ARABIC IMPRESSION CHANGE

by

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(Under the Direction of DAWN T. ROBINSON)

ABSTRACT

This paper investigates the dynamics of processing social events within the Arabic language culture, and differences in event processing between American and Arabic language cultures through the use of an experimental design. The results of hierarchical linear modeling suggest little variation between people, and do not support the need for different equations based on subcultural differences. I also find Arabic models are more concise compared to the English models and different effects are found for behavior potency. In conclusion, verification studies are needed to determine the viability of these equations for future investigation.

INDEX WORDS: ARABIC, CULTURE, AFFECT CONTROL THEORY

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CHAPTER 1

INTRODUCTION

The purpose of this paper is to investigate impression change within the Arabic language culture through the use of hierarchical linear modeling. Through the use of hierarchical linear modeling, and the logic of impression change, we can investigate three main questions. First, how much consensus is there in the impression change equations among Arabic individuals? Second, what individual characteristics, if any, predict differences in Arabic impression change equations? Finally, how do the Arabic impression change equations compare to those from English language culture? The purpose and relevance of these questions lies in how they contribute to affect control theory, the study of culture within sociology, and a broader impact for cross cultural investigation.

Affect control theory (Heise 1985; 1987) is a mathematical theory of social interaction based on the assumption from symbolic interactionism of Mead (1934) that individuals share meanings through language and seek to maintain these meanings in interactions. Affect control theory uses impression change equations to model this process, providing mathematical based predictions of social interaction. This allows for the investigation of social interaction both within a language culture and across language cultures. The first contribution of the current study to affect control theory lies in testing this shared meaning assumption. This paper is the first to utilize a data structure and newer statistical methods that enable us to test this assumption and determine whether the methods used to collect impression change equations need to be reviewed. Second, Arabic is the fifth largest language spoken in the world, it has over 19 different dialects spoken in over 50 countries, and it is spoken by over 200 million people worldwide (Lewis 2013). It is unique compared to English in that it is a diglossic language; it has both a high language and a vernacular. The vernacular takes the form of the different dialects spoken throughout the world, changing between countries, and ethnicities. The high language takes the form of Modern Standard Arabic and is the literary standard throughout the Arabic speaking world. For affect control theory, this study provides the first full investigation into a diglossic language using one of the widest spoken languages in the world.

Furthermore, this paper also contributes the ongoing study of culture within sociology. A key debate has emerged in the field as to the role of culture, how to study it, and what we can gain from different methodologies and disciplines (Alexander and Smith 2001; DiMaggio 1997). One of the key tensions in this debate is to what extent we can view culture as a latent variable, with individuals reflecting the broader culture they are a part of, versus a more agentic model in which individuals pick and choose the culture they draw from in a more strategic fashion. Using the logic of impression change, I show how affect control theory can inform this debate by investigating the extent to which meanings are shared within the Arabic language culture and what factors contribute to individual differences within a culture.

Finally, I provide a unique starting point to begin a broader investigation into the Arabic language culture. For over 10 years, the United States of America has been in open military conflict in Arabic speaking countries. By investigating the Arabic language culture, researchers can begin to search for problematic interactions between Arabic and English speakers. If these points of contention are identified, it may be possible to use affect control theory to search for solutions and interventions to these problematic interactions (Heise 1991).

Within American English language culture, affect control theory has been used to investigate topics ranging from issues within criminology (Tsoudis 2000) to the study of mental health (Kroska and Harkness 2011). Cross culturally. Affect control theory has more recently been used in the investigation of leadership differences between the American and German language culture (Schneider 2004;Schneider and Schroeder 2012). While the mathematical nature of the theory may deter some who wish to have a thick and rich description within the study of culture, the principles of affect control theory can still be applied and provide a rich description as well. Using principles within affect control theory Francis (1997) observed social support groups and their roles in the lives of those who had lost a spouse. Francis' research shows how groups redefine the identities of the group members and their former spouses and how this influences emotion management within the groups. Further, his research demonstrates how this process can be conceived of as both interactional and cultural in nature and provides a basis for bringing cultural processes to the sociological study of emotions, and shows how affect control theory can be applied to a more qualitative approach as well. Through the impression change equations estimated in this paper, we can begin investigating within the Arabic language culture itself, as well as begin the search for problematic interactions and their solutions.

This paper presents the results of a within culture investigation of differences in impression change, a full estimation of equations for the Arabic language culture, and a comparison of the English and Arabic impression change equations. Chapter 2 begins with a short overview of the discussions about the study of culture within sociology and how affect control theory can be informative in this area. Then, an overview of affect control theory is provided, including the history, an explanation of the key components, and its use in cross-culture and subcultural investigations. In this chapter, I lay out the logic behind the investigation and present hypotheses about subcultural and cross-cultural differences expected in impression change equations.

I then turn my focus to how the nested structure of the data and the experimental design provide a unique opportunity to investigate consensus versus fragmentation in the Arabic language culture. I employ Hierarchical Linear Modeling (HLM) to first investigate the consensus between raters and test the hypothesis that impression change has little to no fragmentation. Second, I examine whether demographic characteristic can account for any fragmentation found, testing the hypothesis that gender affects impression change coefficients. Last, I estimate the full Arabic equations to compare them to their English counterparts and test the hypothesis that Arabic impression change coefficients are different than English impression change. I finish with a discussion of the results, their limitations, and the future directions of this research.

CHAPTER 2

AFFECT CONTROL THEORY AND CULTURE

Early sociological scholars like Weber (1905) and Simmel (1900) worked to explain how cultural meaning and belief change the structure of social life. However, Alexander and Smith (2001) argue culture has recently disappeared from the lens of sociology and call for the development of a strong program of culture in sociology. The authors suggest a strong program of culture will focus on the autonomous impact of culture, with clearly defined mechanisms and thick rich description of these processes. This view is informed by the review of culture and cognition by DiMaggio (1997). In this article the author highlights how research in social cognition could be used by sociologists studying and using culture. DiMaggio provides further evidence that the older view of culture as completely cohesive has given way to a more fragmented view of culture where individuals are more agentic than previous believed.

The older framework within the study of culture saw culture as being a consensus across groups and enacted by individuals without problems. In this view, individuals reflect the broader culture they are a part of and are constrained in choices of action by their shared symbols and meanings. However, this has given way to a more fragmented view of culture in which individuals can use culture more strategically and draw from a wide cultural toolkit (Swidler 1986). Taking the view of culture as completely fragmented leads to the implication that everything is decided and created by the individual in the moment, and, therefore, there is no larger culture that is outside the mind of an individual. This point of view results in an over socialized conception of the individual (Wrong 1961), where broader meanings force individuals into predefined roles devoid of agency. While some may be proponents of these extremes, I argue for a place somewhere in the middle and believe affect control theory fits well within this middle ground.

Affect control theory starts with the assumption that affective meaning is housed in language and that we try and maintain these meanings. In this way, affect control theory fall directly within the culture as a shared consensus camp. Affect control theory measures culture through the collection of affective dictionaries and the estimation of impression change equations. The equations estimate how individuals process information in an interaction in ways that allow them to maintain shared meanings.

However, while social actors try to maintain these meanings, they are not always able to do so. Thus, when situations do not conform to cultural labels, individuals experience a disruption. In affect control theory, this disruption is known as deflection. Affect control theory proposes people seek to reduce this deflection through behavior and relabeling of factors within a situation. In this way, affect control theory allows for individuals to be creative and to be strategic about their behaviors and relabeling of events. Through investigation into the differences in the shared affective meanings of words and the impression change equations, affect control theory can be used to investigate not only how we share culture, but also where we have fragmentation and how people use culture strategically.

Britt and Heise (2000) show how social movements can reframe situations so disenfranchised individuals can move from being in a state of shame towards a feeling of pride by going through other emotions. The authors provide an example of the LBGT community converting shame into anger and then anger into pride. Therefore, individuals reflect their broader culture through their meanings attached to labels while at the same time they are creative and use this knowledge of the broader culture to strategically reach a valued end goal.

Affect control theory's approach to quantifying linguistic culture into affective meaning and impression change equations provide a chance to inform the culture discussion by investigating its own base assumption, of impression change equations being shared within a language culture Until now, the data structure and statistical methods necessary for such an investigation have not been available to affect control theorists, and this paper provides a unique opportunity to test this assumption and inform the discussion on culture.

