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Jessica L. Wildman  
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CULTURAL DIFFERENCES IN FORGIVENESS: FATALISM, TRUST VIOLATIONS, AND  
TRUST REPAIR EFFORTS IN INTERPERSONAL COLLABORATION

by

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A dissertation submitted in partial fulfillment of the requirements  
for the degree of Doctor of Philosophy  
in the Department of Psychology  
in the College of Sciences  
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2011

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## ABSTRACT

Mistakes and betrayals can cause developing interpersonal trust between parties to be broken, and damaged trust can have serious negative impacts on relationships, such as withdrawal from group interaction or the enactment of revenge. Research has suggested that the use of apologies helps to repair damaged trust. However, this research is almost exclusively based in westernized populations and has not begun to explore any cross-cultural differences. Therefore, the primary goal of this comparative cross-national laboratory study was to examine if, and how, the effectiveness of trust repair efforts differs across cultures. The effectiveness of three manipulated trust repair strategies (no response, apology, and account) was tested using students from universities in the United States (U.S.) and in the United Arab Emirates (UAE). The results of the study indicate that fatalism, or the belief that events in life are meant to occur, was negatively related to initial trust and positively related to initial distrust toward one's collaborative partner. It was also found that higher levels of fatalism were associated with more severe trust damage after a trust violation. Regarding the trust repair strategies, accounts were more effective at repairing trust than no response for high fatalism participants whereas apologies were more effective than accounts at reducing distrust after a violation for low fatalism participants, providing partial support for the idea that trust repair strategies are more effective when matched to the cultural self-construal of the victim. Finally, initial distrust and trust directly after the violation were predictive of taking revenge on the other player. Implications are discussed along with the study limitations and suggestions for future research.

This work is dedicated to my mother, Sharon Gail Wildman, who taught me to cherish learning and never stop trying to improve as a person. I know she would be very proud to see me complete this work and continue to persevere in my path toward knowledge.

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## CHAPTER ONE: INTRODUCTION

### **Statement of the Problem**

Recently, the popular press has been replete with stories discussing how issues of trust are hampering attempts at positive, effective international relations. There have been calls to repair the relationship between the United States (U.S.) and Pakistan, known for having a history of distrust, in order to collaboratively combat terrorism (Gilani Calls, 2010). Leaders from India and China have been meeting to discuss how to best overcome their long history of distrust and begin a more mutually beneficial relationship (Sharma, 2010). Secretary of State Hilary Clinton and Prime Ministers Yousuf Raza Gilani and Manmohan Singh have stated that they believe that the success of their countries' interaction hinges on being able to fix a "trust deficit" and in making their relationship a "two-way street" founded in trust (CNN, 2009; Shankar, 2009). The president of Russia admitted that working with NATO is difficult because there is a long history of distrust between them (Agence France Presse, 2010). Simply stated, many of the world's leading figures have suggested that building and maintaining trust between parties may be the key problem hindering successful collaboration in today's world.

Interpersonal trust, defined as confident positive expectations regarding another's conduct (Lewicki, McAllister, & Bies, 1995), is critical to the success of practically all collaborative work interactions. When individuals working together have high levels of trust, they engage in behaviors that improve performance such as risk taking and citizenship behaviors (Colquitt, Scott, & LePine, 2007). Employees that trust their leaders are more likely to feel committed to their organization, are less likely to quit their job, and are more satisfied with their work (Dirks & Ferrin, 2002). Trust within work teams has been related to positive attitudes

toward the organization (Costa, 2003), higher task interdependence and autonomy (Langfred, 2007), and higher performance (Kanawattanachai & Yoo, 2002; Webber, 2008). Ultimately, an appropriate level of trust is critical for any collaborative endeavor, especially international work relationships that are often focused on solving serious global problems.

Many theories of trust development have been put forth that suggest that at the beginning of an interpersonal relationship, trust essentially begins at zero and slowly develops over time as the involved parties work together and get to know one another (see Lewicki, Tomlinson, & Gillespie, 2006, for a review). These models of trust development assume that as long as the involved parties continue to act in a trustworthy manner (e.g., displaying ability, benevolence, and integrity; Mayer, Davis, & Schoorman, 1995) trust will continue to increase over time as the trustor and trustee move toward a strong relationship built on mutual understanding, liking, and identification (Lewicki & Bunker, 1996). Research has supported this notion regarding the evolution of trust over time (e.g., Webber, 2008; Wilson, Straus, & McEvily, 2006).

Unfortunately, not all interpersonal relationships are able to reach this ideal of mutual trust developed over the long term. Mistakes, betrayals, and other conflicts can cause developing trust between parties to be broken or violated along the way, leading to an abrupt drop in trust levels that can impede any chances of successful collaboration in the future. Damage to trust in a relationship can have a serious negative impact on the outcomes of that relationship (Tomlinson & Mayer, 2009), such as causing the involved parties to withdraw from the interaction, to stop engaging in desirable trust-related behaviors including citizenship or risk taking, or even to seek revenge or retribution for the violation (Aquino, Tripp, & Bies, 2006). For example, while combating the Taliban, Australian troops were accidentally killed fighting alongside of Afghan

troops. As a result of this clearly unintentional tragedy, Australian Prime Minister John Key expressed that he no longer trusted that his men would remain safe, so he refused to deploy additional troops to train more of the Afghan army (Gower, 2009), essentially ending the collaboration in this situation. Therefore, it is often critical for the success of collaborative efforts to avoid violation of trust if at all possible.

Unfortunately, avoiding violation of trust in intercultural settings is often difficult. Exacerbating the already challenging task of building and maintaining interpersonal trust between individuals in any context is the increased potential for misunderstanding, miscommunication, and mistakes that is inherent when individuals from various cultural backgrounds come together. For example, cultural diversity has been shown to increase process loss and conflict in teams (Stahl, Maznevski, Voigt, & Jonsen, 2010). Differences in language, conflicting values or beliefs, stereotypes and biases, and general unfamiliarity with others make multicultural collaborations particularly susceptible to the development of negative interactions and counterproductive work behaviors, such as trust violations and revenge. It seems inevitable that during any given multicultural collaborative effort that something will go wrong, and trust between the parties can be damaged in the process.

Encouragingly, recent research has suggested that the use of verbal apologies and statements of responsibility can help to repair interpersonal trust after it is damaged (e.g., Ferrin, Kim, Cooper, & Dirks, 2007; Kim, Ferrin, Cooper, & Dirks, 2004; Park & Guan, 2009). However, the research examining trust repair is almost exclusively based in U.S. and other similar westernized populations, and to my knowledge, very little research has begun to examine the cross-cultural differences in the effectiveness of apologies for repairing trust in a

collaborative context despite the fact that cross-cultural research suggests that many of the basic processes of human interaction are markedly different across cultures.

In fact, one particular cultural value that has clear theoretical implications for trust repair is the concept of theological fatalism. Cultures across the globe differ in levels of fatalism, the general belief that events in life are destined or meant to occur and are controlled by outside forces, based on historical and religious backgrounds (e.g., Elder, 1966; Jacobson, 1999; Norenzayan & Lee, 2010). Fatalism has been empirically linked to a variety of important psychological constructs, such as attitudes towards academia (Guzman, Santiago-Rivera, & Haase, 2005) and depression (Neff & Hoppe, 1993). The theory and research examining fatalism in various cultures suggests that there would be many differences in how a work relevant attitude like trust is developed, violated, and repaired based on the trustor's level of fatalism; yet, there has been no direct empirical work exploring these possibilities. If nations are to successfully collaborate across international borders to combat the global problems facing today's society, basic research must first determine how to most effectively develop and repair trust within and across cultures with differing values such as fatalism.

### **Purpose of the Current Study**

Therefore, the primary goal of the current cross-cultural study is to examine if, and how, the effectiveness of three culturally-driven trust repair efforts differs depending on the victim's level of fatalism. It is important to emphasize that this particular study is focused on uncovering the basic nature of interpersonal trust violation and repair when studied comparatively within two different cultures. Although research examining trust repair in true multicultural settings (e.g., multinational corporations, military task forces) will be necessary to fully understand the

influence of culture on trust repair, this study is an initial comparative cross-cultural exploration of the influence of fatalism on trust repair in collaboration aimed at creating a basis of knowledge on which to build future multicultural studies. A secondary goal of this study is to examine the behavioral outcomes of trust violation and repair in interpersonal collaboration by determining the relationship between trust and revenge behavior aimed toward the violator.

This study contributes significantly to the literature in that it is one of the first investigations of its kind to experimentally examine the moderating influence of culture on the effectiveness of trust repair strategies in collaborative contexts. It is also one of the first studies to look at the impact of trust violations and trust repair efforts on the enactment of revenge behavior in a team context and to compare the behavioral manifestations of trust across cultures. This study moves beyond the extensively used “trust game” approach of studying trust (i.e., tasks that require an individual to simply determine how much money to allocate to another individual; Croson & Buchan, 1999) and the policy-capturing approach of studying apologies in order to provide a more complex collaborative context within which to examine the influence of trust repair strategies and trust on behavior in interpersonal collaboration. Furthermore, the study has significant practical implications for improving the effectiveness of multicultural collaborations across a variety of work contexts through the identification of culturally-appropriate trust repair strategies.



## CHAPTER TWO: LITERATURE REVIEW

### **Culture**

Culture, while prominent enough of an issue in human life to merit an entire sub-discipline of psychology devoted to its study, is a construct that is nearly impossible to accurately define. Dozens of definitions have been proposed, such as “what a group learns over a period of time” (Erez & Gati, 2004, p. 585), value systems that differentiate groups of people (Chao & Moon, 2005), the collective programming of the mind (Hofstede, 1991), a shared meaning system (Shweder & LeVine, 1984), and a way of perceiving, thinking, and deciding that is institutionalized by a social entity (Gelfand, Erez, & Aycan, 2007). Despite the lack of clarity regarding its exact definition, it is relatively agreed upon by cultural researchers that any individual’s cultural background, whether national, regional, organizational, or other, is one of the primary drivers of that individual’s attitudes, beliefs, and behaviors. These beliefs, norms, and values that are culturally instilled in individuals are translated into reactions and behaviors that change the way people work together.

Many conceptualizations for studying and understanding culture in the workplace have been developed over the years. For example, Triandis (1996) put forth the concept of a cultural syndrome, which is a “pattern of shared attitudes, beliefs, categorizations, self-definitions, norms, role definitions, and values that is organized around a theme” (p. 408). Erez and Gati (2004) developed a multi-level model of culture that suggests various levels of culture (e.g., individual, group, organizational, national) are embedded within one another, and that there are dynamic top-down and bottom-up processes of influence that occur across these levels. Chao and Moon (2005) conceptualize culture as a social phenomenon and suggest that any individual can

have multiple “cultures” stemming from demographic, geographic, and associative features that combine to create his/her unique combination of cultural identities known as a cultural mosaic.

One particularly useful approach to understanding culture at the individual level is the two-pronged approach suggested by Triandis (1972), which states that any given culture consists of two basic elements: objective and subjective. Objective cultural elements are the outwardly observable characteristics of culture that an individual displays such as language, religion, and demographic traits. Subjective cultural elements, conversely, are not outwardly observable and include the values, beliefs, norms, and underlying assumptions that characterize a culture. These elements must be inferred through the thoughts, feelings, and actions of the members of that culture. The subjective elements can be conceptualized as the internal cognitive and emotional manifestations of the objective elements.

To illustrate, an individual may display objective cultural elements that indicates she is of Mexican descent, female, and a member of the Catholic Church. These three categories of social belonging can be considered various levels of culture as defined by the Chao and Moon (2005) cultural mosaic theory, and objective cultural elements can give these identities away visually; skin tone and hair type may point toward Mexican origin, the garment choice of a dress points to being female, and wearing a cross-shaped necklace is an observable sign of the Catholic faith. These objective cultural elements that are outwardly observable by others and are likely linked to subjective cultural elements that cannot be directly seen by others, such as strong family values stemming historically from Hispanic culture, a particular understanding of the role of leadership stemming from a female perspective, or the belief in an afterlife stemming from membership in

the Catholic Church. This example demonstrates that although the objective and subjective elements of culture are distinct, they are often related.

Though less often discussed in the traditional cross-cultural literature than topics such as ethnic identity and national origin, religious affiliation is also a prime aspect of culture that often provides a prominent driving force in life. Historically, religion has been a shared meaning system taught by one generation of people to the next and learned by groups over time; it passes on a certain set of values, norms, and beliefs, and it gives its members a shared understanding of the meaning of events, of behavior, and of life. That stated, in the context of multicultural collaborations between the United States and Islamic nations, religion is likely a prominent and influential cultural characteristic driving interactions. This is due to the close relationship between faith and nation that is characteristic of many Middle Eastern countries. Unlike the U.S., where religious diversity is relatively high, in Middle Eastern countries, such as Iraq, Afghanistan, and the United Arab Emirates (UAE), between 90 and 97 percent of the population is Muslim and highly devoted to their religion (Central Intelligence Agency, 2009). Furthermore, unlike the secular government in the U.S., many Middle Eastern countries have aspects of their government that are derived directly from the Islamic teachings known as Shari'ah law.

This joining of church and state in these nations emphasizes how central values stemming directly from the Islamic faith usually are for many people within Islamic states. Citizens' entire lives are often driven by the set of beliefs, morals, and ethics passed down to them through their religious upbringing. Based on this phenomenon, I have chosen to focus on a faith-based subjective element of culture in this study as I believe it will be a primary cultural driver that will influence attitudes and behavior in collaborative settings and be a very strong predictor of

forgiveness and behavior after a trust violation. More specifically, I am interested in how differences in fatalistic beliefs, described in more detail below, influence the perception of and reaction to trust repair apologies across U.S. and UAE populations.

### **Religion and Fatalism**

Although the many outwardly visible signs of religion (e.g., symbols, church affiliations, religious garb) can be considered objective cultural elements, religion is replete with examples of subjective cultural elements as well. For example, religion often provides its followers with a specific understanding of a value-based concept known as fatalism. Fatalism can very generally be described as the belief that what happens, or has happened, in some way was destined to occur (Solomon, 2003). Elder (1966) described three distinct dimensions of fatalism: theological fatalism, or the belief that God or some other moral order controls man's destiny and the outcomes of his actions; empirical fatalism, or the belief that phenomena occur for no discernible reason and that outcomes cannot be controlled; and social fatalism, or the belief that one's general position in life is fixed and cannot be changed. Research has found fatalism beliefs positively related to a variety of behavioral outcomes such as risky health behaviors (Henson, Carey, Carey, & Maisto, 2006), unwillingness to seek social support (Goodwin et al., 2002), and failure to prepare for unpredictable but controllable events (McClure, Allen, & Walkey, 2001).

Because this study is concerned with beliefs that are driven by religious affiliations, I focused specifically on the impact of theological fatalism. Individuals that hold strong theological fatalism beliefs generally feel that they are not in control of the events and experiences in their life because God or some other higher power has already predetermined their path through this world. Supporting the idea that religious affiliation relates to fatalism beliefs,

research has shown that self-identified Christians are more likely than non-religious individuals to make fate attributions (i.e., to attribute events in life to fate or destiny) based on their devotion to God (Norenzayan & Lee, 2010). These authors further suggest that fate attributions may reflect a lack of personal control or passivity of behavior inherent within certain types of people (i.e., highly religious). More simply stated, highly religious individuals may feel less personal control over their lives than other types of people. Jacobson (1999) similarly found that the relationship between religiosity (i.e., the extent to which religion is central to one's life) and fatalism beliefs is consistent and positive. In other words, the more religious a person considers himself/herself to be, the more fatalistic his/her beliefs. This relationship was found to remain significant even when controlling for age, gender, and income, among other variables. These findings strongly support the assertion that having a strong religious identity is related to holding fatalistic beliefs. Norenzayan and Lee (2010) recently suggested that research on fatalism should extend the paradigm of fate attributions to other religious groups such as Muslims, which has yet to be done. Therefore, to address this gap the current research compared a Middle Eastern sample to a Western sample.

Regarding the applicability of fatalistic values in the Muslim faith, The Qur'an clearly states that the belief in divine predestination (i.e., God is the determiner of past, present, and future) is one of the six tenets of Islam (Krieg, 2010). Islam's oral traditions, known collectively as the Hadith, which has been speculated to be just as, if not more, important to everyday Muslim life than the Qu'ran, heavily reinforce the idea that God determines the course of all events in the world (Krieg). Furthermore, Arab culture in general has a long tradition of regarding mankind as a passive agent that merely exists within a world determined by fate/God.

Some empirical research has begun to measure the concept of fatalism in Muslim populations. Specifically, Elder (1966) found that Indian Muslims, on average, were more theologically fatalistic than Indian Hindus. Combining the above research findings and theoretical reasoning, I expect that devout Muslims in the UAE, because they are both highly religious and belong to a cultural group with a tradition of fatalistic beliefs, will be more fatalistic than devout Christians, and devout Christians, as highly religious individuals, will be more fatalistic than completely non-religious individuals. I do not make a formal hypothesis regarding this relationship given the purpose of the study is to examine the influence of fatalism as a value regardless of the religious background from which it stems, but it should be noted that significant differences are expected between nations.

### **Interpersonal Trust**

Trust has been one of the most widely studied constructs in organizational research, and consequently, multiple models have been developed over the years (e.g., Hung, Dennis, Robert, 2004; Lewicki et al., 1998; Mayer et al., 1995; McKnight, Cummings, & Chervany, 1998; Meyerson, Weick, & Kramer, 1996). Mayer and colleagues (1995) define trust as the “willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that party” (p. 712). Other models of trust have conceptualized trust as a combination of perspectives, specifically, as a “psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” (Rousseau, Sitkin, Burt, & Camerer, 1998, p. 395). I adopt the two-dimensional conceptualization of trust as an emergent attitudinal state as suggested by Lewicki and

colleagues (1998). They defined trust as “confident positive expectations regarding another’s conduct” and distrust as “confident negative expectations regarding another’s conduct” (p. 439). This conceptualization of trust and distrust is described in more detail in the next section.

### **Trust and Distrust**

Within the mainstream trust literature, there are two primary perspectives regarding the dimensions of trust: one which asserts that trust and distrust are opposite ends of the same continuum and another perspective which contends that trust and distrust are distinct, but related, attitudinal constructs. As previously mentioned, one of the most accepted and cited definitions of trust is “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will performance a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer et al., 1995, p. 712). This definition focuses on the concept of vulnerability, which implies that there is a risk being taken when working with others. Based on this widely accepted model, trust and distrust are conceptualized as opposite ends of the same continuum. Given that trust is defined as the willingness to take a risk, the same continuum perspective suggests that distrust then means that an individual would be unwilling to take any risks. Restated, this model implies that a complete lack of trust is the same as distrust. The absence of the attitude is the definition of distrust. Schoorman, Mayer, and Davis (2007) recently revisited their original model, discussed the movement toward a two-factor model of trust, and concluded that they felt there was not enough credible evidence to support the idea that trust and distrust are conceptually different.

However, Lewicki and colleagues (1998) argue that trust and distrust are separate dimensions, and can exist simultaneously within a relationship. Based on this conceptualization,

the absence of trust (i.e., the lack of confident positive expectations) is not synonymous with distrust (i.e., the existence of confident negative expectations), and therefore, trust and distrust cannot be opposite ends of the same continuum. It is possible to have neither confident positive nor negative expectations. Their main argument for conceptualizing trust and distrust separately is both constructs exist—and therefore, can be studied—in relationships simultaneously. They based their model on the concept of multidimensionality, and designed it to acknowledge the fact that positive and negative emotions are not the same as ambivalence, both regarding the theoretical understanding of emotion as well as the psychological experience of having emotions. In other words, feeling distrust towards another individual is not the same as feeling no trust (i.e., ambivalence) towards them.

