needed to
insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The
Assurance Number is IRB00000446.

Cc: Michael Brady
HSC# 2006.1083
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120


BIOGRAPHICAL SKETCH

David Horowitz was born in Sacramento, California on June 2, 1978. David received his Bachelors degree in Industrial Engineering and Engineering Management from Stanford University in 2000. At Stanford he developed an interested in applying mathematics and statistics to business, and this interest led him to a job at STMicroelectronics as a Manufacturing Supervisor after graduation. At STMicroelectronics he was promoted to an Industrial Engineering position, and began taking night classes at San Diego State University to obtain a Masters Degree in Business Administration. While working on his M.B.A., David developed an interest in his Marketing courses. He was enticed by the idea that marketers could develop an intimate understanding of consumers’ minds and turn this understanding into profits.

This interest led David to enroll in the Marketing Ph.D. program at The Florida State University in 2003. He was awarded the degree of Doctor of Philosophy in Marketing from The Florida State University in April 2007. David has accepted an offer from Sonoma State University where he will begin teaching in August of 2007. David’s research interests are in the areas of cultural anthropology theory and research methods and their application to consumer behavior. David’s research has been published in the Journal of the Academy of Marketing Science, Journal of Interactive Advertising, and in the proceedings of a number of national conferences.