From this section, I move to a brief history of affect control theory to provide a foundation for where the key concepts used in the analyses come from, and how they relate to the current study. I also discuss previous work on cross and within culture comparisons to highlight the strategy taken in this paper. This all highlights how impression change can be used to investigate how much consensus there is in the Arabic language culture, how demographic characteristics can explain differences between people, and just how comparable are English and Arabic language cultures impression change equations.

History of Affect Control Theory

Affect control theory traces its intellectual roots to both sociology and psychology. From sociology, the work of symbolic interactionists informs the key assumptions of the theory. Within psychology, work on cybernetic control systems form the foundation for the logic of impression change and the control model. Finally, work on language and semantic meaning across culture provides the fundamental dimensions of meaning that is key to social interaction.

Within sociology affect control theory can be traced to the work of the symbolic interactionism of Mead (1934). Mead saw language as a key feature in social interaction and believed that maintaining meanings within a situation allowed humans to move fluidly through interactions. Language allows for the use of significant symbols as signals to others during interactions, and shared meaning of these symbols allow the interchange of behaviors and ideas. Take the example of yelling fire in a movie theater. If we share language and the significant symbols for fire, when "Fire" is yelled, we are able to respond and escape if there actually is danger. If we did not speak the same language, we would merely see someone yell at the audience with anger. How we interpret the meaning would be ambiguous and there would be confusion. If we are the yeller of fire, we are unable to signal others of the danger if the language spoken is not shared. We would look like a raving maniac for trying to pull people towards the door while yelling at the top of our lungs and pointing around. Thus, our understanding of the symbols and situational cues that are relevant to a particular interaction allows for a productive interchange to take place.

From psychology, affect control theory can trace its mathematical roots to the cybernetic control systems proposed by Powers (1973)and the assumption that individual's attempt to maintain equilibrium in their perceptions and attitudes. The work of Henry Gollob (1968; 1973) applied this underlying assumption about the need for consistency to investigation of the effects of sentence structure on sentiments. Gollob's work attempted to predict the evaluative dimension of sentiments as an interaction of attitudes towards actors, behaviors, and objects. Gollob was concerned with the subject, verb, and object structure of a sentence or event. In his work, events would take the form of the *subject* man *verbs* the *object*. Example sentences within this realm of work include the hostile man hugs the boy or the happy man greets the daughter. From these sentences Gollob was able to mathematically predict attitude changes from individuals who read the sentences. This work serves as the basis for the affect control theory model of impression change equations

Sentiments

Sentiments, also known as fundamental sentiments, fundamentals, or out of context sentiments, are the affective meanings for social actors, behaviors, and objects within affect control theory. Sentiments consist of ratings on three separate dimensions thought to be the basis of the meaning for all words found by Osgood (1957) in 21 different language cultures. These dimensions are evaluation, potency, and activity. Evaluation refers to how good versus bad, potency to how powerful versus weak, and activity to how active versus passive the word is. Within affect control theory, these sentiments are rated on bipolar scales, representing each of the three dimensions. Within the bipolar scale the adjectives of neutral, slightly, quite, extremely, and infinitely are used to anchor ratings, with neutral set at the zero point. The other adjectives are reflexively distributed at the other side of the zero point at equal distance from each other, except for infinitely which is anchored 1.3 times further. Obtaining an affective dictionary of fundamental sentiments is the first step in being able to simulate social interaction in any language culture for affect control theory.

Within affect control theory the ratings for sentiments are taken to be reflective of both the individual's personal experiences with the stimulus, as well as the cultural normative sentiments about the stimulus. This is where the logic of creating affective dictionaries departs from that of surveys of populations. To be able to draw conclusions about a population, a survey needs a random sample large enough from which to generalize to the larger population. Then, the interesting differences are the differences between people on individual items within the survey. However, when conducting surveys of cultural sentiment, the interesting differences are not those between individuals, but the differences between stimuli. This is because the measurement of interest is the underlying cultural beliefs about the stimuli. This is based on the cultural consensus model proposed by Romney (1986; 1996; 1999). In this model, respondents are chosen based on their inculcation in a given culture. Affect control theorists (Heise 2010) argue that the individuals with the best inculcation into the dominant mainstream culture are the most appropriate respondents, and that college aged students most fully meet this criteria.

Impression Change

Impression change is the process by which individuals navigate through social events. Impression change takes place when interactions occur, and affect control theory is only able to model impression change in events when actors behave toward objects, including other individuals. Through these interactions, changes in affective meanings occur and threaten to derail interactions. Consider the event where a father kicks a son.

Affect control theory assumes we want to maintain our meanings about the labels of father, kicking, and son. Consequently, when this interaction occurs, our impressions of the affective meaning of the actor, object, and behavior change and are now different than the meanings evoked by the labels we initially applied to them. These new meanings are known within the theory as transient impressions. This difference within affect control theory is known as deflection, and it is calculated by taking the sum of the squared difference between the fundamentals and these new transient impressions. Within affect control theory, deflection is controlled for and minimized in social interaction.

Within affect control theory, individuals have access to a few ways to minimize deflection. First, individuals can reframe what they saw by changing some combination of the labels applied to the situation. In the current event, an observer may have concluded that either an abuser kicked a son or that a father was roughhousing with a son. An actor also can engage in behaviors to minimize deflection. So, another strategy would be acting towards the father or the son to reduce deflection while maintain meanings. For example, an observer could console the son, or scold the father to reduce deflection. When these word strategies are used, it should not be seen as a conscious and rational thought process that leads to a decision on how to reduce deflection. Rather. within affect control theory these processes are assumed to be automatic, , and current work being done in Germany suggests deflection happens before active cognition (Schaunburg 2012).

This process of impression change forms the basis for how affect control theory allows researchers to model social interaction using mathematical simulations. Affect control theory assumes language cultures share both sentiments and the logic of how actors, behaviors, and objects influence each other in situations. While the first part of this assumption involved understanding what someone yelling fire means in a theater, the second aspect allows individual to predict the behavior of others and know that the appropriate behavior is to gather loved ones and leave the theater when fire is yelled. Without both, we would have a hard time interacting with each other.

Heise (1985; 1987; 2007) developed mathematical models combining the work on impression change and the fundamental dimensions of meaning. He designed a vignette experimental approach to understanding the American English language culture. To do so, he constructed 515 sentences in the form of the actor, behaves towards an object. Each sentence varied on the affective dimensions of the actor, behavior, and object, to create a full factorial design. Within this design each of the evaluation-potency-activity (EPA) dimensions varied with each other dimension twice. In this design, it is not the word themselves that matter, but the place they exist within EPA space. Any identity that fits the EPA profile of E+ P+ A+ could be used, but there must be one for all nine combinations of EPA. Respondents then rate each component of the sentence (actor, behavior, and object) on each dimension (evaluation, potency, and activity), both within the context of the event and out of the context. This provides researchers with ratings for both the fundamental sentiment (out of context), and transient impression (within context) ratings for all the identities and behaviors.

From these ratings nine equations are estimated, one predicting each dimension of evaluation, potency, and activity for actors, behaviors, and objects. The equations are estimated by regressing in-context ratings (transient impressions) on out of context ratings (fundamental sentiments). After these equations are estimated, they can be used to simulate social interaction and to provide predictions about social behavior and emotion. The program *Interact (*Heise 1991*)* contains a data suppository of information from the language cultures of Germany, Japan, Northern Ireland, English speaking Canada, and American English. Using *Interact*, social simulations allow for cross-cultural comparison of social phenomenon, including routine day to day knowledge. This knowledge helps to construct an idea of what normative day to day interactions look like. With this information we are able to provide a key component to use artificial intelligence to simulate normative actions of others in a given situation(Troyer 2004). However, due to the nature of the theory to minimize deflection, we can also predict behaviors when norms are violated. As the paradigm has continued through the years the theory has begun to incorporate information about settings (Smith-Lovin 1987), non-verbal behaviors (Rashotte 2002a; Rashotte 2002b), and combinations of identities with adjectives, known within the theory as amalgamated identities (Averett and Heise 1987).