Furthermore, attitudinal research has suggested that positive-valent attitudes (i.e., trust) are separate from negative-valent attitudes (i.e., distrust). For example, the positive and negative affectivity research has repeatedly found that both individual difference constructs uniquely contribute to prediction of various outcome variables (Thoresen, Kaplan, Barsky, Warren, & Chermont, 2003). Similarly, research has supported the conceptual distinction between optimism and pessimism (Stallings, Dunham, Gatz, & Bengtson, 1997). Moreover, researchers that have suggested that attitudes differ in terms of their valence have supported that relationships between constructs will be stronger when they match in terms valence (e.g., Thoresen et al., 2003). This theoretical perspective suggests that trust research should study trust and distrust as separate, yet related, constructs in order to truly understand the antecedents, processes, and outcomes related to each construct. The theory behind the conceptualization of trust and distrust as separate and distinct constructs is compelling and consistent with other streams of literature. However, there



has been little research directly examining the potential distinctions between trust and distrust as distinct attitudinal emergent states. Thus, one of the secondary goals of the current research is to empirically examine the distinction between trust and distrust and whether or not these constructs are differentially predictive of behavioral outcomes based on their hedonic tone. Accordingly, I conceptualize trust and distrust as two separate attitudinal variables that are correlated, not opposite ends of the same continuum. Hence, whenever hypotheses are drawn involving trust and distrust, they are developed separately and based on the assumption that trust will be more related to other positively-valenced constructs (e.g., helping, altruism) whereas distrust will be more related to negatively-valenced constructs (e.g., anger, revenge).

### **Interpersonal Trust Development**

Much of the early mainstream trust development literature suggested that interpersonal trust between parties begins at a zero point and gradually increases, or decreases, over time as the involved parties interact and reach new levels in their relationship (Lewicki et al., 2006). Models have been proposed that describe trust development as a multi-stage process in which the type of trust between the parties starts from zero and evolves from one type to another over time. For example, Lewicki and Bunker (1995) suggest that there are three basic types of interpersonal trust: calculus-based, knowledge-based, and identification-based trust. Calculus-based trust is the initial, most basic type of trust developed in interpersonal relationships, and it is based on the perceptions and comparisons of risks and benefits in a relationship. Trust is granted to others based on the assumption that the relationship will result in benefits for the trustor. Knowledge-based trust, the second type, is developed when the involved parties know enough about each other to begin predicting future behavior based on past behavior. In other words, this type of trust

is based on beliefs of predictability. Finally, identification-based trust is the highest form of trust and is developed only when the parties begin to identify with one another on a personal level and, therefore, begin to protect each other's interests out of a benevolent desire to help one another. In the current experimental setting, the involved parties will not be interacting long enough to develop identification-based trust, and thus the remainder of the discussion focuses on the antecedents to calculus- and knowledge-based trust only.

One of the most highly cited and widely supported models of trust development posits that feelings of trust are predicted by the combination of the characteristics of the trustor and the trustee (Mayer et al., 1995). Specifically, trust is determined by the trustor's individual propensity to trust, or the stable tendency for an individual to trust others in general, and the trustor's perceptions of a trustee's trustworthiness based on the trustee's ability, benevolence, and integrity. Ability refers to the perception that the trustee has the set of skills, competencies, and characteristics necessary to successfully perform some task. Benevolence refers to the perception that the trustee has the genuine desire to act in a way that benefits the trustor, and (s)he has the trustor's best interests in mind. Finally, integrity refers to the perception that the trustee is an honest and moral person who adheres to a set of principles that the trustor finds acceptable. A large amount of research has tested and supported these particular trustworthiness perceptions as the primary antecedents to interpersonal trust (e.g., Colquitt et al., 2007).

Yet, very little empirical research has investigated if, and how, the development of interpersonal trust differs across cultures (e.g., Bornhorst, Ichino, Kirchkamp, Schlag, & Winter, 2010; Branzei, Vertinsky, & Camp, 2003; Doney, Cannon, & Mullen, 1998); moreover, no research has specifically focused on the concept of fatalism and how it relates to trust within

collaborative settings. Based on the definition of fatalism, there are two directly competing hypotheses that can be developed regarding how fatalism influences the development of initial trust and distrust.

First, it may be that participants who hold strong fatalistic beliefs will feel as if they cannot predict events in their lives because those events are predetermined. In order for an individual to feel trust toward another as defined by knowledge-based trust, a trustor would first need to believe that the trustee in question had control of his/her own actions and could potentially make the decision to live up to or betray that trust. Conversely, if an individual does not believe that individuals are responsible for their own actions and lives, (s)he is unlikely to have trust in others. To more clearly illustrate this logic, consider the trustworthiness dimension of benevolence. In order for an individual to perceive a trustee as benevolent, (s)he would have to assume that the trustee has the ability to act of his/her own free will in either a benevolent or non-benevolent manner. Individuals low in fatalism are more likely to make this assumption, since they believe humans are in control of their own behaviors and therefore would expect that a trustee could chose to be either benevolent or non-benevolent. However, individuals high in fatalism would not make this assumption regarding free will; instead they would assume that, because all events are predetermined, trust is basically unnecessary or futile. In other words, determining whether or not you trust someone is a futile effort because (s)he is going to act the way destiny prescribes, and there is nothing one can do to change that. Trusting will not change the outcomes of life events. In the same manner, attitudes of distrust would be just as unnecessary, since the trustee's behavior cannot be predicted or controlled. Simply stated, the first competing theoretical line of reasoning suggests that high levels of fatalism would simply

lead individuals to be apathetic in terms of trust and distrust because the formation of these attitudes would not have any impact on the outcomes that are destined to occur.

Conversely, it is also possible that participants high on fatalism will approach the issue of trust from the completely reverse standpoint in which they assume that, since God or some other moral order determines all events and actions in life, all events that happen will be “Godly” or inherently good in some respect. Restated, participants with high levels of fatalism may feel that, since all events are meant to happen and are part of a greater plan that a higher power has for them, they should fully trust in that plan (and, hence, trust in the players involved). Based on this logic, rather than becoming apathetic toward others because of a lack of predictability, individuals high in fatalistic beliefs may have a general tendency to trust in others more based on the assumptions that all others will act in accordance to God’s will and God’s will must be inherently good.

Some research has suggested that fatalism, when combined with a strong sense of religiosity, can be an adaptive mechanism that provides meaning, optimism, and greater happiness (e.g., Greeley, 1972; Hadaway, 1978). Neff and Hoppe (1993) found that the combination of high fatalism and high religiosity in non-aculturated Mexican males resulted in the lowest levels of depression. This finding suggests that rather than leading to apathy and lower trust as suggested by the first line of reasoning, fatalism may lead to a sense of optimism and, consequently, a higher tendency to trust others. Additionally, based on either line of reasoning, it is also expected that fatalism will lead to lower levels of distrust towards others, either through a sense of apathy or a sense of optimism. Therefore, the following hypothesis and research question are put forth:

*Hypothesis 1: Fatalism will be negatively related to initial distrust toward a collaborating partner.*

*Research Question 1: Is fatalism related to feelings of apathy towards events or to feelings of increased optimism, and does this lead fatalism to be positively or negatively related to initial trust toward a collaborating partner?*

### **Interpersonal Trust Violation**

When positive expectations are unmet, trust is violated and distrust may even be prompted. Research suggests that the loss or damage of interpersonal trust requires two distinct steps – a trigger event, or trust violation, and the assessment of that event (Elangovan, Auer-Rizzi, & Szabo, 2007; Elangovan & Shapiro, 1998). A trust violation occurs when the trustor perceives the trustee as acting in a way that does not fulfill his/her expectations (Elangovan & Shapiro). This violation of trust then prompts the trustor to re-assess the situation (Lewicki & Bunker, 1996). Elangovan and colleagues (2007) were some of the first researchers to empirically find that trust violations do indeed result in lowering reports of trust towards the trustee. Elangovan and colleagues also suggested that there are generally two distinct types of trust violations: “couldn’t” and “didn’t want to” violations. These can alternatively be referred to as competence violations and integrity violations (Janowicz-Panjaitan & Noorderhaven, 2009; Kim, Ferrin, Cooper, & Dirks, 2004). Competence violations occur when a trustee unintentionally engages in an incompetent act (i.e., (s)he didn’t have the ability to do something correctly or (s)he made a mistake), whereas an integrity violation occurs when the trustee

purposefully engages in an act that violates the expectations of others to act in a moral or ethical manner.

Integrity violations are especially relevant to consider when discussing recent multicultural collaboration efforts, such as recent attempts in Iraq and Afghanistan. For example, anecdotal and media reports have suggested that radical groups have been known to coerce or threaten some of the Iraqi and Afghan citizens who attempted to collaborate with U.S. military personnel into betraying their U.S. partners. Therefore, the focus on this particular study will be on the impact of integrity violations rather than competence violations, and how trust between collaborating parties can be most effectively repaired after an integrity-based trust violation occurs. A small amount of empirical research has begun to examine the impact of integrity violations on the trustor's perceptions of the trustee. Specifically, Kim, Dirks, Cooper, and Ferrin (2006) found that integrity-based trust violations resulted in corresponding reduced levels of perceived integrity of the trustee and the trustor's willingness to be vulnerable.

Following a stream of logic similar to the support for Hypothesis 2, participants high on fatalism are expected to perceive the integrity-related trust violation less severely than participants low on fatalism. Since individuals with high levels of fatalism believe that events are determined by God rather than by individual human decisions, the trust violation is more likely to be seen as an event necessitated by God rather than a conscious choice made by the violator. Regardless of whether or not fatalism leads to feelings of apathy or optimism regarding one's situation, the belief that the trust violations were part of a predetermined plan should reduce the intensity of the perception of that event for individuals high in fatalism. Accordingly, I generate only one hypothesis regarding the influence of fatalism on the perception of integrity-related

trust violations. For individuals high in fatalism, trust towards the violator will not be as damaged after the violation since the violated party will consider the event an unavoidable act of God's will. Conversely, individuals who are low on fatalistic beliefs will hold the individual directly responsible for the violation and, therefore, will perceive the violation more severely. Examining the influence of fatalism on both trust and distrust separately, I hypothesize:

*Hypothesis 2: Fatalism will be negatively related to a) drop in trust and b) increase in distrust after a trust violation.*

### **Interpersonal Trust Repair**

“To repair trust successfully, the mistrusted party must not only reestablish positive expectations, but also overcome the salient negative expectations that are likely to have arisen from the trust violation” (Kim et al., 2006, p. 50). Research has shown that apologies are an effective repair strategy for gaining forgiveness and improving trust in interpersonal relationships, and various cultures have different tendencies and approaches for apologizing (e.g., Eaton, Struthers, Shomrony, & Santelli, 2007; Ferrin et al., 2007; Kim et al., 2006; see Table 1). However, it should be noted that research has also shown that when a violation concerns a matter of integrity rather than a matter of competence, that denying responsibility for the violation is more effective at restoring trust than apologizing for it (Kim et al., 2004). Ferrin and colleagues (2007) found that when a trust violation involved integrity rather than competence, apology was actually ineffective in increasing trust. Denial was a more effective trust repair strategy, because it reduced the perception that the violator is an inherently bad

person. Kim and colleagues suggested that apologies were ineffective for repairing trust after an integrity-related violation, because the confirmation of guilt offers a signal to the trustor that the individual lacks integrity and this will outweigh any signals of remorse that the apology could provide (Kim et al., 2006). Therefore, when a trust violation is integrity-based, it is more effective to somehow avoid taking responsibility for the event.

Table 1. *Summary of Interpersonal Apology Research*

Article	Study Type	Sample	Key Findings
Afghari (2007)	Policy-capturing	Persian university students	<ul style="list-style-type: none"> <li>• Persian apologies are as formulaic in pragmatic structures as English apologies</li> <li>• The most frequent apologies used are direct expressions of apology and acknowledgements of responsibility</li> </ul>
Anderson, Linden, & Habra (2006)	Experimental	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Participants scoring high in trait hostility displayed faster systolic blood pressure recovery when they received a genuine apology, but recovered more slowly when they received a pseudo-apology or no apology</li> <li>• Apologies did not influence subjective anger ratings</li> </ul>
Ashy, Mercurio, & Malley-Morrison (2010)	Correlational	U.S. college students	<ul style="list-style-type: none"> <li>• Age, secure attachment, religiosity, intolerance for governmental aggression, and advocacy of non-violence all predicted apology/forgiveness/reconciliation orientation</li> <li>• Childhood experiences of aggression did not predict it</li> </ul>
Bachman & Guerrero (2006)	Correlational	U.S. respondents in romantic relationships	<ul style="list-style-type: none"> <li>• The perception of receiving a sincere apology is positively related to forgiveness</li> <li>• Apology and event type were the strongest predictors of forgiveness</li> <li>• Respondents were less likely to report using de-escalation and loyalty when the partner had sincerely apologized</li> <li>• When a partner is not sorry, (s)he is more likely to end the relationship</li> </ul>
Bataineh & Bataineh (2008)	Policy-capturing	U.S. and Jordanian undergraduate students	<ul style="list-style-type: none"> <li>• Jordanian respondents used more explicit apology manifestations than Americans</li> <li>• Jordanian respondents used proverbs and sayings meant to ease their responsibility more than Americans</li> <li>• Jordanian respondents use non-apologies more than Americans</li> </ul>
Brown, Wohl, & Exline (2008)	Policy-capturing	Canadian psychology students	<ul style="list-style-type: none"> <li>• Apologies had a significant effect on secondhand victims' willingness to forgive perpetrators</li> <li>• Participants who were highly identified with the victimized group were less forgiving</li> </ul>
Choi &	Naturalistic	U.S. criminal case	<ul style="list-style-type: none"> <li>• The offenders and parents of offenders felt their</li> </ul>



Article	Study Type	Sample	Key Findings
Severson (2009)	case study	participants	apologies were sincere whereas the victims did not
De Cremer & Schouten (2008) Study 1	Correlational	Employees in an international company in the Netherlands	<ul style="list-style-type: none"> <li>• Apologies were significantly related to fairness perceptions</li> <li>• Apologies are more related to fairness perceptions when respect is high</li> </ul>
De Cremer & Schouten (2008) Study 2	Experimental	Dutch undergraduate students	<ul style="list-style-type: none"> <li>• Self-evaluation mediated the relationship between apology and respect on fairness perceptions</li> </ul>
Eaton, Struthers, Shomrony, & Santelli (2007)	Experimental	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Participants with defensive self-esteem were less forgiving and more vengeful and avoidant after receiving an apology compared to when they did not receive an apology</li> </ul>
Exline, Deshea, & Holeman (2007)	Correlational	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Apology cases were more likely to involve romantic partners whereas non-apology cases were more likely to involve acquaintances</li> <li>• Apology cases were much more likely to be linked to positive outcomes such as reconciliation, forgiveness, and self-forgiveness</li> <li>• Participants are likely to regret non-apology</li> </ul>
Fehr & Gelfand (2010)	Study 1 – correlational Study 2- policy-capturing	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Apology components were more likely to be seen as effective when they were tightly aligned with participants’ self-construals</li> <li>• Self-construal was found to strengthen the effect of a congruent apology component on victim forgiveness</li> <li>• Harm severity may strengthen, mitigate, or exert a null effect on the impact of apologies and self-construal on forgiveness</li> </ul>
Ferrin, Kim, Cooper, & Dirks (2007)	Experimental	U.S. graduate and undergraduate business students	<ul style="list-style-type: none"> <li>• Reticence is significantly inferior for repairing trust after a violation</li> <li>• Denial is the most effective after an integrity violation</li> <li>• Apology is most effective after a competence violation</li> </ul>
Frantz & Bennis (2005)	Study 1: Correlational Study 2: Policy-capturing	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Apology timing is correlated with outcome satisfaction – when the apology came later in the conflict, the participants reported greater satisfaction</li> <li>• The relationship between apology timing and outcome satisfaction was mediated by voice and understanding</li> <li>• Not receiving an apology at all is worse than receiving an early apology</li> <li>• Delayed apologies are more effective because the victim had more time to be heard and understood</li> </ul>
Giner-Sorolla, Kamau, & Castano (2010)	Correlational	U.K. black participants surveyed in public places	<ul style="list-style-type: none"> <li>• When an apology includes an offer of reparation but no emotions of shame, it causes insult, but when shame is included, the insult is reduced</li> <li>• This study found that the inclusion of shame along with an apology and offer of reparation reduces insult, but only for participants who strongly blamed the out-group entities</li> </ul>
Goei, Roberto, Meyer, &	Experimental	U.S. undergraduate	<ul style="list-style-type: none"> <li>• Apology has a positive effect on liking</li> <li>• In the second study, liking increased compliance</li> </ul>

Article	Study Type	Sample	Key Findings
Carlyle (2007)		students	
Guan, Park, & Lee (2009)	Policy-capturing	U.S. , Chinese, and Korean undergraduate students	<ul style="list-style-type: none"> <li>• Participants had a stronger intention and obligation to apologize to strangers than friends</li> <li>• American and Korean participants estimated that an offended person would have a stronger reaction than did the Chinese participants</li> <li>• Chinese and Korean participants had a stronger desire, obligation, intention, and norm to apologize than Americans</li> </ul>
Han & Cai (2010)	Policy-capturing	U.S. and Chinese undergraduate students	<ul style="list-style-type: none"> <li>• Apology was treated similarly across Chinese and U.S. samples</li> <li>• Responsibility, severity, and relationships predicted face goals when apologizing</li> <li>• The relationship between responsibility and relationship with other-positive, other-negative, and self-positive face concerns were supported only in U.S. sample (Chinese participants maintained high face concerns)</li> </ul>
Hareli & Eisikovits (2006)	Policy-capturing	Israeli undergraduate students	<ul style="list-style-type: none"> <li>• Apologies motivated by guilt and/or shame decreased the level of anger toward the transgressor</li> <li>• Each of the emotions (guilt/shame) had a unique impact on forgiveness</li> <li>• Expressions of guilt and shame increased perceived sincerity whereas expressions of pity reduced perceived sincerity</li> </ul>
Kampf (2008)	Archival	Israeli public figures, organization, and institutions	<ul style="list-style-type: none"> <li>• Demonstrated 14 tactics that can be categorized into four categories of minimizing responsibility: compromising the apology's performative verb, blurring the nature of the offense, questioning the identity of the offended, and questioning the identity of the offender</li> <li>• They suggest this allows the public figures to avoid losing face</li> </ul>
Kim, Ferrin, Cooper, & Dirks (2004)	Experimental	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Perceptions of trustworthiness were repaired more successfully when job candidates apologized for competence-related violations and denied integrity-related violations</li> <li>• The impact of violation type and violation response on trusting intentions was mediated through trusting beliefs (i.e., perceived integrity, competence)</li> </ul>
Nureddeen (2008)	Policy-capturing	Sudanese Arabic-speaking adults in the Khartoum area	<ul style="list-style-type: none"> <li>• Informants attempted to preserve their positive face by avoiding use of face-damaging apology strategies such as taking responsibility, etc.</li> <li>• Informants instead used face-saving strategies such as humor, minimization, explanations, and denial</li> </ul>
Ohbuchi, Kameda, & Agarie (1989)	Experimental	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• When harm-doers apologized, the victim-subjects refrained from severe aggression against them</li> <li>• The impact of apology on aggression was mediated by impression improvement, emotional mitigation, and reduction in desire for an apology</li> <li>• If the harm is severe, the impact of apology on aggression is attenuated</li> </ul>

Article	Study Type	Sample	Key Findings
Ohtsubo & Watanabe (2009)	Policy-capturing	Japanese undergraduate students	<ul style="list-style-type: none"> <li>• Participants found the costly apologizer to be more sincere than the no-cost apologizer</li> <li>• Participants in the costly apology condition abstained from sending a complaint message to the unfair person</li> </ul>
Park & Guan (2009)	Policy-capturing	Chinese and U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Offending acts are more face-threatening toward a stranger than a friend</li> <li>• Apology intention is stronger for a stranger than a friend</li> <li>• Americans have stronger apology intentions than Chinese for threatening negative face</li> <li>• Chinese have stronger apology intentions than Americans for threatening positive face</li> <li>• American's apology intention is more strongly related to amount of negative face threat in each act compared to Chinese</li> </ul>
Risen & Gilovich (2007)	Experimental	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Targets (i.e., receiving the apology) responded similarly to the spontaneous and coerced apologies in liking and payment decisions</li> <li>• Observers (i.e., witnessing the apology), in contrast, responded differently to spontaneous and coerced apologies</li> <li>• Observers in the no apology condition liked the harm-doer more than in the coerced apology condition – the coerced apology was worse than no apology, and the failure to apologize is as good as an apology</li> <li>•</li> </ul>
Struthers et al. (2010) Study 1	Experiment	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Following attributions of intent, forgiveness was less likely following an apology</li> <li>• When offenses were unintentional, forgiveness was more likely following an apology</li> </ul>
Struthers et al. (2010) Study 2	Policy-capturing	Workers from an organization	<ul style="list-style-type: none"> <li>• The effect of the interaction of intent by apology on forgiveness is mediated by the impression of the offender</li> </ul>
Struthers et al. (2010) Study 3	Correlational	Workers from an organization	<ul style="list-style-type: none"> <li>• There are negative relationships between responsibility attributions, intent by apology interaction, and impression of the transgressor</li> <li>• There is a positive relationship between impression of the transgressor and forgiveness</li> </ul>
Sugimoto (1997)	Correlational	U.S. and Japanese college students	<ul style="list-style-type: none"> <li>• U.S. participants used accounts more than Japanese participants</li> <li>• Japanese participants used statements of remorse, reparation, and compensation more than U.S. participants</li> </ul>
Takaku, Weiner, & Ohbuchi (2001)	Policy-capturing	U.S. and Japanese students	<ul style="list-style-type: none"> <li>• Participants primed to recall-self-as-wrongdoer were more likely to accept the apology and forgive the transgression than participants in the control group</li> </ul>
Thomas & Millar (2008)	Experiment	U.S. undergraduate students	<ul style="list-style-type: none"> <li>• Participants reported more anger when the confederate had the opportunity to apologize but did not than when they did</li> <li>• The impact of apologizing or not apologizing on anger</li> </ul>

Article	Study Type	Sample	Key Findings
			was strongest for participants low in need-for-cognition

Another trust repair approach mentioned in cross-cultural literature, which is similar to a denial, is known as an account (Bataineh & Bataineh, 2008). An account is a verbal statement in which the individual provides a rationale, justification, or explanation for why (s)he engaged in a behavior (e.g., I didn't have the time to complete the report) instead of actually apologizing for it. In essence, the violator provides an excuse that justifies his/her behavior rather than accepting direct responsibility for his/her actions. Accounts basically push the responsibility away from the violator as a person and toward the environment or situation instead. Yet, across cultures, these accounts are often accompanied with basic apologetic phrases (e.g., sorry, forgive me) that have become culturally expected after a violation but do not necessarily imply responsibility. I suggest that because accounts are similar to denials in structure and meaning, they should be effective for repairing trust after an integrity-based trust violation because it allows the violator to show remorse for the outcomes of the event that occurred while simultaneously directing blame away from him/her and toward the environment.

Based on the research discussed above, one could deduce that providing an apology after committing an integrity-based trust violation will only have a negative impact on a trustor's attitudes toward the violator, whereas accounts should always have a positive effect. However, I suggest that the effectiveness of various trust repair strategies will differ depending on the cultural appropriateness of that given strategy. Fehr and Gelfand (2010) theorized that apologies are most likely to be effective when they are consistent with the victim's self-construal. In support of this theory, they found that for apologies to be effective, they must include specific

components (e.g., an offer of compensation, an expression of empathy, or acknowledgement of a violated norm) that match with the violated party's self-construal. Following this logic, I expect that the most effective repair strategy after an integrity-based trust violation will differ for violated parties that are highly fatalistic compared to those that are not fatalistic, because individuals with these fatalistic beliefs have very different self-construals. Because little is known regarding what types of self-construals fatalistic and non-fatalistic populations hold, I draw on the cross-cultural apology literature in combination with fatalism research to determine what types of apologies would be the best match based on levels of fatalism.

A cross-cultural comparative study of apology use demonstrated that Arabic and American speaking samples tend to use different apologies strategies (Bataneh & Bataneh, 2008). In particular, about 21% of American respondents used no explicit expression of apology, whereas 35% of Arabic respondents used no expression of apology. Conversely, American respondents were much more likely to use a reparation approach (22%) than were Arabic respondents (10%). In another study of apology use, Nureddeen (2008) found that Sudanese Arabic respondents used explanations (i.e., accounts) in high frequencies across a variety of situations, but were unlikely to take responsibility. To summarize, American respondents tend to use more explicit apologies and avoid the use of justifications, whereas Arabic respondents are more likely to say nothing at all, or if they say something, to simply provide an account (i.e., explanation or excuse) for that event.

Furthermore, in most of the research comparing apologies to denials after integrity-based trust violations, there does not appear to be a true cost associated with the apology (e.g., Ferrin et al., 2007; Kim et al., 2006). A separate stream of research has demonstrated that individuals

consider apologies in which the transgressor pays a certain cost to restore the relationship to be more sincere than those where the transgressor does not pay anything (Ohtsubo & Watanabe, 2009). In other words, when transgressors actually have to give something up and suffer a loss of their own that serves as an indicator of their sincerity and helps to restore the relationship. It may be that in the literature comparing apologies to denials for repairing trust after an integrity-violation that the apologies were not perceived as sincere enough to truly repair the damage to the relationship, and that truly sincere apologies may be effective at repairing integrity-based trust in certain cases.

I offer fatalism beliefs as a potential explanation for this difference in apology preference. Conservative Muslims, historically, tend to view the world as “in God’s hand” rather than under their own control. All events are considered to be the will of God, and if someone succeeds, it is only because God willed it to be so. Arabic samples tend to avoid explicit apologies and instead provide accounts or no apology, likely because they do not feel control of the violation. There is no need to apologize for an event because they believe control is external to them (i.e., in the hands of God). At the very most, they will provide an explanation for the violation that makes an external attribution. In fact, Bataineh and Bataineh (2008) found that only one Arabic respondent explicitly took responsibility in his/her apology and stated that the event was indeed his/her fault. In general, because of the tendency to have fatalistic beliefs, Islamic populations do not engage in behavioral reparation efforts or take direct responsibility when apologizing. Most westernized or non-religious individuals, however, tend to have believe they have more control over their own lives. Americans are raised to believe they can achieve the American dream if only they try hard enough, and if someone succeeds, they attribute that success to their own hard work. They

have been culturally raised to believe they control their own destinies, and therefore, when a violation is committed, an explicit apology is appropriate for mending that wrong. Furthermore, because Americans in general tend to have a more internal locus of control, they feel have behavioral control over their environment. Therefore, the American individuals are more likely to attempt to repair the violation by engaging in a behavioral form of apology (i.e., giving the violated party a peace offering or a payment for their troubles). Of course, it should be noted that there will be variation in fatalism beliefs within each society, and although there is likely a significant difference between Islamic and Western societies in terms of mean fatalism levels, it is more appropriate to conceptualize fatalism as an individual-level cultural variables. Thus, I hypothesize:

*Hypothesis 3: Fatalism will moderate the impact of trust repair strategies such that for individuals with low levels of fatalism, the sincere apology will be the most effective trust repair strategy, whereas for individuals with high levels of fatalism, an account will be the most effective trust repair strategy.*

### **Revenge and Retribution**

One particular behavior that has been closely related to the concepts of trust and forgiveness in the workplace is revenge (Aquino, Tripp, & Bies, 2001; 2006). One of the potential risks inherent in multicultural collaboration is the increased probability of deviant, or counterproductive, behaviors such as revenge. Revenge can be defined as an “effort by the victim of harm to inflict damage, injury, discomfort, or punishment on the party responsible for

causing the harm” (Aquino et al., 2006, p. 654). Revenge behavior does not necessarily have to be extreme in nature but includes any action that bears some negative consequence on the intended receiver. Revenge is conceptualized as one particular response that an individual can take after having been violated in some manner. Forgiveness is often conceptualized as the alternative response. Forgiveness is the internal cognitive/emotional act of relinquishing anger, resentment, and the desire to seek revenge. Because the proposed study is specifically focused on the behavioral response of individuals after experiencing a trust violation, we include revenge behavior as the primary process variable of interest.

Tripp, Bies, and Aquino (2007) describe a model of justice that states there are four responses an individual can engage in following a trust violation: revenge, avoidance, forgiveness, and reconciliation. They further suggest that revenge is a likely outcome of broken trust if the violated party is angry, resentful, and feels the offender is clearly to blame for the violation. The potential to engage in revenge behavior also depends upon a number of environmental contingencies. First, the victim of the violation must have power over the violator. In this study, each team member had access to information that can help or hurt the other team members and the choice to share it or withhold it. Also, individual differences do influence the tendency to engage in revenge behavior, and therefore, I measured several traits such as propensity to trust in order to control for these differences. By definition, revenge is provoked by an offense (i.e., an integrity-based trust violation; Bies & Tripp, 2005). Tripp and colleagues (2007) propose that apologies perceived as sincere lead to forgiveness and reconciliation rather than revenge. However, if the victim receives no apology, (s)he may use proportionate revenge to “even the score,” and this in itself increases the likelihood of forgiveness and reconciliation



(Tripp et al., 2007). It should follow then, that if a transgressor in essence exacts “revenge” upon himself/herself by giving up something of his/her own after the violation (i.e., engages in a sincere apology), then this act may serve as a way to even the score and prevent the violated party from engaging in revenge behavior.

When individuals feel outward-focused negative emotions in response to a perceived violation, these emotions increase their need to right a wrong (Barclay, Skarlicki, & Pugh, 2005). Gollwitzer and Denzler (2009) demonstrated that revenge was only satisfactory to the victim if the offender understood s(he) was receiving retaliatory behavior because his/her behavior was wrong. In other words, revenge is not a goal in itself, but instead is a means for communicating to the offender that his/her behavior was reprehensible. Equity theory has often been cited as the primary motivation behind revenge behavior (e.g., Stillwell, Baumeister, & Del Priore, 2008). Equity theory suggests that individuals expect to receive the same outcomes based on their inputs that others receive (Adams, 1965). When a violation in trust occurs, that equity is damaged, and the violated party will likely feel compelled to seek justice and “even the score.” The violator has gained something while the violated has lost something, changing the input to output ratio, and the violator has also increased the costs and reduced the benefits of his/her relationship with the victim. In other words, by committing an integrity violation, the violator will simultaneously impact the victim’s sense of fairness in terms of the social exchange occurring and the subsequent outcomes of that exchange.

If an individual in a team experiences a trust violation and as a consequence incurs some cost, (s)he may feel the need to punish the violator by performing a similar violation in return, or in other words, engage in what can be described as compensatory, or revenge, behavior. It is

important to note, however, that revenge behavior as defined in this study does not necessarily have to be extreme, aggressive, or overt. Revenge can be manifested in many more subtle behaviors such as unwillingness to help or the deliberate withholding of information. Therefore, the withdrawal or reduction of helping behavior can also be seen as a more passive aggressive manifestation of revenge behavior.

*Hypothesis 4a: Trust in the violator will be negatively related to revenge behavior.*

*Hypothesis 4b: Distrust in the violator will be positively related to revenge behavior.*

*Hypothesis 4c: Distrust in the violator will be a stronger predictor of revenge behavior than trust in the violator.*

Although I expect main effects of trust and distrust on revenge behavior, I also expect differences in the relationships between trust, distrust, and revenge based on the level of fatalism of the participant. Following the logic described in previous hypotheses regarding fatalism, a lack of personal agency and feelings of control over one's life may lead participants high on fatalism to feel as if they do not have the capability or choice of evening the score. In other words, participants high on fatalism may be less likely to engage in revenge behavior regardless of their trust attitudes towards others because they do not feel like they can influence the outcomes of events in their life, and therefore, revenge is a futile activity to engage in. Because they do not control the events in their lives, revenge will not lead to better outcomes.

However, it must be noted that the values generally associated with Muslim and Christian teachings may create a competing and opposite effect on revenge behavior. In general,

Christianity teaches a “turn the other cheek” philosophy when it comes to being wronged (Matthew 5:39). Revenge is not seen as a positive or justifiable act, and devout Christians are expected to respond to wrongdoing with grace and forgiveness—and with no trace of vengeance in return. This prescription against revenge is further emphasized by the focus on unconditional forgiveness found in many Christian teachings. Supporting this concept, Witvliet, Hinze, and Worthington (2008) found that religious commitment in self-identified Christians was negatively related to revenge seeking, which suggests that Christians who identify heavily with their religion should be less likely to engage in revenge behaviors in general than members of other religions or non-religious individuals.

Islamic values, however, take a slightly different stance on the act of revenge. The basic Muslim belief as argued in the Qur’an is that enemies should be forgiven and left alone if they incline towards peace, but if the enemy continues to engage in aggressive acts, they are expected to defend their God and beliefs and fight against the aggressive party (4:76; 9:12-14, 9:73). Although both Christianity and Islam have references to war and violence throughout their holy texts and speak of vengeance in several contexts, the modern interpretation Islam is, overall, more outwardly tolerant of avenging one’s wrongs than modern Christianity. In other words, although I am not suggesting that Muslims value violence and revenge, the values of Islam do support the ethical punishment of evil when deemed appropriate by the violated party. Therefore, it is likely that, if a Muslim individual does not feel fully convinced that the violator will not repeat his/her selfish action, (s)he may feel the moral and ethical need to punish that individual for his/her wrongdoing. Because the interaction between fatalism, religious values, trust, and

revenge may be quite complex based on these conflicting theoretical viewpoints, I pose an exploratory research question rather than developing several specific hypotheses:

*Research Question 2: Do cultural differences (i.e., religiosity, fatalism) have a direct effect on revenge behavior or moderate the relationships between trust, distrust, and revenge behavior?*

In summary (see Figure 1), I expect that trust repair strategies (as compared to no trust repair strategy) will increase levels of trust and decrease levels of distrust after a violation in trust, but that the effectiveness of the trust repair strategies will differ depending on the fatalism beliefs of the violated party. The levels of trust and distrust in the violator after the violation will then impact revenge behavior enacted by the violated party, with distrust being more strongly related to revenge behavior than trust (based on the negative valence/tone associated with both distrust and revenge). Cultural differences such as religiosity or fatalism may also directly influence revenge behavior or moderate the relationship between trust, distrust, and revenge. Table 2 summarizes the hypothesized relationships.

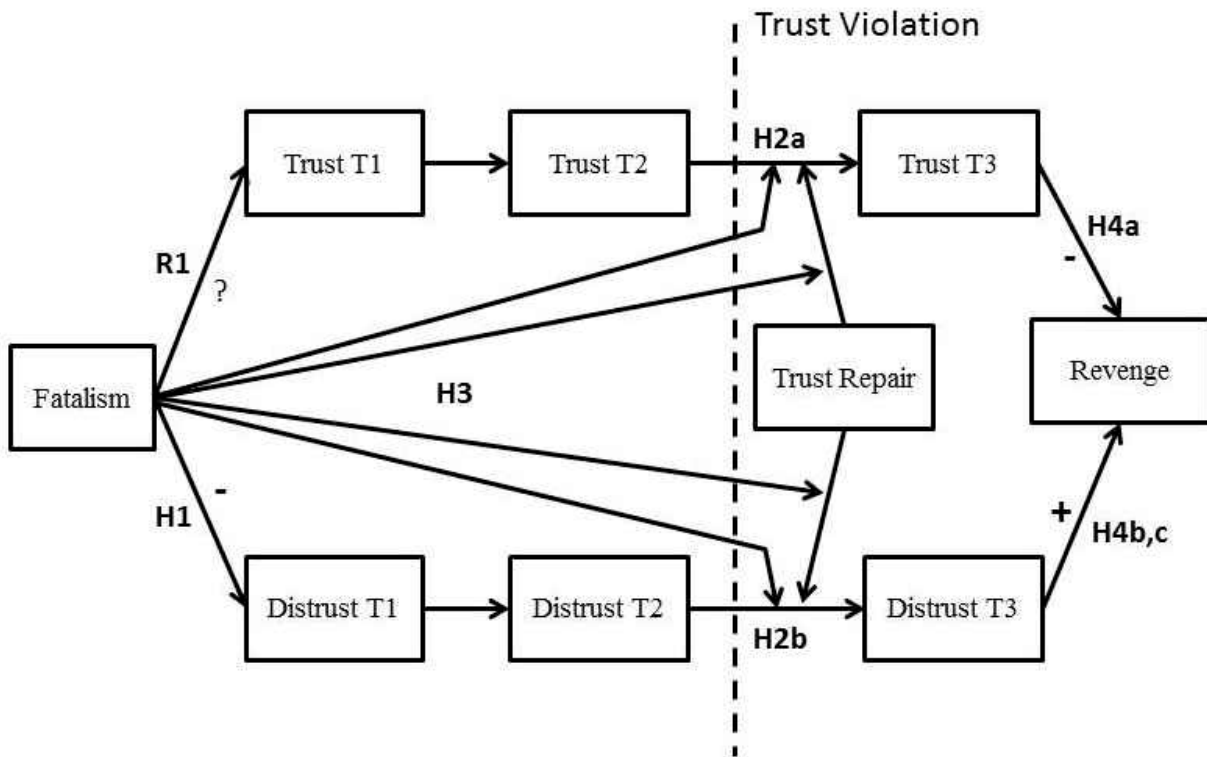


Figure 1. Hypothesized Relationships between Study Variables

Table 2. *Summary of Study Hypotheses and Research Questions*

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H1	Fatalism will be negatively related to initial distrust toward a collaborating partner.
R1	Is fatalism related to feelings of apathy towards events or to feelings of increased optimism, and does this lead fatalism to be positively or negatively related to initial trust toward a collaborating partner?
H2	Fatalism will be negatively related to a) drop in trust and b) increase in distrust after a trust violation.
H3	Fatalism will moderate the impact of trust repair strategies such that for individuals with low fatalism, the sincere apology will be the most effective trust repair strategy, whereas for individuals with high fatalism, an account will be the most effective trust repair strategy.
H4a	Trust in the violator will be negatively related to revenge behavior.
H4b	Distrust in the violator will be positively related to revenge behavior.
H4c	Distrust in the violator will be a stronger predictor of revenge behavior than trust in the violator.
R2	Do cultural differences (i.e., religiosity, fatalism) have a direct effect on revenge behavior or moderate the relationships between trust, distrust, and revenge behavior?

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## CHAPTER THREE: METHODS AND MATERIALS

### Participants

Participants were 135 students recruited from a large southeastern university in the United States (U.S.;  $N = 75$ ) and from a large university in Abu Dhabi, United Arab Emirates (UAE;  $N = 60$ ). It should be noted that due to deletion of missing data, the actual sample sizes vary slightly from analysis to analysis and will be noted in the results tables. The experiment was conducted in two different nations in order to increase the amount of variance in fatalism scores within the sample, not necessarily to compare the results across the two nations. That said, significant differences across the two nations in terms of fatalism were found,  $t(124) = 5.80$ ,  $p = .000$  (two-tailed), partial  $\eta^2 = .21$ , with the UAE participants ( $M = 3.05$ ) displaying significantly higher scores in theological fatalism than US participants ( $M = 2.34$ ). Participant's ages ranged from 18 to 32 years ( $M = 20.37$ ;  $SD = 2.81$ ). The ethnicities represented in the sample include Caucasian (37%), Hispanic (7.9%), Black (5.5%), Middle Eastern (26.8%), Asian (21.5%), and other (0.8%). The total UAE sample consisted of 31 males and 29 females, and the U.S. sample consisted of 31 males and 44 females, for a total of 62 males and 73 females. The participants were paired with a trained confederate of the same sex in order to control for any gender diversity effects on the collaboration, and gender was considered as a control variable.

G\*Power 3.1.2 had been used to estimate the total sample size necessary to achieve a power of .80 assuming an small-to-medium effect size  $f$  of .15 when testing for a within-between interaction using a repeated measures design. A total minimum sample size of 120 was deemed necessary to detect the interaction effect of fatalism and trust repair strategies on trust scores over

time, meaning there had to be approximately 40 data points per trust repair condition for adequate power. The overall sample size meets this minimum requirement.