Cross Culture and Subculture Differences

Affect control theory treats the boundaries between cultures strictly along linguistic borders. England and America, while they speak different dialects are expected to have more similar affective meanings than American and China, due to differing structures of their language. Within the logic of the theory there are generally four main ways in which language cultures and language subcultures can differ. They can differ in word choice, sentiments, impression change equations, or some combination of all three. Word choice refers to the actual labels you apply to behaviors and identities within situations. The classic example is the use of derogatory words like “pig”, “bacon” or “po-po” when speaking of police officers, by those of deviant subcultures when describing uniformed officers they see as harassing them. On the other hand, the term "police officer" may be used when the same uniformed social actor helps an old lady cross a street. In different cultures, the implications of word choice differences are easily seen, as there can be little to no overlap in word choice for the same identity. .

Differences in fundamental sentiments are more likely to be seen within subcultures than between languages due to the small overlap of words between cultures. These differences between subgroups would be evidenced by how the fundamental sentiments of stimuli differ on one or more dimension for the same word. The most consistent findings on differences within cultures lie within this area. Those active in subcultures have a tendency to give more positive ratings to concepts closer to the identities and behaviors found within their subculture. For example, sentiment ratings collected from deviance classes in the 1980s show admitting to cocaine and marijuana use increased the positivity of the ratings for marijuana and cocaine, (Heise 2007:24-25; Thomas 1995). Further, admitting to LSD use increased the evaluative ratings of cocaine and marijuana. However, those not reporting any drug use rated both as bad on the evaluative dimension. In this case, those that could be seen further involved in a subculture of drug use rated drug concepts and behavior as more positively.

This pattern of results can be found repeatedly in studies about LGBT identities within two different religious cultures (Smith-Lovin and Douglass 1992), in the differences in gender ideology and household work (Kroska 2001; Kroska 2002), and in music (Hunt 2008) and online subcultures (King 2001). Further, an exploration into the Arabic data used in this paper finds those that identified as Christian and Muslim thought their religious identification was "more good" than the other.

A third difference that can be found within and between cultures is in the impression change equations. This can be seen within the first impression change equation study, in which Heise estimated different equations for both women and men. This same difference in impression change equations can be seen within the cultures of Canada, Japan, and Germany as well (Heise 2007). Differences in impression change equations are not limited to within culture comparisons, but can also be found across cultures as well (Smith, Matsuno and Umino 1994; Smith, Matsuno and Ike 2001).

While this study is the first of its kind to test for differences within the Arabic language culture and estimate full impression change equations, one previous paper has looked at the Arabic language culture. The work by Smith (1980) looked into differences between Egyptian and Lebanese impression change differences with regard to the actor identities and compared them to the English equations. The research used a fully male immigrant population and 88 sentences to investigate impression change dynamics. Smith's analysis contained the 9 fundamentals, the interaction between Behavior Evaluation and Object Evaluation.

Smith also investigated whether two different activity dimensions within Lebanese language culture had different effects on impression change equations. Smith found evidence that the activity dimension most closely resembling the Western version of activity accounted for more variation in the data, and concluded it is most likely the best representation of activity between the two dimensions. Smith also found evidence for similarity between the Lebanese and Egyptian impression change equations, especially on the evaluation and potency dimensions. Using reduced coefficients also showed similarities between Western impression change equations and the two Arabic models she ran for predicting Actor transient impressions.

Smith's work was the first of its kind to compare vastly different language cultures and to compare within a single language culture. However, she did not estimate full equations for the two cultures and, thus, was unable to investigate any other subcultural differences within the Arabic culture. Also, using the reduced models did not give a full comparison between the western and Arabic models. In this paper I look to improve upon Smith's work by addressing these two gaps in the literature; specifically, I estimate full equations for comparison and test for other subcultural differences in the impression change equations within Arabic culture.

In this section, I laid out the history and key concepts of affect control theory to provide foundation for understanding the strategy used to investigate within and cross cultural differences in affect control theory. I have suggested differences could be found in labels used, sentiments, impression change, or some combination of these three dimensions. In the chapters that follow I investigate the impression change process within Arabic language culture. Differences in the impression change equations suggest that people in different cultures actually see events and the social world differently. The next section discusses affect control theory's place in the debate about culture in sociology. It provides a background on how the work in this paper could be applied to the debate and be incorporated in cultural research. Last, I summarize the discussion so far, and turn an eye toward the current study and how it can address the questions raised and test the hypotheses set forth.

CHAPTER 3

CURRENT STUDY

In the current study I investigate three key questions laid out in the previous sections of this paper. I first ask how much fragmentation is there within cultures, and specifically within the Arabic language culture. While no study can completely address such a question, I hope to provide some small insight into fragmentation within language cultures which may serve as a foundation for further research. Specifically, my focus is on Modern Standard Arabic, and I will investigate impression change using a within subject experimental design. The nesting of the data makes it uniquely suited to the use of Hierarchical Linear Modeling (HLM), which can test how much of the variance can be explained by the treatment and how much change is due to factors that differentiate participants. Affect control theory proposes affective meanings are consistent across people within a culture. The first set of analyses test the hypothesis that impression change has little to no fragmentation, using the logic of open models within HLM

Next, original work in the affect control theory research estimated model differences based on gender. These differences would suggest that women and men actually interpret their world using different internal logics. While it has always been treated as true within affect control theory, with the nested design of the data and HLM we can test whether this is so. This leads to testing the hypothesis that there are gender differences in impression change coefficients. To address this hypothesis, multi-level equations are estimated using the stability term, and looking for cross-level and second level effects of gender and other demographic characteristics.

Finally, we ask how impression change equations differ across cultures. As discussed previously, the work on Japanese language culture has shown differences in the impression change equations and leads us to test the hypothesis that Arabic impression change coefficients are different than English impression change coefficients. To test this hypothesis, the English model is forced on the Arabic data using hierarchical linear modeling and OLS where appropriate. Models are rerun removing any predictors found to not have significant effects, and the models are compared to the English model.

CHAPTER 4

Methods

Sample

A snowball convenience sample was recruited from a large southern city and its surrounding area. Respondents were recruited based on growing up in an Arabic speaking household, having the ability to understand Modern Standard Arabic, and being able to speak English. Each respondent was paid to complete the entire study, which included ten stimuli sets. Respondents came from a diverse set of countries and varied in their total time spent in the United States. A total of 56 respondents completed at least one module of the study.

Exclusion criteria for the study comes from work by Heise (2010) on predictors of the best respondents in cultural surveys. Heise finds certain criteria can be measured to check to on the attentiveness and the cultural knowledge of respondents. The first criteria for exclusion are for those that spend 2.5 seconds or less on each item. This helps check to see how much respondents are paying attention to survey, and spending less than 2.5 seconds suggests little attention is being paid. The second of the criteria is to exclude those rating over half the items as either extreme or neutral. In this case, an extreme rating is any rating within 1 point from the infinitely anchor at the end of the scale. Finally, those that skip at least 65% of the stimuli are excluded, based on the logic that the respondent is either trying to rush through the survey or does not know enough of the language items to give a proper response.

Thirty-one respondents fit all criteria to be included in the study, and respondents were mostly male (N=26), identified as Muslim (N=27), and identified as being from predominantly Arab speaking countries (N=29). Due to the entire population being immigrants, only three respondents identified as being in the United States for longer than five years, with 12 responding they had been in the country for less than a year, and 16 having been in the United States between one to five years.

Table 1: Demographic Characteristics

		N
Sex		
	Male	26
	Female	5
Religion		
	Christian	4
	Muslim	27
Years in USA		
	< 1 Year	12
	1-5 Years	16
	> 5 years	3
Country		
	Arab	29
	European	1
	African	1

Design

To compile the words to be included in the study, a list of stimuli translated into Arabic was rated by an Egyptian linguist. To decide on the affective profiles needed, a Graeco-Latin square design was used. Work by Heise (2010), has provided the basis for the logic of the design used in impression change studies. To determine the EPA profiles needed, a two-step process is used. First, a full crossing of all possible within event combinations of evaluation and potency with the activity dimension Latinized provides the first 64 sentences. The second 64 events are determined by crossing all potency and activity combinations while the evaluation dimension is Latinized. With the events and their profiles determined, stimuli were chosen that fit the profiles needed.

For each event the actor, behavior, and object were rated in context, by prompting raters with the Modern Standard Arabic translation of the frame "rate how a ____ seems when" and the event featuring the word. Also, all words used in the sentences were provided as stimuli out of context to give us fundamental sentiments of these concepts. These events and concepts were separated into ten different stimuli sets. Each respondent was greeted by a researcher, and then set down in front of a laptop, and were met with the program *Surveyor*, a java based applet designed for the collection of affect control theory data. Respondents answered demographic information and then went through a tutorial on how to use the program before moving on to rating all the stimuli.