### **Design**

This study utilized a non-factorial laboratory-based design in which the effectiveness of three manipulated trust repair strategies were examined across a student sample pulled from two different nations. Within each country, the research participants were paired with a trained confederate, from the same country, who was instructed to act as if (s)he was another research participant throughout the in-person experiment. In fact, the research participants were actually interacting with a programmed computer agent, but they believed they were interacting with the confederate. The participants were unaware that the other participant in the experiment was actually a confederate but were fully debriefed at the conclusion of the session. All study materials and methods were approved through the university international review board (see Appendix L).

### **Procedure**

Figure 2 chronologically summarizes the events that occurred throughout the experiment. Prior to participating in the in-person on-site portion of the study, all participants completed a battery of individual difference measures online. This battery included all demographic items, the fatalism scale, and other control variables mentioned in the measures section. The participants were then given an opportunity to sign up for the in-person portion of the study. Upon arrival to the in-person portion of the experiment, the participant and the confederate were escorted into the laboratory room and informed that they would be working together to complete a fully computer-based collaborative mission. At the beginning of the in-person experimental



session, all participants first read the informed consent carefully, which explained the nature of the experiment. The study did not begin until participants gave their written consent, which was done individually outside the room with the door closed. The door was shut and consent was obtained from the participant in isolation in order to ensure that no sense of coercion or social pressure influenced his/her decision. Participants were given opportunities to ask questions and were reminded that they could withdrawal from the study at any time. They were provided with a copy of the consent form to take home.

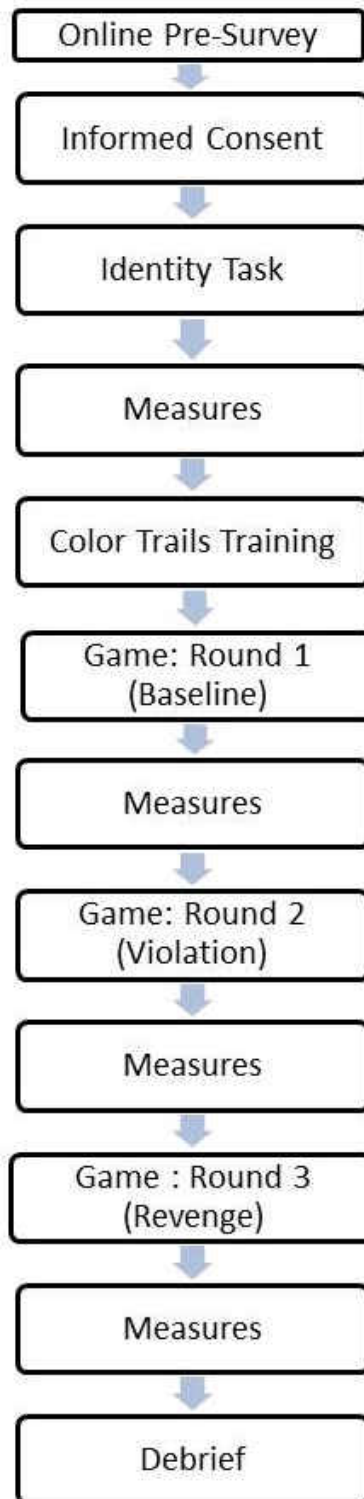


Figure 2. Chronological Flowchart of Experimental Procedure

After providing informed consent, the participant and the confederate engaged in a brief identity-building exercise in which they completed leisure surveys by selecting five activities from a list that best represented what they liked to do in their spare time, and then discussed their similarities based on those surveys (Appendix A). The purpose of this exercise was to give the participant enough personal interaction with the confederate to feel comfortable completing the initial trust and distrust measures. Previous experiences have indicated that individuals do not feel comfortable reporting their levels of trust and distrust toward others without a minimum level of interaction prior to making the judgment.

The participant and the confederate were then directed to individual computer stations that were separated by a divider such that they were not be able to see or speak to each other at all. They were also given noise cancelling headphones playing instrumental background music in order to prevent them from hearing any audible responses from other player. They completed the first set of in-task measures, intended to capture baseline levels of trust and distrust toward the confederate.

After completing the first set of measures, the participants then completed an interactive computer-based tutorial which explained how to play the experimental game. The research platform used was a modification of the computer-based game *Color Trails*, created by Barbara Grosz and Sarit Kraus (Grosz et al., 2004). For the current effort, the context of the game was based within a fictional wilderness to provide a more cohesive story line, as well as an immersive and motivating experience for participants. The primary collaborative objective in this game is for both players to navigate their individual vehicles through the wilderness to successfully deliver packages of food to a nearby community in need of supplies. Participants

were presented with a 13x13 square grid that represented various paths in the wilderness between the dyad’s start point and the town they were trying to reach (see Figure 3). The participants were able to draw paths through the wilderness using up, down, left, and right movements only (no diagonals). The objective was to deliver the supplies using the shortest route possible because one package of food would spoil for every square on the game board used in a route, and the collaborative score was based on the amount of food successfully delivered.

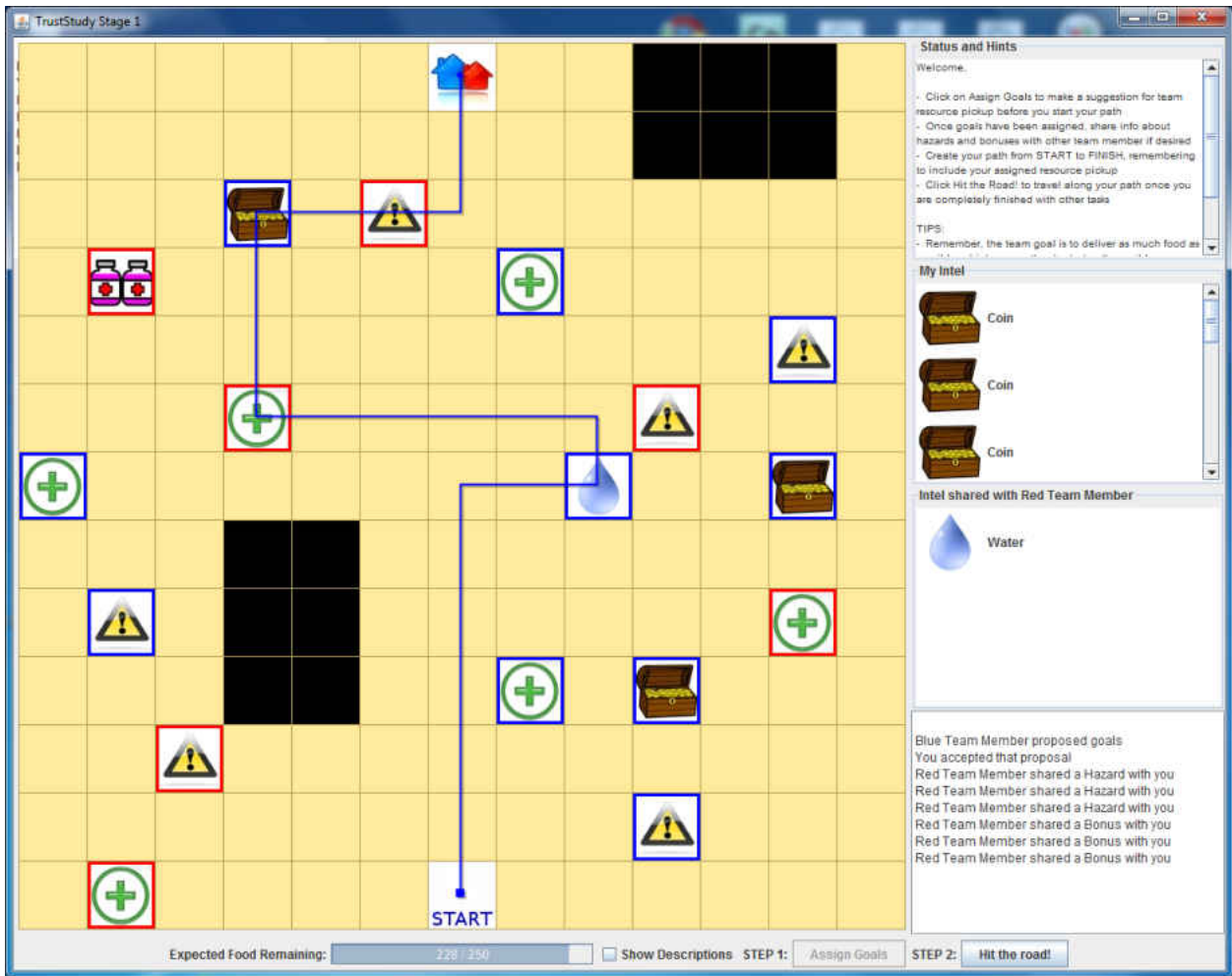


Figure 3. Screenshot of Example Color Trails Game Board

This computer-based task was well suited for the purposes of the research for several reasons. First, the game provided a basic interdependent collaborative context in which the two players had to work together if they wanted to effectively achieve the superordinate goal. Specifically, there were two supply packages (medicine and water) embedded in the game board that had to be picked up along the way for the dyad to achieve their goal. Each player was only able to pick up one of the two packages, but if any of the packages were not picked up, the players could not complete their mission. Thus, the players were forced to directly coordinate to determine who would get which package before completing the mission. Additionally, there were a series of hazards and bonuses scattered throughout the wilderness that impacted the ability of the team to complete its mission. Both players had knowledge about the hazards and bonuses that the other did not have and needed to share this information with the other player in order to maximize their team score.

Second, the game was designed to be specifically mixed motive, which afforded the possibility for the participant and the confederate to engage in either selfish or selfless behavior. Each player had an individual goal within the game to collect the gold coins scattered throughout the wilderness. Subsequently, there were both dyad and individual scores that were connected to a tangible reward at the end of the experiment. Gathering the gold coins required the participants to use a longer route than if (s)he did not try and meet their individual goal, which meant the participants could choose to what extent they prioritized the team goal or their own individual goal. This feature of the task created an inherent uncertainty regarding the behavior of the “other” player, which increased the relevance of trust and distrust attitudes.

Third, the task was designed to contain embedded opportunities for integrity-based trust violation and revenge behavior. A key piece of information provided during the training tutorial was that either of the players could be approached by wilderness bandits at the end of any round of play during the game, and these bandits could offer them a bribe which they could choose to accept or decline. This bribe required them to give the bandits 100 food rations (i.e., the team's resources) in exchange for 100 gold coins (i.e., an individual reward). It was up to them to decide if they wanted to take this bribe. This allowed the opportunity to script in a planned trust violation and also allowed for an extra measure of revenge, or compensatory, behavior.

Upon completion of the interactive tutorial, the dyad engaged in three consecutive simulated decision periods that took approximately three minutes each, for a total of 10 minutes to complete three rounds of game play. Throughout the remainder of the manuscript, the term round will be used to refer to these three consecutive periods of game play. In between each round of game play, they completed a set of measures online, which took approximately 10 minutes for each set. In Round 1 of game play, the participants completed a round of game play completely free of trust violations. This round of game play served as a baseline for establishing collaboration between the two players. The computer agent was programmed to always share all information in each round of game play to establish a norm of sharing throughout the collaboration, which made reductions in sharing more noticeable.

After completing the second set of measures, participants began Round 2 of game play, during which the computer agent committed the integrity-based trust violation in the form of accepting a bribe from a wilderness bandit as described above. Trust repair was immediately manipulated by having the computer randomly engage in one of three responses after committing

the integrity violation. The experimenter and the confederate were blind to the trust repair strategy being chosen by the computer. In the first (i.e., control) trust repair condition (Figure 4), the computer-generated player did not engage in any strategy to repair trust. In other words, the “player” was programmed to not provide any explanation or offer of compensation following the violation to repair trust. The participant was informed that the other player took the bribe and chose to provide no response. In the second condition (Figure 5), the computer provided a sincere apology that was accompanied with a clear and tangible cost. Specifically, the player provided the other player with 50 of the 100 coins earned following the trust violation. In the final trust repair condition (Figure 6), the computer engaged in an account trust repair strategy. The computer-controlled player “typed” a statement informing the other player that (s)he took the bribe “because I really needed the extra money – I am having financial problems”.

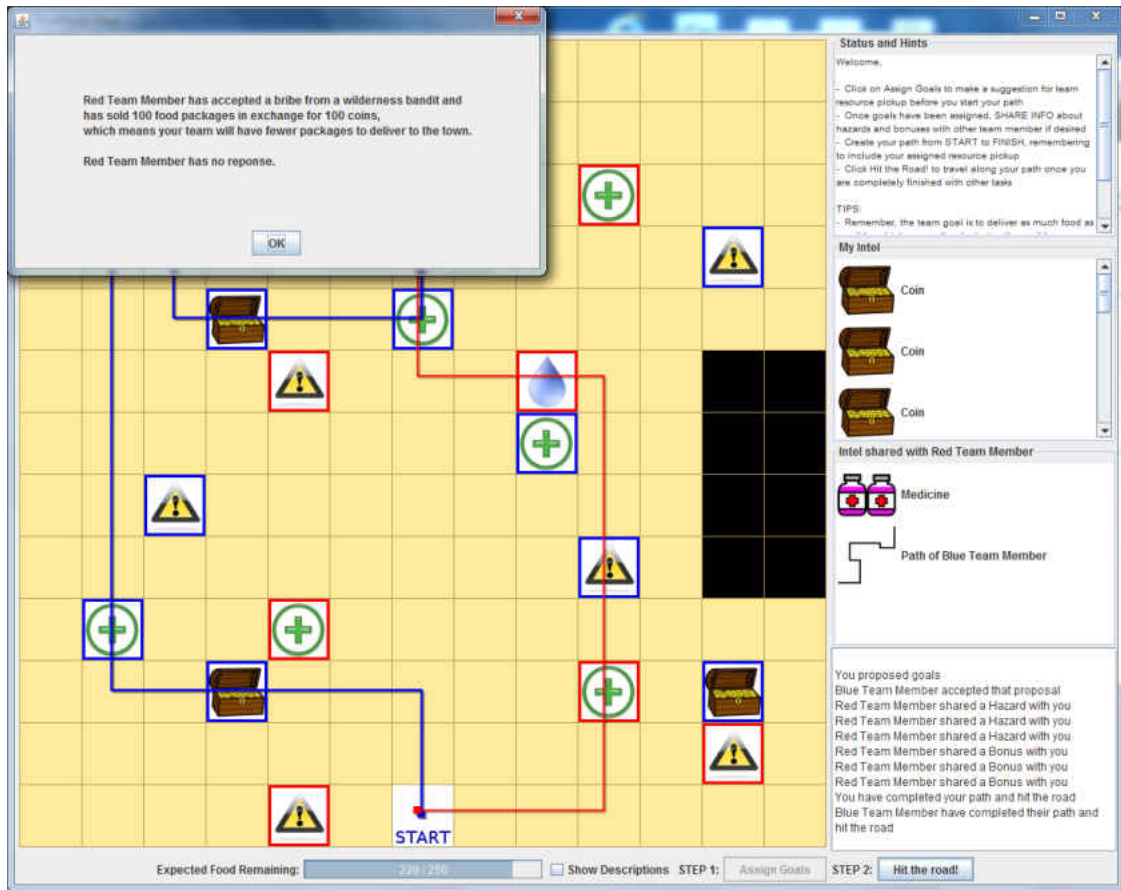


Figure 4. Screenshot of No Trust Repair Condition



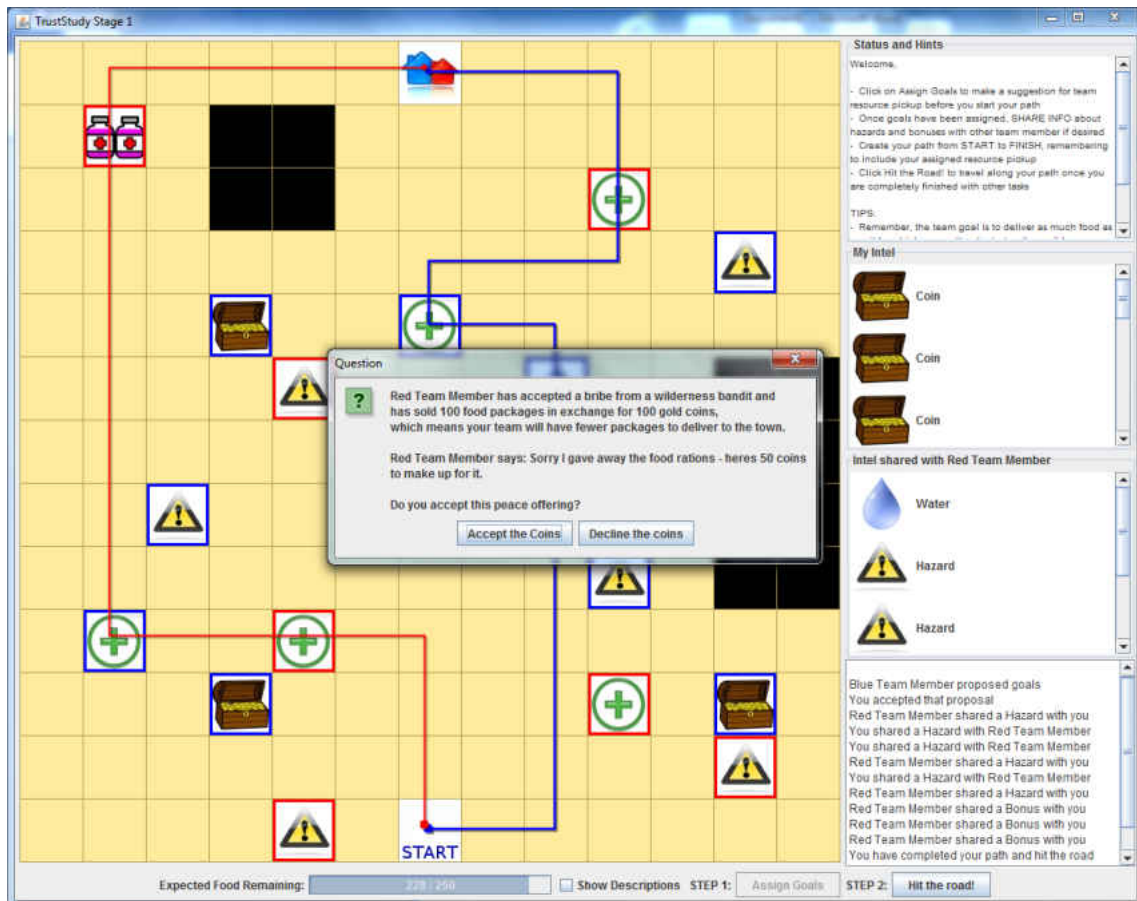


Figure 5. Screenshot of Sincere Apology Condition

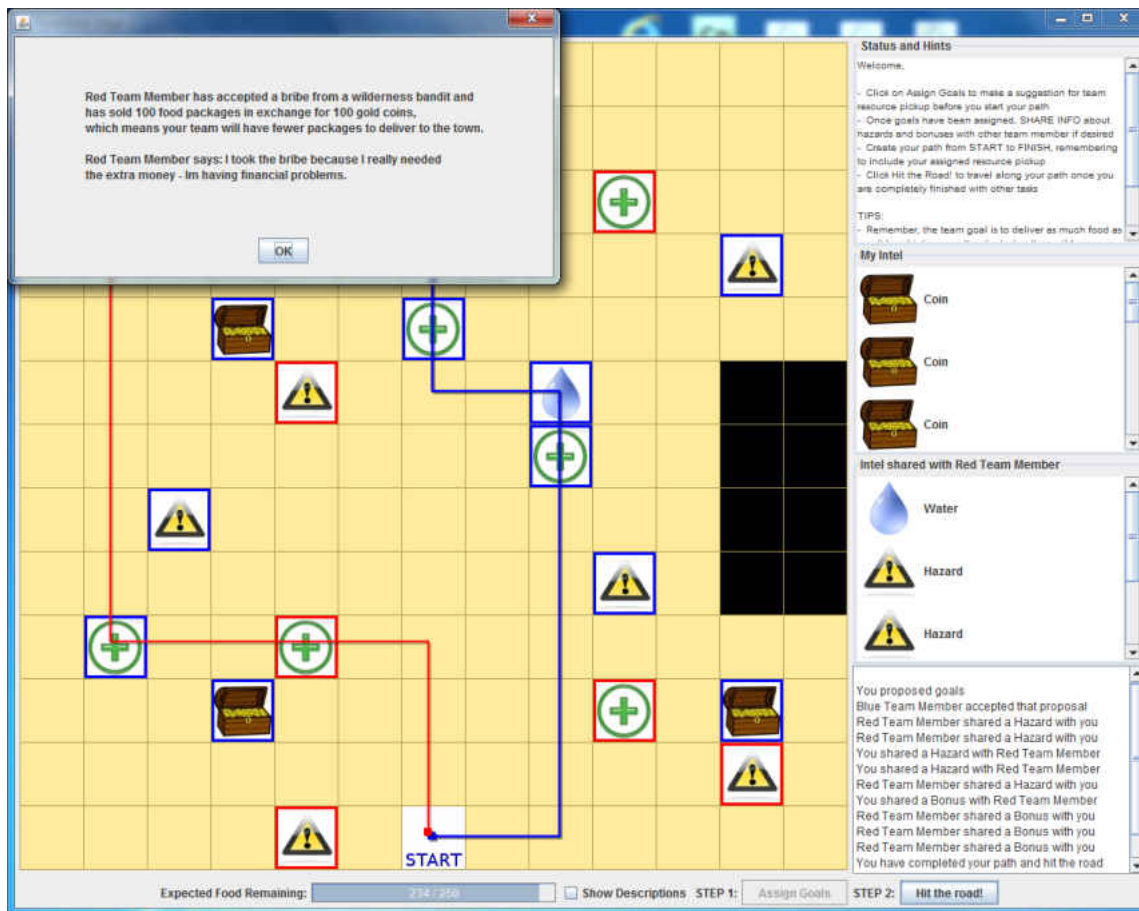


Figure 6. Screenshot of Account Condition

Upon completion of Round 2, participants completed a third set of measures including judgments of forgiveness following the bribe, and then engaged in a final round of game play. During Round 3 of game play, the actual game-playing participant was approached by the simulated character who offered the same bribe previously accepted by the computer agent. This event was scheduled to occur at the same time at the very end of the game play for all participants. Acceptance of the bribe, which represented one measure of revenge behavior, was followed by a prompt to choose a type of reparation effort. Throughout this round of play, the players were able to choose, as they had been able to throughout each round of play, to engage or

not engage in helping behaviors (e.g., notifying the violator of a hazard or a bonus). The reduction of these helping behaviors indicates passive revenge. After finishing Round 3, the participants were fully debriefed regarding the nature of the study and the fact that their collaborating partner was a trained confederate.

### **Measures**

All survey data were collected using Qualtrics online survey system. This online service allows researchers to construct questionnaires and collect data from participants electronically. Though the tool is available online, all in-task measures were completed locally in the laboratory. All self-report measures, unless otherwise noted, were rated on a 5-point Likert-type scale ranging from “strongly disagree”, coded as 1, to “strongly agree”, coded as 5. In order to statistically control for as much variance as possible, a variety of individual difference variables that are conceptually and empirically related to trust were measured in the pre-task survey and used as control variables when appropriate. All *Cronbach's alpha* reliability coefficients for each study variable scale can be found in Table 4.

#### **Pre-Task Measures**

*Demographic information.* The demographic survey included customary data such as age, gender, grade point average (GPA), self-identified ethnicity, and self-identified religious affiliation. This measure was included in the initial battery of tests. It should be noted that due to cultural differences and upon the recommendation of the Abu Dhabi University collaborator, the pre-survey questionnaire for the UAE was slightly different in terms of format and questions than the US pre-survey. See Appendices B and C for full scale descriptions.

*Fatalism.* Fatalism was measured with two different validated scales in order to ensure that all potentially important aspects of fatalism were captured. The first scale was a short scale measuring general feelings of fatalism toward events in life (Jacobson, 1999). Example items include “everything that happens is a part of God’s plan” and “If bad things happen, it is because they were meant to be.” The second scale is a three-factor scale of determinism (aka fatalism) that taps into religious-philosophical determinism, libertarianism, and psychosocial determinism (Stroessner & Green, 2001). Example items include “my choices are constrained by God”, “I will have free will all of my life”, and “My exercise of free will is limited by my upbringing.” For analysis, two different combinations of these measures were used. Religious fatalism was measured using the items from the religious-philosophical determinism subscale only, omitting the reverse-coded item due to reliability issues, and combined fatalism was measured using the items from the religious-philosophical determinism subscale and a reverse-coded item from the libertarianism subscale (included based on the reference to God). See Appendix D for full scale descriptions.

*Propensity to trust.* To determine an individual’s inherent propensity to trust, I adapted Couch, Adams, and Jones’ (1996) trust orientation scale. The measure consisted of 20 items such as “Basically I am a trusting person” and “Most people are trustworthy”. See Appendix E for full scale descriptions.

*Locus of control.* In order to distinguish between fatalism and non-theologically driven locus of control, locus of control was measured with Levenson’s (1972) 21-item scale. The items tapped into three factors of locus of control including internal locus of control, powerful others, and chance. Example items include “When I get what I want, it’s usually because I’m lucky” and

“I feel like what happens in my life is mostly determined by powerful people.” See Appendix F for full scale descriptions.

*Religious motivation.* Religious identification and motivation was measured using an adapted version of the Hoge (1972) religious motivation scale. This two-factor scale measured both intrinsic and extrinsic motivations for engaging in religious activity, and included items such as “My faith involves all of my life” and “Although I believe in my religion, I feel there are many more important things in life.” Both subscales assessed the extent to which an individual engages in religious activity. The intrinsic subscale focused on the extent to which an individual engages in religion for religion’s sake, and the extrinsic subscale focused on the extent to which an individual engages in religion for other reasons such as community and interpersonal connection. See Appendix G for full scale descriptions.

*Personal responsibility.* The extent to which students feel a sense of personal responsibility for their actions was measured using the Student Personal Responsibility Scale (Singg & Ader, 2001). The measure consisted of 10 items such as “I am often late for class or work” and “I miss appointment I have made if I’d rather not go.” See Appendix H for full scale descriptions.

*Personal agency.* The extent to which students felt a sense of personal agency was measured using the agency items from the Snyder et al. (1991) hope scale. The measure consists of 12 total items, four of which directly assess feelings of agency. Example items include “I energetically pursue my goals” and “I’ve been pretty successful in life.” See Appendix I for full scale descriptions.

*Apathy.* Individual differences in general apathy were measured using an adapted version of the Lane-Brown and Tate (2009) apathy scale. Examples of this 18-item scale include “I am interested in having new experiences” and “Someone has to tell me what to do each day.” See Appendix J for full scale descriptions.

### **In-Task Measures**

*Trust and distrust.* Trust and distrust were assessed using the two-dimensional scale developed by Wildman and colleagues (2009) based on the theory of Lewicki and colleagues (1998). This 16 item scale includes eight items that tapped attitudes of trust (e.g., to what extent do you feel confident in the other player's ability to complete a task) and eight items that tapped attitudes of distrust (e.g., to what extent do you feel worried that the other player will do something wrong). Each item was rated on a 5 point scale from “not at all”, coded 1, to “very much so”, coded 5. Although this measure is not yet published, it has been validated in both lab and field samples. See Appendix K for full scale descriptions.

*Revenge behaviors.* I captured two different measures of compensatory revenge behavior. After the trust violation, any significant decrease in helping behavior engaged in by the players toward the transgressor compared to their level of help behavior prior to the trust violation was considered “passive” revenge in that it indicated that the other player is actively deciding not to help the transgressor. I also recorded the choice of the other player to engage in the bribe at the end of Round 3. As mentioned, if they chose to take the bribe, this was seen as a more overt revenge behavior as this directly harmed the transgressor and the dyad by reducing the possible amount of the performance-based monetary reward at the end of the experiment.

## CHAPTER FOUR: RESULTS

SPSS 16.0 for Windows was used to test all hypotheses in this study. Linear multiple regression was used to analyze all hypothesized relationships between continuous variables. See Table 3 for a summary of the regression-based analyses. Repeated measures analysis of variance was used to examine the interaction between fatalism and apology conditions when predicting changes in trust and distrust over time. Specifically, profile analysis was used, which is a multivariate approach to repeated measures analysis of variance in which the multiple dependent variables are measured on the same scale. Pearson product-moment correlation results, coefficient alpha reliabilities, and descriptive statistics for all study variables are reported in Table 4.

Table 3. *Summary of Regression-Based Statistical Analyses*

H1	$\text{Distrust at T1} = \beta_0 + \beta_1(\text{fatalism}) + \beta_2(\text{locus of control}) + \varepsilon$
R1	$\text{Trust at T1} = \beta_0 + \beta_1(\text{fatalism}) + \beta_2(\text{locus of control}) + \varepsilon$
H2	$\Delta \text{ Trust T2-T3} = \beta_0 + \beta_1(\text{Trust T1}) + \beta_1(\text{fatalism}) + \varepsilon$ $\Delta \text{ Distrust T2-T3} = \beta_0 + \beta_1(\text{Extrinsic Religiosity}) + \beta_1(\text{fatalism}) + \varepsilon$
H4	$\text{Take Bribe T4} = \beta_0 + \beta_1(\text{trust at T1}) + \beta_1(\text{trust at T2}) + \beta_1(\text{trust at T3}) + \beta_1(\text{trust at T4}) + \beta_1(\text{Distrust at T1}) + \beta_1(\text{Distrust at T2}) + \beta_1(\text{Distrust at T3}) + \beta_1(\text{Distrust at T4}) + \varepsilon$
R2	$\text{Take Bribe T4} = \beta_0 + \beta_1(\text{fatalism}) + \beta_2(\text{religiosity}) + \beta_3(\text{apathy}) + \varepsilon$ $\text{Take Bribe T4} = \beta_0 + \beta_1(\text{fatalism}) + \beta_2(\text{trust at T3}) + \beta_3(\text{distrust at T1}) + \psi_1(\text{fatalism*trust at T3}) + \psi_2(\text{fatalism*distrust at T1}) + \psi_3(\text{trust at T3*distrust at T3}) + \psi_4(\text{fatalism*trust at T3*distrust at T1}) + \varepsilon$

Table 4. *Summary of Intercorrelations, Means, and Standard Deviations for Study Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Propensity to trust	(.81)										
2. Locus of control	-.24**	(.88)									
3. Extrinsic religiosity	.07	.45**	(.85)								
4. Personal responsibility	.07	-.38**	-.16	(.73)							
5. Personal agency	.36**	-.51**	-.11	.34**	(.87)						
6. Apathy	.28**	-.57**	-.18*	.50**	.73**	(.88)					
7. Religious fatalism	-.02	.44**	.47**	-.12	-.15	-.17	(.79)				
8. Fatalism (combined)	-.15	.59**	.51**	-.21*	-.35**	-.34**	.86**	(.85)			
9. Trust T1	.23*	-.36**	-.15	.40**	.42**	.45**	-.26**	-.36**	(.95)		
10. Trust T2	.11	-.26**	-.11	.23**	.30**	.31**	-.35**	-.37**	.60**	(.96)	
11. Trust T3	.19*	-.24**	-.06	.24**	.20*	.25**	-.17	-.20*	.58**	.43**	(.93)
12. Trust T4	.14	-.23*	-.04	.27**	.16	.26**	-.19*	-.23*	.60**	.46**	.77**
13. Distrust T1	-.13	.40**	.32**	-.46**	-.34**	-.33**	.38**	.44**	-.61**	-.49**	-.49**
14. Distrust T2	-.11	.45**	.33**	-.45**	-.25**	-.39**	.36**	.42**	-.55**	-.55**	-.44**
15. Distrust T3	-.07	.32**	.18*	-.34**	-.12	-.28**	.20*	.28**	-.50**	-.43**	-.66**
16. Distrust T4	-.11	.29**	.15	-.29**	-.16	-.28**	.19*	.295**	-.57**	-.52**	-.61**

Note. N = 130. Cronbach's alpha reliability coefficient is presented in parentheses in the diagonal.

\* p < .05, two-tailed \*\* p < .01, two-tailed



Table 4. Summary of Intercorrelations, Means, and Standard Deviations for Study Variables (cont.)

Variable	1	2	3	4	5	6	7	8	9	10	11
17. Trust Decrease T2-T3	.08	.02	.07	.00	-.09	-.06	.17	.15	-.022	-.53**	.54**
18. Distrust Increase T2-T3	.03	-.12	-.17	.11	.12	.11	-.16	-.13	.05	.11	-.24**
19. Bribe (Y/N)	-.11	.13	.20*	-.03	-.00	-.11	.17	.20*	-.21*	-.22*	.00
20. Gender	.04	-.19*	-.07	.22*	.01	.16	-.11	-.11	.16	.05	.05
21. Country	.19*	-.38**	-.34**	.36**	.39**	.46**	-.38**	-.46**	.67**	.64**	.48**
$M_{TOTAL}$	3.49	2.48	3.18	3.84	3.96	4.06	2.93	2.66	3.89	4.11	3.64
$SD_{TOTAL}$	.44	.53	.56	.56	.57	.46	1.03	.77	.83	.90	.90
$M_{US}$	3.56	2.31	3.00	4.01	4.16	4.24	2.57	2.34	4.38	4.61	4.02
$SD_{US}$	.48	.54	.57	.51	.46	.37	1.03	.73	.59	.47	.77
$M_{UAE}$	3.40	2.70	3.39	3.62	3.71	3.82	3.36	3.05	3.25	3.16	3.28
$SD_{UAE}$	.38	.42	.47	.54	.60	.46	.86	.62	.66	.90	.81

Note. N = 130. Cronbach's alpha reliability coefficient is presented in parentheses in the diagonal.

\* p < .05, two-tailed \*\* p < .01, two-tailed

Table 4. Summary of Intercorrelations, Means, and Standard Deviations for Study Variables (cont.)

Variable	12	13	14	15	16	17	18	19	20	21
12. Trust T4	(.96)									
13. Distrust T1	-.47**	(.93)								
14. Distrust T2	-.48**	.71**	(.94)							
15. Distrust T3	-.61	.58**	.55**	(.94)						
16. Distrust T4	-.75**	.55**	.56**	.84**	(.95)					
17. Trust Decrease T2-T3	.28**	.01	.10	-.21*	-.08	-				
18. Distrust Increase T2-T3	-.14	-.13	-.46**	.50**	.30**	-.33**	-			
19. Bribe (Y/N)	-.13	.23**	.13	.09	.11	.22*	-.06	-		
20. Gender	.05	-.18*	-.19*	-.14	-.01	-.00	.06	-.07	-	
21. Country	.52**	-.72**	-.71**	-.53**	-.61**	-.15	.17	-.30**	.13	-
$M_{TOTAL}$	3.83	2.17	2.14	2.51	2.29	-.48	.38	.33	1.53	1.56
$SD_{TOTAL}$	.94	.93	.98	1.00	1.06	.96	.94	.47	.50	.50
$M_{US}$	4.27	1.58	1.52	2.04	1.72	-.60	.52	.21	1.6	2.00
$SD_{US}$	.84	.61	.65	.96	.93	.65	.87	.41	.50	.00
$M_{UAE}$	3.28	2.92	2.91	3.11	3.02	-.32	.20	.49	1.46	1.00
$SD_{UAE}$	.74	.69	.74	.69	.73	1.22	1.00	.50	.50	.00

Note. N = 130. Cronbach's alpha reliability coefficient is presented in parentheses in the diagonal.

\* p < .05, two-tailed \*\* p < .01, two-tailed

## Hypothesis 1 Results

Hierarchical multiple linear regression was used to examine the relationship between fatalism and initial distrust in the other player after controlling for locus of control (Table 5). Locus of control was included to ensure that fatalism was a uniquely predictive concept, not a mislabeled measure of locus of control. A preliminary examination of the residual scatterplots was conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. There was no indication of any significant violations. The Durbin-Watson statistic was not significant at the  $p = .05$  level, and therefore, independence of errors can also be assumed. Data was examined for multivariate outliers, but no cases exceeded the critical value for Mahalanobis distance (maximum = 10.00) or Cook's distance (maximum = .07). Therefore, the analysis was conducted as originally planned. Locus of control was entered at Step 1, explaining 16% of the variance in initial distrust toward the other player,  $F(1, 124) = 24.11, p = .000$ . Fatalism was entered in Step 2, bringing the total variance explained by the model as a whole to 23%,  $F(2, 123) = 18.07, p = .000$ . This analysis indicated that fatalism was a significant predictor of initial distrust, and it explained an additional 6% of the variance above and beyond locus of control. However, despite the significant relationship between fatalism and initial distrust, Hypothesis 1 was not supported given the directionality of the relationship is opposite of the predicted direction. Fatalism was expected to be negatively related to distrust, but was positively related instead.

Table 5. Hierarchical Regression Analyses Predicting Initial Distrust from Locus of Control and Fatalism

Variables	Initial Distrust (Time 1)							
	Step 1				Step 2			
	<i>B</i>	<i>SE B</i>	95% <i>CI B</i>	$\beta$	<i>B</i>	<i>SE B</i>	95% <i>CI B</i>	$\beta$
LOC	.71	.15	[.45,1.00]	.40**	.39	.17	[.04,.73]	.22*
Fatalism (combined)					.38	.12	[.15,.62]	.31**
$R^2$			.16				.23	
$F_{df}$			24.11** <sub>1,124</sub>				18.07** <sub>2,123</sub>	
$\Delta R^2$							.06	
$\Delta F_{df}$							10.23** <sub>1,123</sub>	

Note. N = 126. \*p < .05. \*\*p < .01. Two-tailed tests. LOC = locus of control.

### Research Question 1 Results

Hierarchical multiple linear regression was also used to examine the relationship between fatalism and initial trust in the other player after controlling for locus of control (Table 6). Preliminary analyses using residual scatterplots were again conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The Durbin-Watson statistic was not significant at the  $p = .05$  level, and therefore, independence of errors was assumed. Data was examined for multivariate outliers, but no cases exceeded the critical value for Mahalanobis distance (maximum = 10.00) or Cook's distance (maximum = .15). Locus of control was entered at Step 1, explaining 13% of the variance in initial trust,  $F(1, 123) = 18.18, p = .000$ . Fatalism was entered in Step 2, bringing the total variance explained by the model as a whole to 16%,  $F(2, 122) = 11.81, p = .000$ . Fatalism did explain an additional 3% of the variance in initial trust above and beyond locus of control. Although this finding was significant, it should be noted that the amount of variance explained was relatively small. In answering the research question regarding whether fatalism will positively or negatively predict trust, it appears that fatalism is negatively related to initial trust at time one, and does predict above and beyond locus of control.

Table 6. Hierarchical Regression Analyses Predicting Initial Trust from Locus of Control and Fatalism

Variables	Initial Trust (Time 1)							
	Step 1				Step 2			
	<i>B</i>	<i>SE B</i>	95% <i>CI B</i>	$\beta$	<i>B</i>	<i>SE B</i>	95% <i>CI B</i>	$\beta$
LOC	-.57	.13	[-.83,-.31]	-.36**	-.36	.16	[-.68,-.04]	-.23*
Fatalism (combined)					-.25	.11	[-.47,-.02]	-.23*
$R^2$		.13				.16		
$F_{df}$		18.18** <sub>1,123</sub>				11.81** <sub>2,122</sub>		
$\Delta R^2$						.03		
$\Delta F_{df}$						4.87* <sub>1,122</sub>		

Note. N = 125. \*p < .05. \*\*p < .01. Two-tailed tests. LOC = locus of control.

## Hypothesis 2a Results

Hierarchical multiple regression was used to examine the relationship between fatalism and drop in trust after the trust violation (Table 7). Drop in trust was calculated as the difference score between trust at time two (before the violation) and trust at time three (after the violation). The residuals scatterplot indicated no noticeable violations of normality, linearity, multicollinearity, or homoscedasticity within the data. The data was examined for multivariate outliers, but no case exceeded the critical value for Mahalanobis distance (maximum = 4.06) or for Cook's Distance (maximum = 13.46). Univariate outliers on fatalism and drop in trust were also examined, but omission of the outliers did not improve the results of the analysis.