Hierarchical Linear Modeling (HLM)

To determine the impression change equations, I estimated multilevel regression models. Because of the nested structure of the data (events within people) there is concern that the error terms may be correlated within people and OLS estimates, especially standard errors may be biased (Raudenbush and Bryk 2002). To take into account the dependency within people, I estimate multilevel models using the STATA xtmixed command. The first analysis will be an estimation of the open models for the equations, portioning the variance between the event level and the person level variance.

This will test whether there is any information at the second level that influences differences in impression change.

Second, due to some significant second level effects, I use available demographic characteristics to investigate the consensus within the equations. This tests the gender effect hypothesis, and is used to determine if there are any other characteristics that influence impression change. While none of the variables themselves can be thought of as culture on their own, any differences may point to some underlying subcultural difference in impression change.

The second set of analyses estimate the full impression change equations. First, I force the 1978 English equations on the Arabic data. This is due to the 1978 models being treated as the formalization of the theory, and this analysis allows for comparison. Just like the 1978 model, I will then estimate a structural zero model, removing any of the variables found to not have significant effects. This will leave us with the best estimation of the Arabic equations given the 1978 model and our data structure. I can then informally compare the English and Arabic models.

CHAPTER 5

RESULTS

Consensus

Table 2 presents the results of the open models for each of the 9 term equations. The open model partitions the variance between the levels of the dependent variable. This is the baseline model others are compared to, and tests for whether enough of the variance can be found in the second level to continue with multilevel models. The level one variance is denoted as σ^2, while the second level variance is denoted with the term τ_{00}. The ratio of the variance of the level 2 variance is a value known as the intraclass correlation or Rho (ρ). A value for Rho over .05 suggests there is enough clustering in second level variables to continue with multi-level modeling.

The results from the open models in Table 2 show that multi-level modeling is not appropriate for any of the equations involving evaluation. This would first suggest that regular OLS regression should be used to estimate the evaluation equations and, second, that there is a fairly strong consensus about evaluation between participants. This provides support for the hypothesis that the impression change equations do not vary based on individual level differences, at least on the evaluation dimension. However, we can investigate the differences in the other 6 equations to try and explain where the clustering on the second level (person level) is coming from.

Table 2: Open Model Results

	Actor Evaluation		Actor Potency		Actor Activity	
$\gamma 00$	-0.563	***	0.481	**	0.538	***
σ^2	5.090		3.157		3.092	
τ_{00}	0.257		0.715		0.571	
ρ	0.048		0.185		0.156	
LL	-8653.66		-7753.46		-7710.21	
	Behavior Evaluation		Behavior Potency		Behavior Activity	
$\gamma 00$	-0.421	***	0.721	***	0.774	***
σ^2	6.072		3.423		3.355	
τ_{00}	0.180		0.729		0.546	
ρ	0.029		0.176		0.140	
LL	-9052.30		-7965.46		-7922.42	
	Object Evaluation		Object Potency		Object Activity	
$\gamma 00$	-0.334	***	0.474	***	0.498	***
σ^2	4.830		3.127		3.006	
τ_{00}	0.120		0.530		0.485	
ρ	0.024		0.145		0.139	
LL	-8511.35		-7702.73		-7625.76	

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Subcultural Differences

Multilevel regressions were run to determine if there were any second level effects, or cross level interactions on the potency and activity dimensions for actor, behavior, and object. A second level effect would be some direct effect of the second level predictor on the constant. This would change the anchor point for the impression change equation, and would not be much of a change in the overall equation. However, a cross level interaction, where the second level predictor actually changes the slope of the fundamental, would provide more evidence for some subcultural variation based on the demographic characteristic it represents.

The demographic variables available for analysis are as follows: respondent's religious identification, years spent in the United States, country of origin, and self-reported sex. I used a series of multilevel regressions to investigate any second level effects and look for any cross-level interactions. Only self-reported sex and religion are found to have any significant effect. Self-reported sex was recoded to show male as a reference category, with those identifying as female coded 1. Religion was recoded to the variable Muslim. This used Christian as the reference category, with those coded one as identifying as Muslim. It is beyond the scope of this paper to suggest any significant differences found using religious identification suggest subcultural differences represent differences between Muslim and Christian actors. However, within this sample selection it is reasonable to believe religious identification is correlated with other unmeasured predictors of culture of origin and other predictors that could be expected to be more relevant to event processing and impression change. Significant effects for differences by gender or religious identification are found for all investigated equation except for the activity dimension of actors.

In the following models, I use the Raudenbush and Bryk (2002) multi-level notation. This helps simplify the interpretation of the equations when speaking of multiple levels of analysis. In this notation, γ_{00} represents the constant or grand mean, across people. γ_{10} represents the first-level predictor used, and in these regressions it represents the stability term of the equation. Only the stability term is being used for simplicity's sake, as changes in the stability term represent how much a term's out of context rating influences it's in context rating. γ_{01} represents the second level predictor variable used, either female or Muslim, and γ_{11} represents the cross level interaction term. This is used when predicting the changes in the slope of a first level term by some second level variable. In these regressions it is how being female versus male, or Muslim versus Christian changes the relationship between the stability term and the in context rating.

Subcultural Differences in Potency

Table 3 represents the investigation into the gender effect on ratings of an actor's potency. In all the models, Model 1 will represent the open model and Model 2 the stability term. In Model 2, we see an improvement in the model fit by including the stability term (χ^2 = 562.1, df (1), p<.001) compared to an open model. The stability term has a positive and significant effect on ratings of actor-potency (b=.158, p<.001). Model 3 adds in gender as a predictor of the constant. However, gender does not improve the model fit significantly. Model 4 adds in the cross-level interaction, testing how much the stability term is influenced by the second level predictor. We find that adding in the cross level interaction does improve model fit (χ^2 = 10.106, df (2), p<.01) compared to model 2. The stability term is positive and significant (b=.252, p<.001), and there is now a significant and negative effect of female on Actor Potency (b=-.628, p<.001), and the cross level interaction is approaching significance. In model 5, only the cross level interaction and the stability term are included, and it provides a significantly better fit (χ^2 = 7.622, df (1), p<.01) than model 2. Model 4 does not significantly improve model fit over model 5 (χ^2 = 73.082, df (1), p<.10). We see that being female increases the strength of the stability term (b=.134, p<.01).

Model 5 is our best fitting model, and suggests gender does have a significant effect on the impression change equation. Gender influences the stability term, increasing its correlation with the in-context rating. This provides evidence for a need to create different impression change equations for men and women in Arabic language culture. It would also suggest that women may be more attuned to the potency of an actor than men, and potency is more difficult to change through an event in Arabic language culture for women compared to men.

Table 3: Results of HLM of Gender Effects on Actor Potency

	1		2		3		4		5	
$\gamma 10$			0.158	***	0.158	***	0.252	***	0.139	***
$\gamma 01$(female)					-0.623		-0.628	***		
$\gamma 11$							0.095		0.134	**
$\gamma 00$	0.481	**	0.384	**	0.481	**	0.426	***	0.392	**
σ^2	3.157		3.090		3.090		3.083		3.083	
τ_{00}	0.715		0.574		0.523		0.527		0.583	
ρ	0.185									
LL	-7753.46		-7472.41		-7470.99		-7467.04		-7468.58	

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 4 shows the results of HLM using religion as a predictor for changes in the impression change on actor-potency. Model 1 and Model 2 are the same from the previous table, provided for easier reference. Model 3 includes religion to predict differences in the constant, is an improvement in the model fit (χ^2 = 4.306, df (1), p>.05). Muslims have a significantly higher constant than those identifying as Christians (b=.831, p<.001). This suggests that, across interactions, actors are more potent for Muslims compared to Christians. Both Model 4 and Model 5 do not improve the fit of the model, and there is no cross-level effect. This suggests there is no effect on the stability term for religion. This would provide support for differences in Muslim versus Christian equations, but only for the need to include religion as a variable in the equations.