It should be noted that the measure of religious fatalism, not the combined fatalism scale, was used for this analysis, because it was a stronger correlate of trust decrease. The combined fatalism scale was not a significant predictor of drop in trust. Theoretically, it was expected that trust at time one would be a covariate for drop in trust, and therefore, was included in the regression equation. It was found that trust at time one, although not a significant covariate, acted as a suppressor variable, increasing the beta weight and significance of theological fatalism. Results of the regression indicate that religious fatalism is a significant predictor of change in trust between time two and time three,  $t(1, 122) = 2.07, p = .04$  when controlling for trust at time one. Overall, fatalism explains 3% of the variance in drop in trust between time two and time three. However, the relationship is not in the predicted direction. Therefore, Hypothesis 2a is not supported.

Table 7. Hierarchical Regression Analyses Predicting Change in Trust from Trust at Time 1 and Religious Fatalism

Variables	Change in Trust from Time 2 to Time 3							
	Step 1				Step 2			
	<i>B</i>	<i>SE B</i>	95% <i>CI B</i>	$\beta$	<i>B</i>	<i>SE B</i>	95% <i>CI B</i>	$\beta$
Trust T1	.05	.10	[-.15,.26]	.05	.13	.11	[-.08,.34]	.12
Religious Fatalism					.25	.12	[.01,.49]	.20*
$R^2$			.00				.03	
$F_{df}$			.31 <sub>1,123</sub>				2.31 <sub>2,122</sub>	
$\Delta R^2$							.03	
$\Delta F_{df}$							4.30* <sub>1,122</sub>	

Note. N = 125. \*p < .05. \*\*p < .01. Two-tailed tests.



## Hypothesis 2b Results

Hierarchical multiple regression was used to examine the relationship between fatalism and increase in distrust after the trust violation (Table 8). It should be noted that the measure of religious fatalism, not the combined fatalism scale, was used for this analysis as well, because it was a stronger correlate of trust decrease. The residuals scatterplot indicated no noticeable violations of normality, linearity, multicollinearity, or homoscedasticity within the data. The data was examined for multivariate outliers, but no value exceeded the critical value for Mahalanobis distance (maximum = 13.62) or for Cook's Distance (maximum = .17). Univariate outliers on fatalism and drop in trust were also examined, but omission of the outliers did not improve the results of the analysis. The correlation matrix indicated that the only significant individual difference correlate of increase in distrust was extrinsic religiosity. Therefore, it was included as a covariate. Distrust at time one was also considered for inclusion given the theoretical relationship between attitudes across time, but it was not a significant covariate and did not improve the results of the analysis. Results of the regression indicate that fatalism was not a significant predictor of increase in distrust between time two and time three,  $t(1, 121) = -0.89, p = .38$ , after controlling for extrinsic religiosity. Therefore, Hypothesis 2b was not supported.

Table 8. Hierarchical Regression Analyses Predicting Change in Distrust from Extrinsic Religiosity and Fatalism

Variables	Change in Distrust from Time 2 to Time 3							
	Step 1				Step 2			
	<i>B</i>	<i>SE B</i>	95% CI <i>B</i>	$\beta$	<i>B</i>	<i>SE B</i>	95% CI <i>B</i>	$\beta$
Extrinsic Religiosity	-.35	.16	[-.65,-.04]	-.20*	-.27	.18	[-.62,.07]	-.17
Religious Fatalism					-.08	.09	[-.26,.10]	-.08
$R^2$			.04				.05	
$F_{df}$			4.98* <sub>1,120</sub>				2.88 <sub>2,119</sub>	
$\Delta R^2$							.01	
$\Delta F_{df}$							.79 <sub>1,119</sub>	

Note. N = 122. \*p < .05. \*\*p < .01. Two-tailed tests.

### Hypothesis 3 Results

Doubly multivariate repeated measures profile analysis using SPSS GLM was used to test the hypothesis that fatalism would moderate the relationship between trust repair strategy and change in trust/distrust over time. Fatalism was coded into a dichotomous categorical variable split at the mean. The model tested was a 2 (low/high fatalism) x 3 (no apology/apology/account) factorial design predicting the multivariate repeated measures dependent variable of trust and distrust over 3 points in time. Trust and distrust at time one were included in the analysis as control variables in order to take into account any pre-existing differences prior to the manipulated experimental events. No univariate or multivariate outliers were detected among the included cases. Assumptions regarding normality of sampling distributions, homogeneity of variance-covariance matrices, linearity, and multicollinearity were met.

Using Wilk's criterion, the profiles of the dependent variables (trust and distrust over times two, three, and four, seen in Figures 7 through 10), deviated significantly from parallelism,  $F(1, 218) = 2.14, p = .03, \text{partial } \eta^2 = .07$ , indicating a significant interaction between time, trust repair condition, and fatalism. Parallelism tests against the null hypothesis that the slopes of the segments for the profiles are not significantly different, meaning a significant f-statistic for the parallelism test indicates that there are differences in the slopes of the profile segments. For the levels tests, nearly significant differences were found among trust repair conditions when averaged over all dependent variable measures over time,  $F(1, 222) = 2.27, p = .06, \text{partial } \eta^2 = .04$ , but no significant differences were found across fatalism groups when averaged over all dependent variable measures,  $F(1, 111) = 8.24, p = .44, \text{partial } \eta^2 = .01$ . Flatness tests, indicating if time had a significant main effect on the dependent variables, were not interpreted

since the significant parallelism test makes flatness irrelevant (Tabachnick & Fidell, 2007, p. 313).

The significant parallelism test indicated that there was an interaction between time, trust repair conditions, and fatalism, but did not elucidate the pattern of the differences. I did not test contrasts with traditional post-hoc procedures here, because post-hoc tests can only compare means, not the slopes of the profile segments. Rather, I used profile analysis on the various segments of the profiles while holding fatalism constant in order to pinpoint the significant differences within the profiles. No significant differences were found for the segments between time two and time three for either trust or distrust, indicating no significant differences across trust repair conditions immediately following the trust violation. However, a significant interaction between time and trust repair condition was found when examining trust from time three to time four for high fatalism participants,  $F(1, 56) = 4.06, p = .02, \text{partial } \eta^2 = .13$ , but not for low fatalism participants,  $F(1, 54) = .70, p = .50, \text{partial } \eta^2 = .03$ . The difference, or slope, of the change between trust at time three and time four was significantly different across trust repair conditions for high fatalism participants, but not for low fatalism participants.

Based on Figure 8, for high fatalism participants, the account condition led to the largest increase in trust, followed by sincere apology, and no response led to a decrease rather than an increase in trust. Further examining the differences between the three trust repair conditions, there are significant differences between no response and account,  $F(1, 39) = 7.56, p = .01, \text{partial } \eta^2 = .16$ , but not between no response and sincere apology,  $F(1, 32) = 0.36, p = .55, \text{partial } \eta^2 = .01$ , or between sincere apology and account,  $F(1, 39) = 1.14, p = .29, \text{partial } \eta^2 = .03$ . In sum, the account trust repair condition led to significantly larger increases in trust from

time three to time four than the no response condition for participants scoring high in religious fatalism. For participants low in fatalism, there were no significant differences across trust repair conditions.

A significant difference was also found when comparing the average level of distrust for sincere apology ( $M = 1.83$ ) and account conditions ( $M = 2.48$ ) within low fatalism participants only,  $F(1, 33) = 6.38, p = .02, \text{partial } \eta^2 = .16$ . Although this finding did not indicate that the change in distrust is different across the two trust repair conditions, it did indicate that the overall level of distrust is different across the two trust repair conditions but only for low fatalism participants. Furthermore, the difference is in the predicted direction, with sincere apologies leading to lower levels of distrust than accounts.

The finding that accounts led to significantly larger increases in trust after the trust violation for high fatalism participants, combined with the finding that sincere apologies led to significantly lower mean levels of distrust than accounts after the trust violation for low fatalism participants, provides partial support for the moderating effect suggested in Hypothesis 3. In sum, accounts were significantly more effective at trust repair compared to no response for high fatalism participants, whereas sincere apologies were significantly more effective at distrust repair compared to accounts for low fatalism participants.

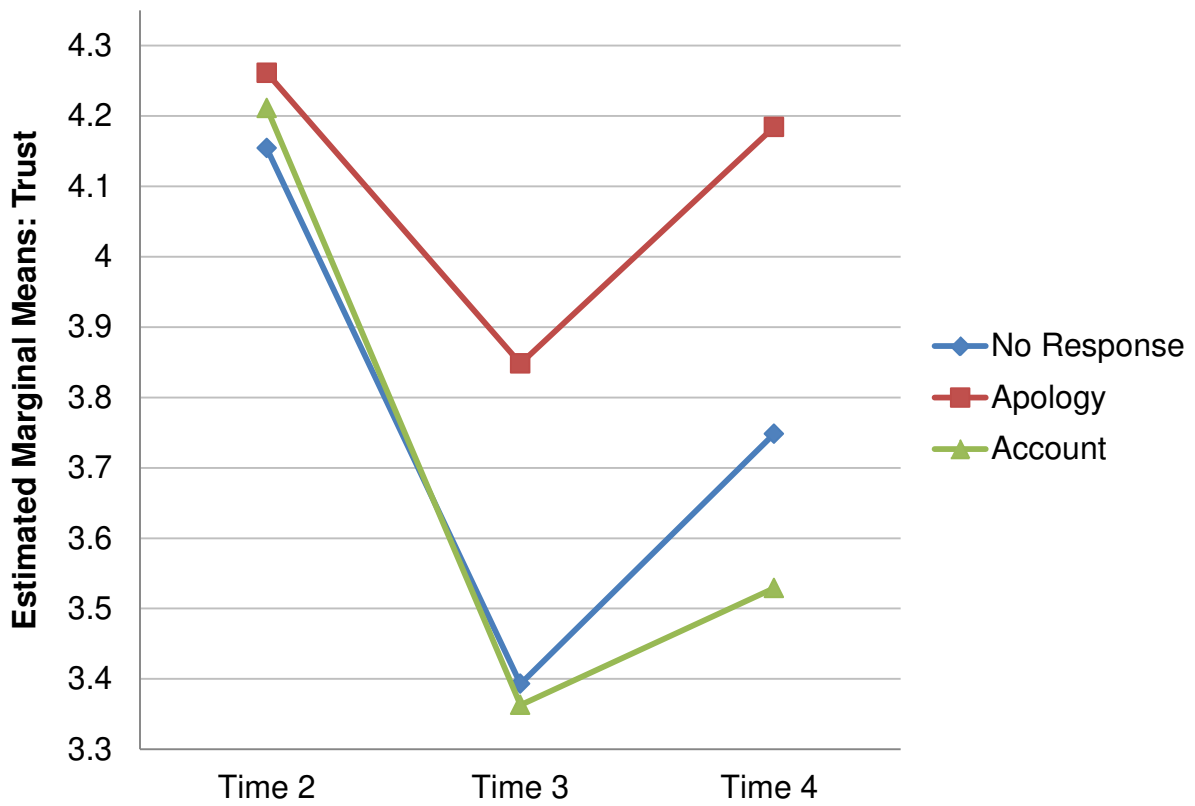


Figure 7. Trust over Time by Trust Repair Condition for Low Fatalism Participants

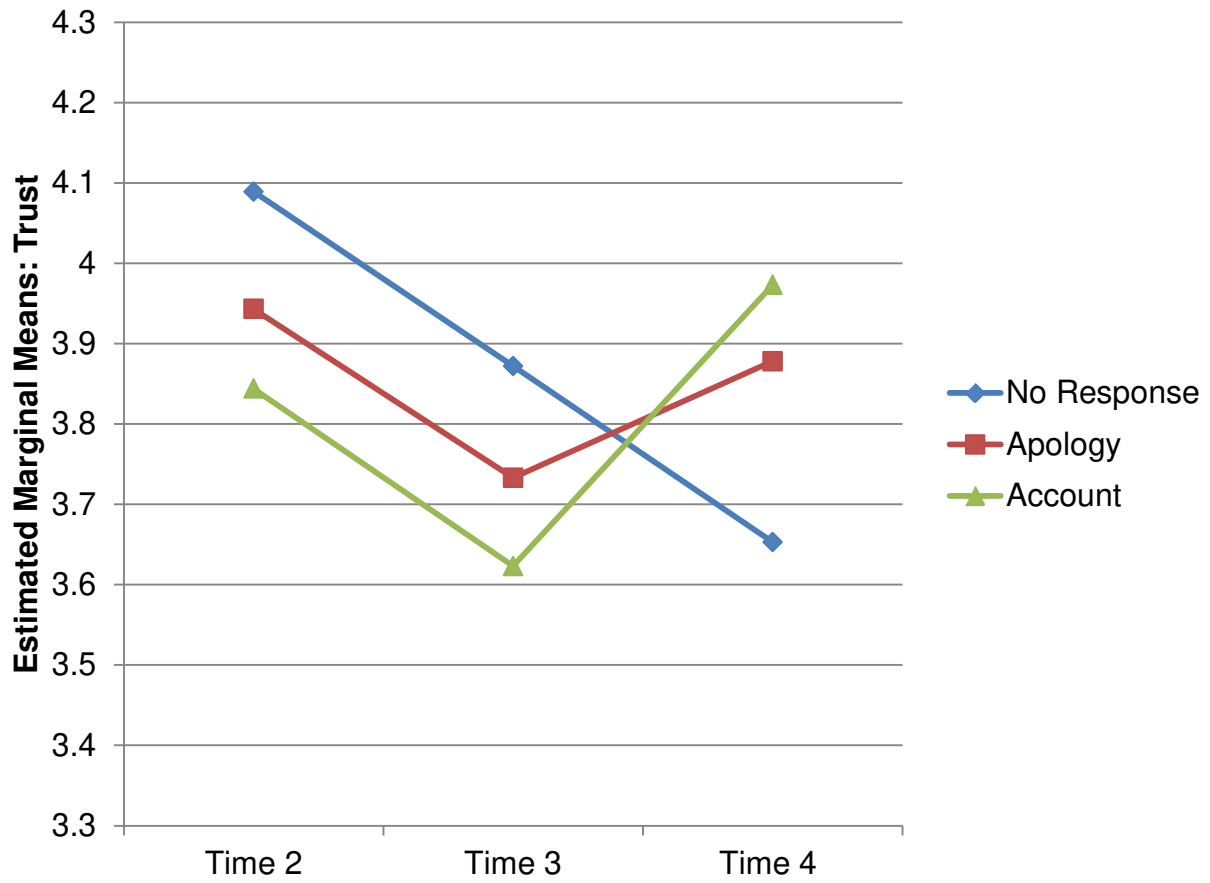


Figure 8. Trust over Time by Trust Repair Condition for High Fatalism Participants

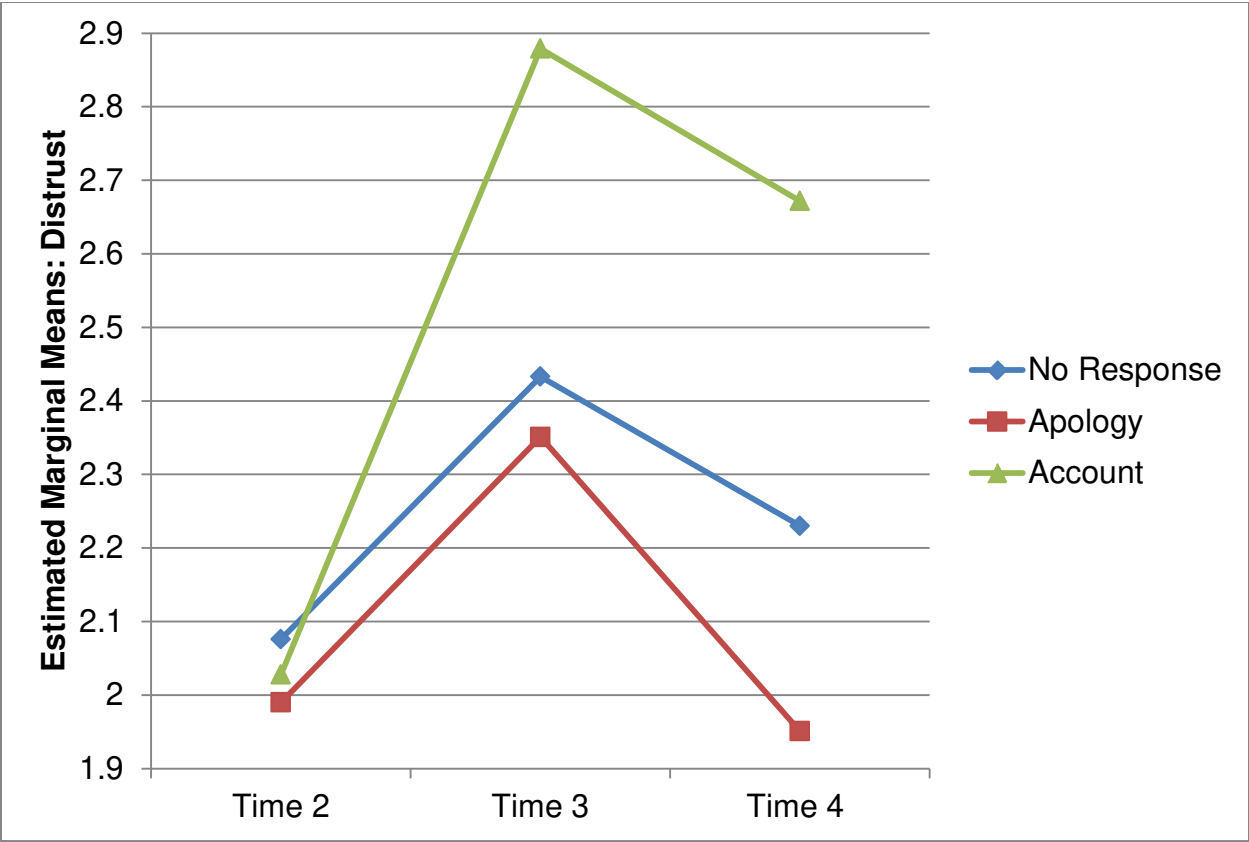


Figure 9. Distrust over Time by Trust Repair Condition for Low Fatalism Participants



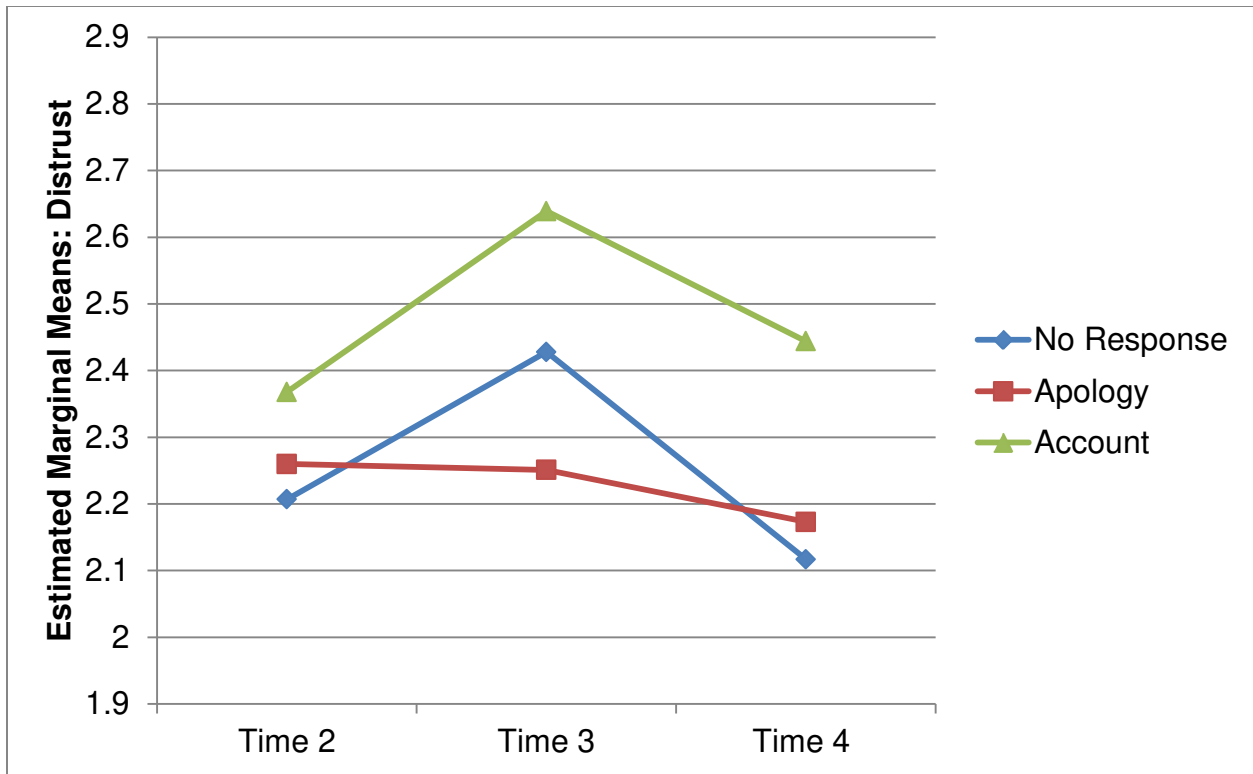


Figure 10. Distrust over Time by Trust Repair Condition for High Fatalism Participants

### Hypothesis 4 Results

I was unable to test these hypotheses using “information shared in Round 3” as the dependent variable, because the entire UAE sample did not share information in any of the rounds of game play. It appears there must have been a misunderstanding of that aspect of the game play, which I was unable to catch before data collection was complete. Therefore, I examined these hypotheses using only the dichotomous measure of revenge: whether or not the participant took the bribe in Round 3. A hierarchical logistic regression analysis was performed on taking the bribe as a dichotomous outcome and trust and distrust across the four time periods as predictors (Table 9). Parameter estimates and standard errors were not unusually large, so I assumed there were no problems with too many empty cells or with outcome groups perfectly predicted by any variable. There were no problems with convergence, and no large standard errors, so no multicollinearity was evident. In order to test linearity in the logit, interaction terms for each variable times its own natural logarithms were included in a preliminary analysis. Trust at Time 3 was the only variable that came near violation. However, due to the number of variables in the model, the appropriate criterion for this assumption test is  $\alpha = .05/16 = .003$ . The interaction term was not significant at this value of alpha so the model was run as it was originally proposed. There were several multivariate outliers (residuals outside of +/- 2 standard deviations) that occurred in the first few runs of the analysis, so analyses were repeated omitting the outliers until no more outliers were found. The results of the final analysis are reported.

The full model containing all predictors was statistically significant,  $X^2_{logit}(8, N = 118) = 26.84, p < .001$ , indicating that the model was good at distinguishing between participants who did and did not take the bribe in Round 3 of the game. The model as a whole explained between

20.3% (Cox and Snell R square) and 28.4% (Nagelkerke R square) of variance in taking the bribe, and correctly classified 69.5% of the cases. As shown in Table 9, trust at T3,  $X^2_{logit}(1, N = 118) = 10.53, p = .00, odds\ ratio = 6.55$ , trust at T4,  $X^2_{logit}(1, N = 118) = 4.83, p = .03, odds\ ratio = .32$ , and distrust at T1,  $X^2_{logit}(1, N = 118) = 6.92, p = .01, odds\ ratio = 2.72$ , were the only included independent variables that made a unique statistically significant contribution to the model. These findings actually indicate that a one unit change in trust at T3 made participants over six times more likely to take the bribe in Round 3 and a one unit change in distrust at T1 made participants over two times more likely to take the bribe in Round 3.

Given the extremely unusual finding that trust was so strongly and positively related to revenge behavior, possible third variable explanations were considered. One possibility is that, either through a misunderstanding of the game or a personal difference in values, the relationship between trust at T3 (directly after the trust violation) and the likelihood of taking the bribe in the last round of the game may be related to an acceptance of bribes in general. A manipulation check item was included in the measures at T3 asking the participants to report the extent to which they were upset by the bribe. A second logistic regression analysis was conducted controlling for this manipulation check item in order to ascertain if the relationship between trust at T3 and taking the bribe in Round 3 was an illusory correlation based on participants being generally accepting of bribes. However, the manipulation check item was not a significant predictor of taking the bribe in Round 3, so the original analyses were retained.

In sum, trust at T3 strongly distinguishes between participants who did and did not take the bribe in Round 3 of the game, but the directionality is opposite to the hypothesized direction. Therefore, Hypothesis 4a is not supported. Distrust at T1 was positively related to the likelihood

of taking revenge, however, it was expected that it would be distrust after the violation that influenced revenge behavior, not initial distrust. Therefore, Hypothesis 4b was only partially supported in that distrust was positively related to revenge behavior, but not based on the expected time period. Hypothesis 4c was not supported given the odds ratio for distrust was only one-third that of the odds ratio for trust, indicating that trust is a more important predictor of revenge behavior than distrust.

Table 9. Hierarchical Logistic Regression Analyses Predicting Likelihood of Accepting the Bribe in Round 3

Variables	Take Bribe (Yes/No)									
	Step 1					Step 2				
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Odds Ratio</i>	<i>95% CI</i>	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Odds Ratio</i>	<i>95% CI</i>
Trust T1	-.77	.37	4.40	.46	[.22,.95]	-.69	.40	3.01	.50	[.23,1.09]
Trust T2	-.33	.28	1.36	.72	[.41,1.25]	-.41	.32	1.71	.66	[.36,1.23]
Trust T3	1.38	.48	8.34**	3.96	[1.56,10.07]	1.88	.58	10.53**	6.55	[2.11,20.40]
Trust T4	-.69	.40	3.02	.50	[.23,1.09]	-1.14	.52	4.83*	.32	[.12,.88]
Distrust T1						1.00	.38	6.92*	2.72	[1.29,5.74]
Distrust T2						-.52	.36	2.06	.60	[.29,1.21]
Distrust T3						.25	.46	.29	1.28	[.52,3.18]
Distrust T4						-.49	.49	.98	.62	[.24,1.61]

Note. N = 118. \*p < .05. \*\*p < .01. Two-tailed tests.

## Research Question 2 Results

Based on the study variables correlation matrix, it was determined that extrinsic religiosity and fatalism (combined) were the only significant cultural correlates to taking the bribe in Round 3. The full model containing both predictors was statistically significant,  $X^2_{logit}(8, N = 124) = 9.34, p = .01$ . However, neither independent variable contributed uniquely to the prediction of bribe taking when included simultaneously. A model including only extrinsic religiosity was statistically significant,  $X^2_{logit}(8, N = 124) = 7.18, p = .01, odds\ ratio = 2.68$ , indicating that extrinsic religiosity was good at distinguishing between participants who did and did not take the bribe in Round 3 of the game. One unit increase in extrinsic religiosity meant that participants were over two and a half times as likely to take the bribe in Round 3. The model as a whole explained between 5.6% (Cox and Snell R square) and 7.8% (Nagelkerke R square) of variance in taking the bribe, and correctly classified 66.9% of the cases. A separate model including only fatalism was statistically significant,  $X^2_{logit}(8, N = 124) = 6.93, p = .01, odds\ ratio = 2.03$ , indicating that fatalism was good at distinguishing between participants who did and did not take the bribe in Round 3 of the game. One unit increase in fatalism meant that participants were just over two times as likely to take the bribe in Round 3. The model as a whole explained between 5.4% (Cox and Snell R square) and 7.5% (Nagelkerke R square) of variance in taking the bribe, and correctly classified 66.9% of the cases. These findings indicate that a significant amount of the variance explained in taking the bribe in Round 3 is shared between extrinsic religiosity and fatalism, which is causing them not to be uniquely predictive when included in the equation together.

Another logistic regression was used to determine if there were any significant interactions between fatalism, trust, and distrust when predicting taking the bribe in Round 3. The original model included fatalism, centered to ensure that interactions are interpretable, trust at T3, and distrust at T1, along with all possible interaction terms (Table 10). Multivariate outliers were removed until no more outliers were detected. The full model including all predictors was statistically significant,  $X^2_{logit}(7, N = 122) = 27.09, p = .00$ . The model as a whole explained between 19.9% (Cox and Snell R square) and 27.7% (Nagelkerke R square) of the variance in taking the bribe and correctly classified 69.7% of the cases. The significant predictors included in the model were fatalism,  $X^2_{logit}(1, N = 122) = 4.71, p = .03, odds\ ratio = 44111.42$ , trust at T3,  $X^2_{logit}(1, N = 122) = 6.74, p = .01, odds\ ratio = .07$ , Distrust at T1,  $X^2_{logit}(1, N = 122) = 6.46, p = .01, odds\ ratio = .02$ , the interaction between trust at T3 and fatalism,  $X^2_{logit}(1, N = 122) = 4.73, p = .03, odds\ ratio = .08$ , and the interaction between distrust at T1 and trust at T3,  $X^2_{logit}(1, N = 122) = 8.74, p = .00, odds\ ratio = 3.96$ .

However, the results of this analysis indicate a problem with the ratio of cases to variables as indicated by the extremely high odds ratio associated with fatalism (44111.42). There are two solutions to this problem: increasing the number of cases, or eliminating one or more of the predictors. Given an increase in cases is not possible, all non-significant interaction terms were removed and two separate analyses were conducted. The interaction between trust at T3 and fatalism was included in a model with trust and fatalism, and the interaction between distrust at T1 and trust at T3 were included in a separate model with the corresponding main effects. Interestingly, when fewer variables were included in the models this did reduce the abnormally large odds ratio for fatalism, but it also resulted in completely non-significant

findings for all variables in both models. This suggests that the prior significant findings in Table 10 may be an artifact of the small case-to-variable ratio which can cause logistic regression to overestimate parameters. In other words, the overall sample size may not be adequate to appropriate test for interactions using logistic regression. Consequently, these findings will not be interpreted further.



Table 10. *Logistic Regression Analyses Predicting Likelihood of Accepting the Bribe in Round 3 including Interactions*

	Take Bribe (Yes/No)				
Variables	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Odds Ratio</i>	<i>95% CI Odds Ratio</i>
Fatalism (centered)	10.69	4.93	4.71*	44111.42	[2.82,6.8E8]
Trust T3	-2.63	1.01	6.74**	.07	[.01,.53]
Distrust T1	-4.19	1.65	6.46*	.02	[.00,.38]
Trust T3*Fatalism	-2.55	1.17	4.73*	.08	[.01,.78]
Distrust T1*Fatalism	-2.65	1.98	1.80	.07	[.00,3.40]
Distrust T1*Trust T3	1.38	.47	8.74**	3.96	[1.59,9.85]
Distrust T1*Trust T3*Fatalism	.63	.51	1.52	1.87	[.69,5.06]

Note. N = 122. \*p < .05. \*\*p < .01. Two-tailed tests.

### **Exploratory Analysis**

Because it was found that fatalism was predictive of distrust at T1, and that distrust at T1 was predictive of taking the bribe in Round 3, an exploratory analysis was conducted to assess if there was a possible mediating relationship occurring. Preacher and Hayes (2008) bootstrapping mediation macro for SPSS was used to estimate the direct and indirect effects of fatalism and distrust on bribe taking in Round 3. This approach to mediation testing has been found to be superior to the Baron and Kenny (1986) approach for several reasons. First, the bootstrapping method does not impose the assumption of normality of the sampling distribution. As this assumption is often violated in small samples, this allows for bootstrapping to be a more powerful test than Baron and Kenny (1986). The Preacher and Hayes (2008) macro also allows for the mediated effect to be directly estimated and tested, allowing a better understanding of the magnitude of the relationship being transmitted through the mediator. Furthermore, Kenny, Kashy, and Bolger (1998) suggested that the first and fourth steps of the Baron and Kenny (1986) method are not necessary for mediation to be demonstrated, and the bootstrapping method does not require these steps. Finally, bootstrapping allows for the possibility of opposite direction direct and indirect effects, which is a pattern of results that can obscure mediation when tested using the Baron and Kenny (1986) mediation method.

All variables were standardized prior to analysis because the Preacher and Hayes (2008) mediation test only reported unstandardized coefficients. Fatalism was entered as the independent variable, the dichotomous variable of taking the bribe in Round 3 as the dependent variable, and distrust at T1 as the proposed mediator. Trust at T3 was included as a covariate as it was demonstrated to be a significant predictor of taking the bribe and inclusion of it in the model

increases the power of the test. The total effect of fatalism on taking the bribe while accounting for trust at T3 was significant,  $c = .47$ ,  $X^2(1, N = 125) = 4.93$ ,  $p = .03$ . The direct effect of fatalism on taking the bribe while accounting for trust at T3 became insignificant when the mediator was included,  $c' = .28$ ,  $X^2(1, N = 125) = 1.54$ ,  $p = .22$ , suggesting that the effect of fatalism on taking the bribe was fully mediated through distrust at T1 (Figure 11).

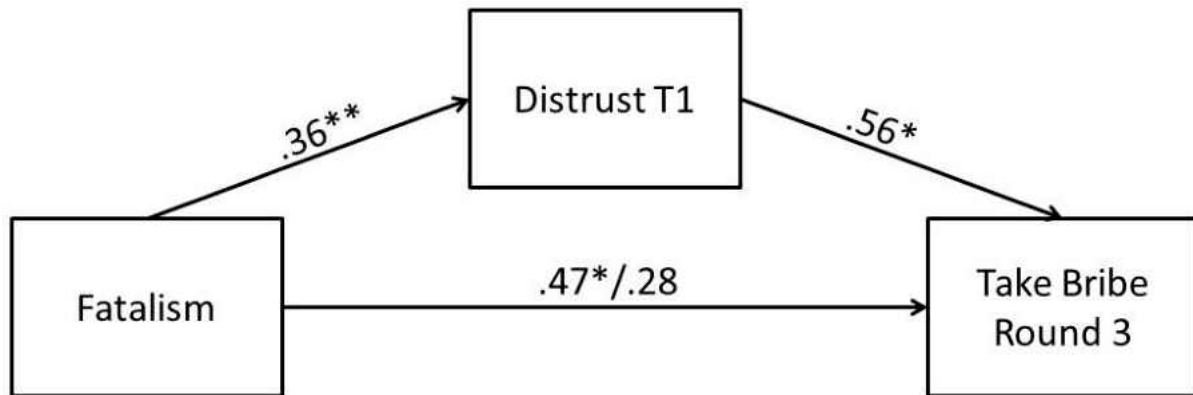


Figure 11. Mediation Model for Direct and Indirect Effects of Fatalism on Taking the Bribe in Round 3

## CHAPTER FIVE: DISCUSSION

Hypothesis 1 proposed that fatalism would be negatively related to initial distrust because it would either lead to feelings of apathy, which make distrust unnecessary, or would cause the trustor to feel as if all events were inherent good because they are part of God's plan.

Surprisingly, the results of the study indicate that the relationship between fatalism and initial distrust is opposite the expected direction: the higher the fatalism an individual reports, the higher his/her level of initial distrust in another. The same pattern of results emerged for research question one, in that fatalism was negatively related to initial trust. Combining the findings from Hypothesis 1 and Research Question 1, it appears that fatalism is related to a general tendency towards initial distrust and lack of trust towards others. Although this finding goes against my originally proposed theoretical reasoning, it is not unexpected that the results would be counterintuitive given the relative lack of research that has examined fatalism and trust together.

There are several possibilities that may explain the reversed relationship. First, high fatalism may lead to a general sense of pessimism or negativity towards others that translates into higher distrust and lower trust. More specifically, if one believes that the events that happen in his/her life are not in his/her control, there might be a general sense of pessimism toward the outside world (including other people) that stems from that lack of control and the negative emotional responses that often are associated with lack of control (e.g., Shapiro, Astin, Shapiro, Robitshek, & Shapiro, 2011; Agroskin & Jonas, 2010).

Another possible explanation may go back to the highly religious nature of theological fatalism. In essence, trust may be a limited cognitive resource that individuals have, just like cognitive capacity or emotional capacity (Fitousi & Wenger, 2011; Schmeichel, Volokhov, &

Demaree, 2008). If people only have so much trust to give to others, and they place their trust in God's plan, they will likely not have much trust left to place in other human beings. A related explanation could be that theological fatalism is often accompanied by a general belief that God is the only perfect being and that human beings are flawed and sinful and, therefore, not worthy of the trust that one should be placing in God's plan. This could lead individuals who are highly fatalistic to feel more distrust and less trust towards others regardless of the situation. Finally, it should be acknowledge that the relationship between fatalism and trust/distrust found in this study may be confounded with other contextual variables that differentiate U.S. students from UAE students. The non-Western world does have a longer history of political instability, whereas the U.S. has long been a political superpower with relatively more stable government and economy. This difference in political atmosphere may translate into a historically-rooted sense of distrust towards others in participants from the United Arab Emirates compared to participants from the U.S.

Regarding the suggestion in research question one that fatalism would be related to a lack of personal agency or increased feelings of apathy, fatalism was not significantly related to either apathy or agency. Given the sample size was adequate to test for these relationships, it seems unlikely that this finding was simply due to a lack of statistical power, which suggests that agency and apathy are not the explanatory mechanisms linking fatalism to trust and distrust. Future research is needed to further explore the possible mechanisms that link fatalism to trust and distrust. Based on the possible alternative theories suggested above, future research should examine optimism and pessimism, historical context, and perceptions of political history, among other variables, in order to determine why fatalism leads to higher distrust and lower trust.

Hypothesis 2 suggested that fatalism will be negatively related to drop in trust and increase in distrust after a trust violation because highly fatalistic individuals would have a less extreme reaction to the trust violation. The findings, again, indicate the relationships are opposite the predicted direction: fatalism is positively related to drop in trust and not significantly related to increase in distrust. This reversal of direction may also be explained by one of the various theoretical possibilities described above. It should also be noted that difference scores are unreliable and unreliability increases Type II error, so this particular finding may be a product of the unreliability of the dependent variable measure. The actual relationships between fatalism and drop in trust and increase in distrust may be stronger in reality.

Hypothesis 3 suggested that fatalism will moderate the impact of trust repair strategies such that, for individuals with low fatalism, the sincere apology will be the most effective trust repair strategy whereas, for individuals with high fatalism, an account will be the most effective trust repair strategy. Although the results of the study did not come out quite as expected, the two significant findings do suggest that there is a difference in the way that low and high fatalism individuals react to trust repair approaches. Specifically, low fatalism individuals react more favorably to sincere apologies after a trust violation, whereas high fatalism individual react more favorably to accounts.

The finding that there is a significant difference in the increase of trust for high fatalism individuals, but for T3 to T4 and not T2 to T3, is quite interesting. This finding may suggest that the trust repair attempt needs a little time to process before it is effective. In other words, the data suggests that the immediate reaction following the different repair attempts did not differ, but once a small amount of time has passed, the account approach was more effective for high

fatalism individuals. It may be that the participants initially were just reacting to the trust violation and did not have enough time to really consider the trust repair attempt, but after another round of game play, the trust repair attempt was more salient. This may also be some sort of interactive effect where an account coupled with a new round of game play in which no violation occurs (an instance of trustworthy behavior following the trust violation) is what is effective for repairing trust. Future research is needed to determine if time is enough to stimulate the effects of accounts on trust repair or if it must be paired with trustworthy behavior as well.

Hypothesis 4a, which stated that trust in the violator would be negatively related to revenge behavior, was not supported. The results indicate that trust at T3 is actually positively related to revenge behavior, not negatively. I originally thought this could be due to the fact that these two variables are more of an indication of how that individual feels about taking bribes in general or the bribe within the context of the game. In other words, if the participant is not upset by the bribe when the other player takes it (trust is still high after the violation), that means the participant is also likely to think that taking the bribe in the last round of game play is acceptable. However, after controlling for the extent to which the participants self-reported they were upset by the bribe at T3, the findings remained significant, and therefore, that possibility was ruled out as the explanation for the unexpected positive relationship between trust at T3 and taking the bribe in Round 3 of the game. Post-hoc qualitative research including interviews with participants and brainstorming with the international research collaborator may be necessary to explore why this unexpected finding occurred.