Table 4: Results of HLM of Religion ID Effects on Actor Potency

	1		2		3		4		5	
γ10			0.158	***	0.158	***	0.183	***	0.182	***
γ01(Muslim)					0.831	*	0.839	*		
γ11							-0.027		-0.026	
γ00	0.481	**	0.384	**	-0.343		-0.345		0.388	**
σ^2	3.157		3.090		3.090		3.089		3.089	
τ_{00}	0.715		0.574		0.498		0.502		0.579	
ρ	0.185									
LL	-7753.46		-7472.41		-7470.26		-7469.96		-7472.14	

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 5 provides the results of the HLM regarding the effect of gender on behavior potency. Again Model 1 and 2 provide the open model and the stability term model. The stability term improves model fit significantly (χ^2 = 905.96, df (1), p<.001). Looking across models gender only appears to have an effect on the constant suggesting that, for women, all actors are seen as less potent across situations compared to men. This is evidenced by the fact that Model 3 demonstrates the only improvement in model fit (χ^2 = 6.272, df (1), p<.05) compared to Model 2. We also do not find a significant cross level interaction. This provides support for differences in impression change between men and women, but suggests only the need to include gender as a variable in the equations for behavior potency.

Table 5: Results of HLM of Gender Effects on Behavior Potency

	1		2		3		4		5	
γ10			0.251	***	0.251	***	0.241	***	0.241	***
γ01(female)					-0.808	**	-0.856	**		
γ11							0.072		0.064	
γ00	0.721	***	0.480	***	0.605	***	0.615	***	0.485	***
σ^2	3.423		3.222		3.222		3.220		3.220	
τ_{00}	0.729		0.454		0.368		0.373		0.468	
ρ	0.176									
LL	-7965.46		-7512.48		-7509.34		-7507.94		-7511.36	

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

In investigating the effect of religion on the behavior potency equation, we find evidence that religious affiliation influences both the constant and the stability term. Table 6 provides the results of the analysis of the HLM of religious affiliation on the stability term and constant for behavior potency in events. Model 4 provides evidence that Muslims have a larger constant (b=.917, p<.05) than Christians, and that identifying as a Muslim is associated with a weaker stability term than Christians (b=-.281 p<.05). This would suggest that when modeling behavior potency, religious affiliation could provide subcultural differences in the impression change equation. For Muslims, the fundamental sentiment of Behavior Potency has less of an impact on the transient impression created in an event, and overall behaviors are rated as more potent in events, suggesting different equations may need to be estimated based on religious identification.

Table 6: Results of Religion ID Effects on Behavior Potency

	1		2		3		4		5	
$\gamma10$			0.251	***	0.251	***	0.357	***	0.355	***
$\gamma01$(Muslim)					0.870	**	0.917	**		
$\gamma11$							-0.126	**	-0.124	**
$\gamma00$	0.721	***	0.480	***	-0.281		-0.308		0.494	***
σ^2	3.423		3.222		3.222		3.213		3.213	
τ_{00}	0.729		0.454		0.370		0.386		0.479	
ρ	0.176									
LL	-7965.46		-7512.48		-7509.46		-7504.75		-7507.96	

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 7 provides the results of the effects of gender on the equation for Object Potency. Again we find evidence for the stability term's improvement of the model fit from the open model (χ^2 = 372.842, df (1), p<.001), and it is positively and significantly associated with the transient impression of Object Potency (b=.194, p<.001). The model fit improves significantly from Model 2 to Model 3 (χ^2 = 4.014, df (1), p<.05), but no other significant improvement are demonstrated. Model 3 shows that being female reduces the constant of the equation significantly (b= -.578, $p<.05$), giving us a familiar pattern. In the Arabic Language culture, women view all objects as more potent across events compared to men, and gender could be added to the equations for object potency.

Table 7: Results of HLM of Gender Effects on Object Potency

	1		2		3		4		5	
γ10			0.194	***	0.194	***	0.196	***	0.196	***
γ01(female)					-0.578	*	-0.575	*		
γ11							-0.012		-0.014	
γ00	0.474	***	0.326	**	0.416	***	0.111	***	0.325	**
σ^2	3.127		2.995		2.995		2.995		2.995	
τ_{00}	0.530		0.345		0.301		0.301		0.344	
ρ	0.145									
LL	-7702.73		-7329.89		-7327.88		-7327.83		-7329.82	

Table 8 provides the HLM results of religious identification on object potency. In these models, Model 3 improves fit compared with Model 2 containing only the stability term ($\chi^2 = 5.368$, df (1), $p<.05$), and identifying as Muslim is associated with a positive and significant increase to the constant (b=.723, $p<.05$). Model 4, which includes the cross level interaction and the effect of religious identification on the constant, does not improve fit over Model3, and Model 5, which only includes the cross level interaction, is not a significant improvement over Model 2. Again, the familiar pattern is followed, and the results suggest that including Muslim would give a more precise estimate of the constant in the full equation, but does not appear to change the effect of the stability term on the transient impression of Object Potency.

Table 8: Results of HLM of Religious ID Effects on Object Potency

	1		2		3		4		5	
γ10			0.194	***	0.194	***	0.138	***	0.137	***
γ01(Muslim)					0.723	*	0.709	*		
γ11							0.068		0.069	
γ00	0.474	***	0.326	**	-0.306		-0.302		0.318	**
σ^2	3.127		2.995		2.995		2.992		2.993	
τ_{00}	0.530		0.345		0.287		0.281		0.337	
ρ	0.145									
LL	- 7702.73		-7329.89		-7327.20		-7325.51		-7328.14	

Subcultural Differences in Activity

Table 9 and table 10 show the results of HLM using gender as predictors for behavior activity. There was no significant effect of religious identification on any of the activity dimensions, and no variable had an effect on transient impressions of actor activity. In table nine for Behavior Activity, Model 3 is a significant improvement in fit compared to Model 2 (χ^2 = 4.178 df (1), p<.05), including the effect of gender on the constant. Gender has a significant and negative impact on the constant (b=-5.68, p<.05).

Table 9: Results of HLM of Gender Effects on Behavior Activity

	1		2		3		4		5	
γ10			0.231	***	0.231	***	0.180	***	0.180	***
γ01(female)					-0.568	*	-0.766	**		
γ11							0.925	***	0.923	***
γ00	0.774	***	0.568		0.656	***	0.708	***	0.589	***
σ^2	3.355		3.223		3.223		2.852		2.852	
τ_{00}	0.546		0.317		0.275		0.294		0.371	
ρ	0.140									
LL	-7922.42		-7507.57		-7505.48		-7280.12		-7283.58	

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Model 5, which investigates only the cross level interaction, is also an improvement in fit over Model 2 (χ^2 = 454.904, df (2), p<.001), and shows gender has a significant effect and strengthens the association between the stability term and the constant (b=.925, p<.001). Model 4, which includes both the cross-level interaction and the effect on the constant, is a significant improvement over Model 5 ($\chi^2 = 6.926$, df (1), p<.01). In this model, we see the same effects as in Model 3, so that being female is associated with a significant and negative effect on the constant (b= -.766, p<.01), and has a positive and significant effect on the stability term (b= .925, p<.001). The models show that women see all behaviors as less active, and the stability term has a stronger influence on impression change for Behavior Activity. Taken together, this suggests separate equations could be measured for men and women.

The results from Table 10 suggest the gender effect on Object Activity is only associated with differences in the constant. Model 4 and Model 5, which include the cross level interaction, are not improvements in fit over Model 2, and the effect of the cross level interaction is not significant. Model 3 is a significant improvement over Model 2, and being female is associated with a significant reduction in the constant (b= -.571, p<.05). This would suggest gender could be included as a variable to improve the equation, but not that the equations need to be estimated separately.

Table 10: Results of HLM of Gender Effects on Object Activity

	1		2		3		4		5	
γ10			0.168	***	0.168	***	0.174	***	0.174	***
γ01(female)					-0.571	*	-0.561	*		
γ11							0.037		0.037	
γ00	0.498	***	0.391	***	0.479	***	0.475	***	0.388	***
σ^2	3.006		2.904		0.272		2.904		2.904	
τ_{00}	0.485		0.315		2.904		0.270		0.311	
ρ	0.139									
LL	-7625.76		-7271.96		-7269.82		-7269.37		-7271.46	

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Full Impression Change Equations

The next section of the analysis shows the estimates of the Arabic impression change equations, using HLM for the potency and activity equations, and OLS for the evaluation dimensions since we found less than 5% of the variation in these equations is due to clustering on the individual level. For each of the equations, Model 3 shows the results of the English impression change models to provide a comparison. Model 1 shows the results of forcing the 1978 coefficients on the Arabic data. Model 2 shows the results of eliminating those coefficients from the 1978 model that are not significant in the Arabic impression change model, and present the best fitting model for the Arabic data using the 1978 model as a basis.

HLM Estimates of Impression Change Equations for Actor Potency and Actor Activity

Table 11, shows the results of HLM predicting the impression change equation for Actor Potency. The first interesting finding in the models is that stability term for Actor Potency is not the strongest coefficient found within the model, and in both Arabic models behavior potency (Behavior Potency) has the largest effect on the transient impression. While most of the coefficients have smaller effects in the Arabic model, how active the object is (Object Activity) has a stronger effect than in the English model. This means acting towards a more active object would be predicted to increase impressions of an actor's potency and this effect is more pronounced in Arabic Language culture than in English language culture. The final interesting thing from the Actor Potency model is an estimated 54% of the variance can be accounted for by the reduced model.

Table 11: Impression Change Equation for Actor Potency

		1		2		3	
Actor Evaluation	(Ae)	0.003				-0.020	*
Actor Potency	(Ap)	0.136	***	0.130	***	0.590	*
Actor Activity	(Aa)	0.034	*	0.036	*	0.070	*
Behavior Evaluation	(Be)	0.029	*	0.016		-0.090	*
Behavior Potency	(Bp)	0.148	***	0.159	***	0.470	*
Behavior Activity	(Ba)	0.012				-0.050	*
Object Evaluation	(Oe)	0.002				0.020	*
Object Potency	(Op)	0.035				-0.040	*
Object Activity	(Oa)	0.037	*	0.046	**	0.010	*
AeBe		0.012	**	0.011	**	0.010	*
AeBp		0.006				0.020	*
ApBe		-0.003				0.040	*
ApBp		-0.015				-0.070	*
ApOp		0.012				0.010	*
ApOa		-0.013				0.020	*
AaBa		0.009				-0.020	*
BeOe		0.004				0.020	*
BeOp		-0.009				-0.030	*
BpOe		0.017	**	0.019	***	0.010	*
BpOp		0.009				0.040	*
BaOa		0.018	**	0.018	**	0.020	*
BaOp		-0.011				-0.010	*
AeBeOe		0.003	*	0.003	**	0.010	*
AeBpOp		0.000				0.010	*
ApBpOa		0.001				-0.010	*
Constant		0.177		0.197		-0.090	*
σ^2		2.924		2.943			
τ_{00}		0.316		0.333			
Rsqu		0.560		0.540			
LL		-6835.499		-6847.461			
Chi2		327.093		299.702			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 12 shows the results of the HLM estimation of the equation for actor activity (Actor Activity). In Model 1, we see most of the significant predictors in the

English language culture are not significant in estimating the Arabic impression change equation. Again, we find the stability term is not the largest coefficient in the model ($b=.163$, $p<.001$); rather, behavior potency (Behavior Potency) seems to matter more. This coefficient is larger than in the English Model as well, meaning more potent behaviors create impressions that actor are more active in the Arabic model, and that his effect is stronger in Arabic language culture than in English language culture.

Table 12: Impression Change Equation for Actor Activity

		1		2		3	
Actor Evaluation	(Ae)	0.012				0.050	*
Actor Potency	(Ap)	0.120	***	0.131	***	-0.050	*
Actor Activity	(Aa)	0.033	*	0.030	*	0.650	*
Behavior Evaluation	(Be)	0.028				-0.080	*
Behavior Potency	(Bp)	0.144	***	0.163	***	0.110	*
Behavior Activity	(Ba)	0.005				0.280	*
Object Potency	(Op)	0.053	**	0.049	**	0.010	*
AeOe		0.002				-0.010	*
ApBe		0.002				-0.020	*
ApBp		-0.011				0.020	*
ApOa		-0.006				0.010	*
AaBa		0.009				-0.060	*
BeOp		-0.006				-0.010	*
BpOp		0.017	*	0.008		0.020	*
BaOa		0.019	**	0.018	**	0.010	*
BaOp		-0.011				-0.020	*
AeBpOp		0.002				0.010	*
ApBpOp		-0.001				0.010	*
ApBpOa		0.002				-0.040	*
Constant		0.178		0.178		0.070	*
σ^2		2.927		2.933			
τ_{00}		0.212		0.213			
Rsqu		0.63		0.63			
LL		-6831.34		-6834.95			
Chi2		232.26		224.92			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

HLM Estimates of Impression Change Equations for Behavior Potency and Behavior Activity

Table 13 shows the results of the HLM estimates of the impression change equation for Behavior Potency. In Model 1 we see many of the coefficients from the English model drop out of the Arabic model. In Model 2, we can see the stability term in this equation is the largest coefficient in the model, which we would expect, but is weaker than in the English model. The only significant 3-way interaction in the model is the 3-way interaction between Actor Evaluation, Behavior Evaluation, and Object Evaluation (AeBeOe). This interaction suggests when good actors behave in good ways towards good objects (example Hero Saves Nurse); the behavior is believed to be even more powerful.

Table 13: Impression Change for Behavior Potency

		1		2		3	
Actor Evaluation	(Ae)	-0.013				0.030	*
Actor Potency	(Ap)	0.089	***	0.075	***	0.150	*
Actor Activity	(Aa)	-0.009				0.020	*
Behavior Evaluation	(Be)	0.039	**	0.029	*	-0.140	*
Behavior Potency	(Bp)	0.224	***	0.242	***	0.720	*
Behavior Activity	(Ba)	0.024				-0.040	*
Object Evaluation	(Oe)	0.045	***	0.046	***	0.020	*
Object Activity	(Oa)	0.039	*	0.049	***	0.020	*
AeBe		0.004				0.010	*
AeBp		0.012				-0.010	*
AeOe		-0.002				-0.010	*
ApBp		-0.015	*	-0.009		-0.010	*
ApOp		0.017	*	0.014	*	0.010	*
ApOa		-0.010				0.050	*
BeOe		0.012	**	0.011	**	0.030	*
BeOp		-0.007				-0.010	*
BpOp		-0.001				0.010	*
BaOa		0.013				0.020	*
AeBeOe		0.005	**	0.005	***	0.010	*
ApBpOp		0.001				-0.010	*
ApBpOa		0.003				-0.020	*
Constant		0.390	***	0.401	***	0.030	*
σ^2		3.142		3.153			
τ_{00}		0.336		0.344			
Rsqu		0.54		0.53			
LL		-6993.89		-7000.58			
Chi2		402.29		386.89			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 14 shows the results of the HLM predicting Behavior Activity, and the pattern of a more concise model for the Arabic language culture continues. Many of the significant coefficients in the English model are not significant for the Arabic equations. In the model the stability term is the largest coefficient. When removing those coefficients that were not significant in Model 1, the model accounts for 61% of the variance. The only significant predictors other than the stability term are Behavior Evaluation, Behavior Potency, Object Potency, and the interactions of BpOe and AeBpOp. The results suggest good behaviors reduce the impression of activity (b= -.080, p<.05), powerful behaviors (b= .063, p<.001), powerful objects (b= .034, p<.001), powerful behaviors towards good actors (b= .016, p<.016), and good actors acting powerfully towards powerful objects (b = .005, p<.01) all increase impressions of a behaviors activity.

Table 14: Impression Change Equation for Behavior Activity

		1		2		3	
Actor Evaluation	(Ae)	-0.003				-0.010	*
Actor Potency	(Ap)	0.019				-0.070	*
Actor Activity	(Aa)	0.026				0.290	*
Behavior Evaluation	(Be)	-0.085	***	-0.080	*	-0.080	*
Behavior Potency	(Bp)	0.074	***	0.063	***	0.140	*
Behavior Activity	(Ba)	0.217	***	0.217	*	0.620	*
Object Evaluation	(Oe)	-0.004				-0.010	*
Object Potency	(Op)	0.049	*	0.034	***	-0.030	*
Object Activity	(Oa)	0.059	**	0.058		0.040	*
AeBe		-0.006				-0.010	*
AeBp		-0.003				0.010	*
AeOe		0.002				-0.010	*
AeOp		-0.006				0.020	*
ApBe		-0.002				0.010	*
ApBp		0.006				0.010	*
ApOa		0.003				0.010	*
AaBa		-0.006				-0.020	*
BeOe		0.001				-0.010	*
BeOp		0.005				-0.020	*
BpOe		0.018	**	0.016	***	0.010	*
BpOp		-0.015				0.030	*
BaOp		0.000				-0.010	*
AeBpOp		0.007	**	0.005	**	-0.020	*
ApBpOp		-0.002				0.010	*
ApBpOa		-0.001				-0.010	*
Constant		0.450	***	0.478	***	-0.020	*
σ^2		3.127		3.140			
τ_{00}		0.196		0.213			
Rsqu		0.64		0.61			
LL		-6978.35		-6986.38			
Chi2		340.62		320.00			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

HLM Estimates of Impression Change Equations for Object Potency and Object Activity

Table 15 shows the regression for the HLM of the impression change equation of Object Potency. Again we see most of the terms from the English equation are not significant in the Arabic models. In the reduced model, we see that the stability term is the largest coefficient in the model and is positive and significant ($b= .154$, $p<.001$) but is much smaller than in the English model. We also see some interesting differences between the Arabic and English models. In the Arabic equation, the coefficients for Behavior Potency, Object Evaluation and the BaOa interaction have opposite directions compared to the English models. This suggesting a much different impression change equation for object potency in Arabic compared to English language cultures.

Table 15: Impression Change Equation for Object Potency

		1		2		3	
Actor Potency	(Ap)	0.063	**	0.076	***	-0.060	*
Actor Activity	(Aa)	0.019				0.020	*
Behavior Evaluation	(Be)	0.009				0.200	*
Behavior Potency	(Bp)	0.095	***	0.079	***	-0.140	*
Behavior Activity	(Ba)	-0.008				0.050	*
Object Evaluation	(Oe)	0.082	***	0.079	***	-0.070	*
Object Potency	(Op)	0.136	***	0.154	***	0.670	*
Object Activity	(Oa)	0.023				0.080	*
AeBe		-0.002				0.020	*
AeBp		0.010				0.020	*
AeOe		0.000				0.010	*
AeOp		0.004				0.010	*
ApBe		0.001				-0.010	*
ApBp		-0.008				0.030	*
ApOp		0.007				-0.010	*
ApOa		0.005				-0.010	*
BeOe		0.009	*	0.010	**	0.030	*
BeOp		-0.004				0.020	*
BpOe		0.002				-0.010	*
BpOp		0.005				-0.040	*
BaOa		0.016	*	0.020	***	-0.020	*
AeBeOe		0.001				0.010	*
AeBpOp		0.000				-0.010	*
ApBpOa		0.001				0.010	*
Constant		0.190	*	0.199	*	-0.380	*
σ^2		2.925		2.938			
τ_{00}		0.213		0.224			
Rsqu		0.60		0.57			
LL		-6804.88		-6812.88			
chi2		364.33		344.99			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 16 provides the HLM regressions for the impression change equation for Object Activity. Again we see a reduction in the number of significant predictors from the English model. In the reduced model, we find the stability term as the largest significant coefficient ($b=.159$, $p<.001$). However, it is significantly reduced compared to the English model. The coefficient for the constant is in the opposite direction from Arabic to English, and Behavior Evaluation also is reverse in the Arabic equations than in the English. For Arabic speakers a good behavior results in a reduction in the impression of an object's activity, while in English the reverse is true.

Table 16: Impression Change Equation for Object Activity

		1		2		3	
Actor Evaluation	(Ae)	-0.010				-0.010	*
Actor Activity	(Aa)	0.059	***	0.054	***	0.010	*
Behavior Evaluation	(Be)	-0.047	***	-0.049	***	0.050	*
Behavior Activity	(Ba)	0.060	***	0.057	***	0.040	*
Object Potency	(Op)	0.027				-0.040	*
Object Activity	(Oa)	0.154	***	0.159	***	0.670	*
AeBp		0.000				0.010	*
AeOe		0.000				-0.010	*
AeOp		-0.008				0.030	*
ApBe		-0.002				-0.020	*
ApOp		0.020	**	0.010		-0.030	*
ApOa		-0.009				0.010	*
AaBa		-0.002				0.010	*
BeOe		-0.006				0.010	*
BpOe		0.000				0.010	*
BpOp		-0.001				0.010	*
BaOa		0.001				-0.010	*
BaOp		0.018	**	0.020	***	-0.020	*
AeBpOp		0.006	*	0.004	*	-0.010	*
ApBpOp		-0.003				0.010	*
ApBpOa		0.000				-0.020	*
Constant		0.262	**	0.273	*	-0.030	*
σ2		2.865		2.876			
τ00		0.189		0.194			
R2		0.61		0.60			
LL		-6767.77		-6774.40			
chi2		252.65		237.64			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

OLS Estimates of Impression Change Equations for Evaluation

Table 17 presents the results of OLS regressions for the impression change equation for Actor Evaluation. OLS was used for all of the evaluation dimensions due to a lack of significant clustering in the data, as found in the open model investigation of the data. The stability term for the Actor Evaluation equation is positive and significant (b=.242, p<.001), but is the second largest coefficient in the model behind Behavior Evaluation (b=.378, p<.001). While Actor Evaluation and Behavior Evaluation are close in the English equation, the stability term is still larger. This suggests compared to the English language culture, in Arabic language culture Arabic speakers are more concerned with how good your actions are, than how good you were originally thought to be. If you wish to be seen as good in Arabic language culture, your actions are a better predictor than how good your identity was before the action.

Table 17: Impression Change Equation for Actor Evaluation

		1		2		3	
Actor Evaluation	(Ae)	0.242	***	0.246	***	0.440	*
Actor Activity	(Ap)	-0.053	**	-0.050	**	0.010	*
Behavior Evaluation	(Be)	0.372	***	0.378	***	0.410	*
Behavior Potency	(Bp)	-0.004				-0.040	*
Behavior Activity	(Ba)	0.022				-0.100	*
Object Evaluation	(Oe)	0.097	***	0.095	***	0.020	*
Object Potency	(Op)	-0.041	*	-0.046	**	-0.020	*
Object Activity	(Oa)	-0.012				-0.010	*
AeBe		0.018	***	0.018	***	0.050	*
AeBp		-0.014	*	-0.014	**	-0.030	*
AeOp		0.004				0.010	*
ApBe		0.002				0.010	*
ApOp		0.002				0.020	*
ApOa		-0.020	**	-0.022	**	-0.010	*
BeOe		0.055	***	0.056	**	0.130	*
BeOp		0.007				-0.060	*
BpOe		-0.003				-0.060	*
BpOp		0.001				0.070	*
BaOa		0.013				0.010	*
BaOp		-0.014				0.030	*
AeBeOe		0.006	***	0.006	***	0.030	*
AeBpOp		-0.001				0.020	*
ApBpOp		0.006				-0.020	*
ApBpOa		-0.004				0.020	*
Constant		-0.568	***	-0.556	***	-0.250	*
F		72.80	***	173.29	***		
Rsqu		0.34		0.33			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 18 presents the results of OLS regression for determining the impression change equation of Behavior Evaluation. The reduced model shows that the stability term is the largest, in any of the models, and is larger than the English model. In the model we see that a behaviors evaluation is seen as less good when a powerful actor interacts with a powerful object, which is the opposite for what is found in the English equation. This can be seen in the ApOp coefficient, which is negative and significant (b=--.019, p<.01). This would suggest actors of powerful potency should act weak toward each other, while two weak actors should act in powerful ways towards each other if they wanted to maintain their behaviors as being consistent.

Table 18: Impression Change Equation for Behavior Evaluation

		1		2		3	
Actor Evaluation	(Ae)	0.054	**	0.061	***	0.110	*
Actor Potency	(Ap)	0.012				0.030	*
Behavior Evaluation	(Be)	0.583	***	0.578	***	0.540	*
Behavior Potency	(Bp)	0.002				-0.050	*
Behavior Activity	(Ba)	-0.015				-0.120	*
Object Evaluation	(Oe)	0.140	***	0.138	**	0.050	*
Object Potency	(Op)	-0.056	**	-0.052	**	-0.040	*
AeBe		0.004				0.020	*
AeBp		0.004				0.020	*
AeOe		0.013	**	0.013	**	0.010	*
AeOp		0.005				-0.010	*
ApBp		-0.020	*	-0.014	*	-0.010	*
ApOp		-0.020	*	-0.019	**	0.030	*
ApOa		-0.004				-0.020	*
BeOe		0.064	***	0.064	***	0.120	*
BeOp		-0.010				-0.040	*
BpOe		-0.016	**	-0.016	**	-0.050	*
BpOp		0.011				0.060	*
BaOa		0.012				0.020	*
BaOp		-0.011				0.040	*
AeBeOe		0.005	**	0.004	**	0.030	*
AeBpOp		-0.003				0.030	*
ApBpOp		0.007	*	0.006	*	-0.030	*
Constant		-0.432	***	-0.434	***	-0.150	*
F		135.73	***	282.88	***		
Rsqu		0.47		0.47			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 19 provides the results of the OLS regression for determining the impression change equation for Oe. Like all the other models far fewer coefficients are significant than in the English impression change equation. A familiar pattern emerges with the stability term being the largest coefficient in the reduced model ($b=.334$, $p<.001$). Another interesting finding is that, again, Behavior Evaluation plays a relatively large role in shaping impressions ($b=.228$, $p<.001$). In the evaluation dimension, Behavior Evaluation has a consistently large effect in Arabic language culture, a larger role than either Object Evaluation or Actor Evaluation in the evaluation equations overall. In the Arabic model, Object Activity has a negative effect on the evaluation of objects, the reverse of what is found in the English model.

Table 19: Impression Change Equation for Object Evaluation

		1		2		3	
Actor Evaluation	(Ae)	0.043	**	0.036	**	0.010	*
Actor Activity	(Aa)	-0.019				-0.020	*
Behavior Evaluation	(Be)	0.230	***	0.228	***	0.110	*
Behavior Potency	(Bp)	0.045	*	0.054	**	-0.010	*
Behavior Activity	(Ba)	-0.002				-0.020	*
Object Evaluation	(Oe)	0.348	***	0.334	***	0.620	*
Object Potency	(Op)	-0.027				-0.010	*
Object Activity	(Oa)	-0.103	***	-0.096	***	0.040	*
AeBe		0.018	***	0.018	***	0.040	*
AeBp		-0.004				-0.010	*
ApBe		-0.013	*	-0.012	*	-0.010	*
ApOa		0.012				0.010	*
AaBa		0.012				0.030	*
BeOe		0.042	***	0.043	***	0.050	*
BpOe		-0.006				-0.030	*
BpOp		0.012				-0.010	*
BaOa		0.009				-0.020	*
BaOp		-0.018	*	-0.013	*	-0.010	*
AeBeOe		0.006	***	0.005	***	0.010	*
AeBpOp		-0.002				-0.010	*
ApBpOp		-0.002				-0.010	*
Constant		-0.326	***	-0.328	***	-0.090	*
F		74.3	***	154.23	***		
Rsqu		0.31		0.31			

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

CHAPTER 6

DISCUSSION AND CONCLUSION

Discussion:

In this section I review the findings of the previous chapter and discuss them in terms of the research questions, hypotheses, and broader findings. In this paper I started with the purpose of investigating Arabic language culture in terms of how much consensus there was in terms of individuals, whether there were any predictors that could explain this variation, and how it compared to the English language culture model in affect control theory.

The first hypothesis was there would be little between person differences in Arabic language culture. This hypothesis was derived from the shared meaning assumption central to affect control theory. In Table 3, I presented the results of the open models for the nine impression change equations. The open model partitions the variance between within person and between person variance. The equations for actor evaluation (Actor Evaluation), behavior evaluation (Behavior Evaluation), and object evaluation (Oe) all had less than 5 percent of their variance captured by between person effects. This would suggest there is not enough significant clustering to attempt further analysis for these equations, and support the hypothesis. For the other dimensions there was less consensus, but at the lowest 81.5 percent of variance was captured by the within person effects. While this provides some evidence of difference between people, I take these findings as more supporting the affect control theory assumption, than rejecting it.

The second part of the investigation turned to investigate whether there were predictors present in the data to explain the individual differences. Drawing from the earlier work in affect control theory estimating separate equations for men and women, the hypothesis was there would be gender differences in the equations. Table 20 provides an overview of the findings looking for predictors in individual differences. It was found only two variables within the data set had significant effects on an equation that included a stability term. To review, the stability term represents the effect the out of context rating for a dimension has on the in context rating of a term. In other words how potent an actor is viewed in an event is affected by how potent that actor is in general. The + effect in regards to the female effect on actor potency means this general rating for potency out of an event matters more for women than men in the Arabic language culture. While the + effect of Muslim on the constant of actor potency means that in general those identifying as Muslim view all actors as more potent in events.

Table 20: Summary of Findings for Demographic Differences in Impression Change Equations

	Actor Potency		Behavior Potency		Object Potency	
	Stability	*Constant*	*Stability*	*Constant*	*Stability*	*Constant*
Female	+			-		-
Muslim		+	-	+		+
	Behavior Activity		Object Activity			
	Stability	*Constant*	*Stability*	*Constant*		
Female	+	-		-		

Sign indicates significant finding in model

The findings for the gender effect are mixed, and we would expect a need to estimate separate equations based on gender if there were consistent effects on the stability term of the equations. Of the six equations investigated, a gender effect on the stability term was only found for two equations and constant effects were found for four of the equations. My interpretation is while there is mixed support for the hypothesis, I would lean towards rejecting the hypothesis. Further, there appears to be a similar inconsistent effect of religious identification. These findings must be taken cautiously, as women only made up 17 percent of the sample and Christians only made up 13 percent of the sample. This means these effects should be seen as inconsistent, and not that a larger sample would yield better significant levels.

The final set of analyses investigates how similar the Arabic impression change equations are to the English equations. From work on other languages, the hypothesis was Arabic impression change equations would differ from the English equations. A few general patterns emerged in this comparison. First, the Arabic equations had fewer significant coefficients than the English models and fewer complex third order effects. This is a similar pattern found for the Japanese equations[1], but differs from the Chinese equations that appear to contain more third order effects. The German and Canadian equations appear more similar to the English model. This may suggest different language cultures have varying degrees of what are important factors in interactions.

Another pattern emerging is the consistent influence of the different behavioral dimensions in the equations. Behavior potency appears to have a stronger effect across equations. For both actor potency and actor activity, behavior potency has a larger effect than the stability term. While in other language cultures behavior potency has a strong effect on actor potency, it also has a negative effect on object potency and especially object activity, while in Arabic language culture it has a positive influence. This suggests for Arabic speakers to maintain meaning powerful behaviors should be enacted toward

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[1] Japanese, Chinese, German, Canadian, and English equations can be viewed in *Interact* found at http://www.indiana.edu/~socpsy/ACT/interact/JavaInteract.html

powerful objects, while in other cultures it is expected weaker actions are to be taken toward powerful objects.

These differences suggest support for my third hypothesis, and may provide some evidence from which researchers can begin to investigate cross cultural problems between Arabic and English speakers. It appears as though meanings tied to behaviors in Arabic culture, particular Behavior Potency, are more important than in English. We also tend to view potent behaviors towards potent others as creating deflection, while the results suggest potent behaviors towards potent actors are confirming. If we can find events where this leads to drastic differences in the definitions of the situation, we may also be able to provide suggested interventions, allowing for a more productive exchange between individuals from different cultures.

Conclusion:

In this paper I investigated the impression change equations of Arabic language culture using hierarchical linear models. I tried to shed light on just how much consensus their existed within the language culture, to test a core assumption of affect control theory. There was no significant variation found on the evaluation dimension across respondents, and little differences found on the other dimensions. This test also showed how the methods and ideas of affect control theory could be used to help inform discussions of culture. There was also very little evidence that what variation was found could be explained away by demographic characteristics of the respondents, and I reject the hypothesis that gender has a significant impact on the equations. I also provided the first full impression change equations for Arabic language culture. This gives access to a widely spoken language that English speakers have had some cross cultural problems.

The results suggest the Arabic and English impression change are different, and could provide an inroad into investigating cross cultural differences. While I cannot claim problems will be solved with these equations, they can serve as the first step toward a research program designed to find problematic interactions. The differences in the effects of behavior potency may be one such inroad, and deserves consideration moving forward.

There should be a question of how well these equations represent the actual impression change of the Arabic language culture. I used an immigrant population, and could be seeing an influence of the results due to the bilingual nature of the respondents. There may be some American English culture that seeped into their responses, and thus not estimate the actual Arabic impression change equations. However, the best way to test concerns about the equations and the sample is through validation studies, which are the next step in this line of research. Validation studies are needed to test just how well these models predict interaction for Arabic speakers.

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