Hypothesis 4b, which stated that distrust in the violator would be positively related to revenge behavior, was partially supported. The relationship was in the expected direct, but only

when considering distrust at T1 and not at T3 after the violation. This finding, therefore, does not inform how distrust after the violation is related to revenge behavior, but instead suggests that individuals who are initially distrusting in a relationship prior to any sort of task-related interaction were more likely to take the bribe. It is interesting to note that trust and distrust are both positively related to revenge behavior, but at different points in time. Although this may be a result of the possible confound between trust at T3 and revenge behavior in Round 3, future research should explore this in more detail to ensure there are not more complicated dynamics happening.

The results of the study indicate that trust is a stronger predictor of revenge behavior than distrust, so Hypothesis 4c is not supported. One unit change in trust at T3 led to a participant being six times as likely to take the bribe in Round 3 whereas one unit change in distrust at T1 only led to a participant being over two times as likely to take the bribe. The findings from these hypotheses, in combination, would imply that future trust-related research should conceptualize and measure trust and distrust attitudes separately in order to provide the most predictive results in terms of behavioral outcomes and to fully untangle the influence of trust and distrust on collaborative behavior.

The findings with regards to research question 2 suggest that extrinsic religiosity and fatalism share variance in predicting taking the bribe in Round 3. Although neither variable is predictive individually, they do predict a significant amount of the variance when considered together. Unfortunately, analyses examining whether fatalism interacted with any other variables to predict revenge behavior were not possible to conduct because of an inadequate cases-to-variables ratio. Future research with larger sample sizes is needed to fully explore this possibility.



The exploratory analysis demonstrated that initial distrust fully mediated the influence of fatalism on revenge behavior. In other words, fatalism leads to higher initial distrust, and higher initial distrust is predictive of taking revenge behavior within the context of this experiment. Although it should be noted that this finding was not hypothesized a priori—and that the implications of this finding for more complex collaborative settings or more extreme types of revenge behavior should be considered with caution—this finding does suggest that future research on fatalism and distrust (rather than just trust) may be fruitful avenues for predicting, and preventing, acts of revenge behavior.

### **Theoretical Implications**

In terms of advancing theory relevant to intercultural collaboration, this study has several implications. It suggests at a basic level that theological fatalism is an important cultural variable to consider. It moves past prior cultural dimensions such as individualism/collectivism and power distance as well as individual difference research on values such as locus of control to demonstrate that theologically-derived fatalism has a significant impact on the development of attitudes and behavior in collaborative contexts. In sum, this study suggests that fatalism is a culturally-driven construct that predicts attitudes and behaviors above and beyond locus of control. Additionally, the finding that participants from the United Arab Emirates were on average more fatalistic than participants in the United States does suggest that fatalism is a psychological construct that varies both within and across nations and cultures.

This study also suggests that the existing theory and empirical work linking fatalism and trust in collaborative contexts are underdeveloped given that several of my proposed hypotheses came opposite to the expected direction. It appears that fatalism does not influence trust and

distrust through feelings of apathy or lack of personal agency as expected or suggested based on the limited extant theory. Now that this study provides some initial empirical evidence suggesting that fatalism is significantly related to trust and distrust, new theory and theory testing is needed to flesh out why they are related, through what psychological mechanisms, and if these relationships holds under various interpersonal conditions. As mentioned previously, other explanatory mechanisms such as negativity, trust as a limited resource, or a belief in the flawed nature of human beings may provide a better understanding of why, counter intuitively, fatalism is negatively related to trust and positively related to distrust. It may also be a product of contextual variables confounded with differences in cultural values such as political and historical climate. Future research should begin to carefully develop and test these various theories to disprove alternative explanations and pinpoint the most accurate theoretical explanation.

This study also suggests that we should include fatalism as a predictor within the trust and distrust nomological network. In fact, original analyses were planned to include propensity to trust as a covariate given that past research has demonstrated that propensity to trust is a significant correlate of trust (Colquitt et al., 2007). However, the results of this study indicate that propensity to trust was not a significant predictor of initial trust or initial distrust in this particular situation and fatalism did explain an additional 6% of variance in distrust as well as an additional 3% of variance in trust beyond the control variables included in the analyses. This evidence supports the importance of fatalism as an individual-level cultural variable that should be included in the nomological network surrounding trust and distrust.

Another primary implication of this study is the conceptual and empirical distinction between trust and distrust as attitudinal constructs. The pattern of results, including the

correlations listed in Table 4, definitely suggests that trust and distrust are related, but distinct, constructs with unique antecedents and outcomes. Fatalism predicts 6% of the variance in distrust, but only 3% of the variance in trust. Conversely, fatalism was predictive of drop in trust but not of increase in distrust. One of the most illustrative examples of the distinction between trust and distrust is present in the patterns of change over time displayed in Figures 7 through 10. The patterns for trust and distrust are generally negatively related, with trust increasing when distrust is decreasing and vice versa, but the patterns are not perfectly aligned. Especially within the high fatalism participants, the patterns of change for trust and distrust do not always mirror one another, even moving in the same direction between T3 and T4 for the no response condition. Finally, it is telling that initial distrust was found to fully mediate the relationship between fatalism and revenge behavior, but that trust was not. Had trust been measured using the one-dimension paradigm, this particular pattern of results would not have been apparent. This study indicates that there is much more to be learned regarding the distinctions between trust and distrust across a variety of settings.

One final major theoretical implication stemming from the findings of this study is the support and extension of the self-construal theory put forth by Fehr and Gelfand (2010). They theorized that apologies are most likely to be effective when the components of that apology are consistent with the victim's self-construal, and supported this theory with findings from two paper-and-pencil policy capturing studies. Fehr and Gelfand (2010) acknowledge that one limitation of their research was the focus on hypothetical rather than real-world situations. Additionally, Fehr and Gelfand (2010) state that their research was focused on an unintentional competence violation and that research is needed to examine the relationship between apologies

and self-construal when considering intentional integrity violations. This study represents one of the first experimental tests of the theory examining attitudinal and behavioral responses to apologies after an intentional integrity violation, translating and extending the findings from Fehr and Gelfand's (2010) paper-and-pencil studies to a more realistic interpersonal interaction with tangible consequences. Of course, it should be noted that although this study did use real behavioral enactments of apologies, it was a computer-mediated task in an artificial short-term setting and more research is needed to replicate the findings in more complex interpersonal settings.

### **Practical Implications**

Several practical implications can be drawn from the findings of this study. The results of Hypothesis 3 suggest that when interacting inter-culturally, knowledge of the tendency for fatalism for that particular culture or region would be helpful in determining the most appropriate "apology" method to utilize after a trust violation. For example, if an expatriate for a multinational organization or a member of the military was working within a country or region that is historically known to be fatalistic or better yet, that has been shown in cross-cultural research to be relatively fatalistic compared to his/her own culture, that individual could adjust his/her apology method to reflect the preference for accounts rather than sincere apologies. This may allow for more effective intercultural interactions. It should be emphasized, however, that even within cultures that have a tendency toward high or low fatalism, that fatalism is at the most basic level an individual difference and that there will be within-region variability in individual levels of fatalism. Still, knowledge of the average level of fatalism for a region would allow for a more educated guess regarding what apology approach will be most effective in practice.

The findings from Hypothesis 3 also suggest that various types of apologies should be included in intercultural competence training. One of the clear implications of this study is that different types of people respond differently to different types of apologies, and that apologies cannot be considered one-size-fits-all. Intercultural competence training programs often focus on the differences between cultures within the expectation that understanding that others may think, feel, and act differently from oneself will allow employees to become more cultural adaptable. This study suggests that apologies are one aspect of behavior that may need to be emphasized in intercultural competence training given the likelihood of mistakes and situations that require an apology of some sort. Future intercultural competence training programs should integrate information about the cultural preferences for apology along with the other relevant cultural differences that are likely to improve intercultural work and collaboration.

Another potential practical implication can be drawn from the finding that distrust fully mediates the relationship between fatalism and revenge behavior. Specifically, knowing that highly fatalistic individuals may be more likely to engage in revenge because they feel distrust towards others suggests that interventions aimed at dispelling feelings of initial distrust could reduce the likelihood of revenge in interpersonal collaborations. Past research (Wildman et al., 2010) has suggested that feelings of perceived similarity between collaborating partners reduces distrust and increases trust, so interventions aimed at finding and emphasizing deep-level similarities between collaborating parties may be useful for reducing the probability of revenge behavior. More research is needed to determine exactly what interventions are most effective for reducing initial distrust within collaborating parties, but knowing that reducing distrust also reduces the likelihood of revenge is a good start to practically improving collaboration.

### **Study Limitations and Future Research**

Like all research, this study is not perfect and does have some limitations that should be addressed. This study was a cross-cultural comparison, not a true examination of multicultural performance. In this study, the teams were made up of two members from the same nation/institution, so the comparison was simply across individuals within homogeneous dyads. Although comparison is useful and necessary for providing the comparative foundation for more complex studies, comparative research is not sufficient for informing the theory and practice behind more complex intercultural collaborations. This means, at the very least, the findings of the study are informative of cultural differences that should be considered for future research on intercultural collaboration, and at the very best, the findings may be informative of how individuals should interact with collaborators from other cultures that vary on level of fatalism. Future research is needed to examine the relationships between fatalism, trust, distrust, and revenge but in the context of a real international team comprised of members from various cultures in order to determine if the findings from this study apply. The diversity within the team may change the nature of the relationships.

Another limitation of the study was the apparent misunderstanding about sharing information that occurred with the sample from Abu Dhabi University. Clearly, the interactive computer-based training for the game was not received the same way in the UAE sample since both groups received the exact same interactive training, yet none of the UAE participants shared any information whereas most of the U.S. students did share information. This could also possibly be a cultural difference in information sharing norms, though qualitative research such as interviews with experimenters and participants from the data collection process would be

necessary to pinpoint the reason behind this phenomenon. This is an inherent difficulty in cross-cultural research, however – it's impossible to ensure that everything is exactly the same across the two locations when its cultural differences in which we are interested. In the future, if time and resources allow it, a small pilot sample will be collected and compared to ensure no major unexpected differences between the two locations before collecting the full sample.

It should be noted that the student sample limits the generalizability of the findings. However, as mentioned earlier, theoretically it would be expected that the student sample would be more homogenous in terms of fatalism and behavioral tendencies, which means any findings from this study would likely be more pronounced than in a more heterogeneous sample pulled from the general population. Future research should be done to replicate these findings in other non-students samples such as within multinational corporations or non-governmental organizations to see if the relationships hold, become stronger, or change patterns.

As mentioned previously, this study was a laboratory-based effort that created a short-term artificial collaborative setting between two strangers via a computed-mediated program. This study occurred over the span of less than one hour, involved complete strangers, and had only a small monetary reward as the tangible cost associated with decisions within the game. This particular setting was chosen for its ability to control extraneous variance and to directly manipulate the phenomenon of interest. However, there is always a tradeoff between control and generalizability. It is possible that the findings of this study only apply to the development, violation, and repair of trust and distrust in relationships that have just been initiated between strangers, and not in more long-term, fully developed relationships. More long-term research following real-world collaborations over their natural lifecycle is needed to test if the

relationships found in this study are also present in more stable, mature interpersonal relationships.

Sample size was also a limitation for some of the analyses presented in this study. Although sufficient to adequately test most of the hypotheses, some of the more complex analyses required for research question 2 demonstrated a problem with the cases-to-variables ratio necessary for logistic regression. Having too few cases per variable causes logistic regression to systematically overestimate the parameters, making the results of those analyses difficult to interpret. Future research should strive to capture a larger sample if logistic regression is the intended method of analysis.

### **Conclusion**

The primary purpose of the current study was to explore the direct and moderating impact of fatalism on the development, violation, and repair of trust over time within complex collaborative settings. The secondary purposes included examining the potential predictive differences between trust and distrust as opposite hedonic-valenced attitudes and examining the impact of trust on revenge behavior from a cross-cultural perspective. A laboratory-based study was used to examine the effectiveness of three manipulated trust repair strategies within a collaborative context. The results of the study indicate that when considering attitudes toward the violator, fatalism of the violated party was negatively related to initial trust, positively related to initial distrust, and positively related to the severity of reduction in trust after an integrity-based trust violation. Findings also indicate that accounts was more effective at repairing trust than no response for high fatalism participants, whereas apologies were more effective than accounts at reducing distrust after a violation for low fatalism participants, providing support for the Fehr



and Gelfand (2010) theory of apologies and self-construal. Finally, initial distrust and trust directly after the violation were predictive of taking revenge on the other player, providing useful information regarding how to predict and prevent revenge in collaborative settings.

Taken as a whole, this study argues that theological fatalism is an important and influential cultural variable that should be considered in collaborative contexts and the existing theory and empirical work linking fatalism to important collaboration-related phenomena, such as trust, distrust, and revenge, is lacking. It also provides support for the two-dimensional approach to trust, suggesting that trust and distrust are related, but distinct, constructs with unique antecedents and outcomes. Moreover, this study supports and extends the Fehr and Gelfand (2010) theory of apologies and self-construal by testing it in a manipulated laboratory environment and examining an integrity violation rather than a competence violation. Practically, the results of the study suggest that intercultural collaborations may benefit from knowledge of the fatalistic tendencies of the people involved, because it informs which type of apology will be most effective for repairing trust after a violation. The results of this study should serve as a point of departure for many avenues of future research delving further into the complex theoretical and practical influences of fatalism on collaborative outcomes.

## APPENDIX A: IDENTITY TASK SURVEY AND SCORING

**Instructions:** Please choose five of the statements below which best represent what you do in your spare time. Do not speak with the other participant as you make your selections and please turn your paper over when you are done.

- \_\_\_\_\_ Plan a vacation with friends or family
- \_\_\_\_\_ Write poetry or song lyrics
- \_\_\_\_\_ Visit family members
- \_\_\_\_\_ Call your friends
- \_\_\_\_\_ Do gardening
- \_\_\_\_\_ Download apps for your phone
- \_\_\_\_\_ Draw or sketch
- \_\_\_\_\_ Play a game on your computer
- \_\_\_\_\_ Go outside and play a sport with others
- \_\_\_\_\_ Use your phone to browse the internet
- \_\_\_\_\_ Play games on your phone
- \_\_\_\_\_ Read poetry or novels
- \_\_\_\_\_ Listen to music and dance
- \_\_\_\_\_ Text message people
- \_\_\_\_\_ Walk or play with your pet outside
- \_\_\_\_\_ Workout at home
- \_\_\_\_\_ Have a dinner party
- \_\_\_\_\_ Sing in a choir or band
- \_\_\_\_\_ Go jogging
- \_\_\_\_\_ Build or fix computers
- \_\_\_\_\_ Call your parents or other family members
- \_\_\_\_\_ Make arts and crafts
- \_\_\_\_\_ Go out to eat with friends
- \_\_\_\_\_ Go to a concert
- \_\_\_\_\_ Clean your apartment or house
- \_\_\_\_\_ Watch a sporting event with friends
- \_\_\_\_\_ Play video games on a console
- \_\_\_\_\_ Go hiking or camping
- \_\_\_\_\_ Watch a play
- \_\_\_\_\_ Go out with friends
- \_\_\_\_\_ Browse through the internet on your computer
- \_\_\_\_\_ Play an instrument

## Color Codes

- Plan a vacation with friends or family
- Write poetry or song lyrics
- Visit family members
- Call your friends
- Do gardening
- Download apps for your phone
- Draw or sketch
- Play a game on your computer
- Go outside and play a sport with others
- Use your phone to browse the internet
- Play games on your phone
- Read poetry or novels
- Listen to music and dance
- Text message people
- Walk or play with your pet outside
- Workout at home
- Have a dinner party
- Sing in a choir or band
- Go jogging
- Build or fix computers
- Call your parents or other family members
- Make arts and crafts
- Go out to eat with friends
- Go to a concert
- Clean your apartment or house
- Watch a sporting event with friends
- Play video games on a console
- Go hiking or camping
- Watch a play
- Go out with friends
- Browse through the internet on your computer
- Play an instrument

### Scoring Sheet

	Socially Oriented	Artistically Oriented	Actively Oriented	Technology Oriented
Blue Team Member				
Red Team Member				

APPENDIX B: DEMOGRAPHIC ITEMS - UAE

1. Please provide your first and last name in the space below  
\_\_\_\_\_
2. Please provide a valid email address that you check often so that we can invite you to participate in the second half of the study.  
\_\_\_\_\_
3. Please re-enter the email address from above to ensure it is correct.  
\_\_\_\_\_
4. What is your sex?  
 Male  
 Female
5. What is your age? \_\_\_\_\_
6. What is your race or ethnic background? (e.g., Middle Eastern, Asian, Hispanic, American, etc.): \_\_\_\_\_
7. Which ethnic groups are you a descendant of? (check all that apply):
  - Emirati
  - Arabic
  - Palestinian
  - Egyptian
  - Lebanese
  - Sudanese
  - Persian
  - Jordanian
  - Iraqi
  - Syrian
  - Saudi Arabian
  - Turkish
  - Yemeni
  - Kuwaiti
  - Omani
  - Qatari
  - Bahraini
  - Indian
  - Pakistani
  - Bangladeshi
  - Canadian
  - American
  - Australian
  - Other – please describe: \_\_\_\_\_

8. Where were you born? (City, State; Country if outside the US)

\_\_\_\_\_

9. Is there a country other than the country in which you were born that you identify most with?

\_\_\_\_\_

10. Are you fluent in more than one language? If so, which languages, in order of most fluent to least fluent?

\_\_\_\_\_

11. Marital Status:

- Single
- Married
- Separated
- Divorced
- Widowed
- Living with Another
- Domestic Partnership

12. Are you an undergraduate or a graduate student?:

- Undergraduate
- Graduate

13. What year of school are you currently in? \_\_\_\_\_

14. How many credit hours are you enrolled in this semester? \_\_\_\_\_

15. Major: \_\_\_\_\_

16. Minor: \_\_\_\_\_

17. Do you have any other degrees?

- Yes
- No

If Yes, please list them here: \_\_\_\_\_

18. What is your employment status?

- Not Employed
- Self-Employed
- Student



- Employed Full-Time
- Employed Part-Time

19. ADU GPA (or high school if you haven't started classes): \_\_\_\_\_

20. Please report your TOEFL score: \_\_\_\_\_

21. ACT Score: \_\_\_\_\_

22. Are you the first one in your immediate family to attend college? (Yes/No)

APPENDIX C: DEMOGRAPHIC ITEMS – US

1. Please provide your first and last name in the space below  
\_\_\_\_\_
2. Please provide a valid email address that you check often so that we can invite you to participate in the second half of the study.  
\_\_\_\_\_
3. Please re-enter the email address from above to ensure it is correct.  
\_\_\_\_\_
4. What is your sex?  
 Male  
 Female
5. What is your age? \_\_\_\_\_
6. What is your race or ethnic background? (check all that apply):  
 White/Caucasian  
 Black/African American  
 Hispanic or Latino  
 Asian  
 Pacific Islander or Native Hawaiian  
 American Indian  
 Alaskan Native  
 Middle Eastern  
 Other: Please Describe \_\_\_\_\_
7. If you chose more than one race or ethnic group in the previous question, which one do you most identify with?  
 White/Caucasian  
 Black/African American  
 Hispanic or Latino  
 Asian  
 Pacific Islander or Native Hawaiian  
 American Indian  
 Alaskan Native  
 Middle Eastern  
 Other: Please Describe \_\_\_\_\_
8. If you marked Middle Eastern in the previous question, which ethnic group are you a descendant of? (mark all that apply):  
 Emirati  
 Arabic

- Palestinian
- Egyptian
- Lebanese
- Sudanese
- Persian
- Jordanian
- Iraqi
- Syrian
- Saudi Arabian
- Turkish
- Yemeni
- Kuwaiti
- Omani
- Qatari
- Bahraini
- Indian
- Pakistani
- Bangladeshi
- Canadian
- American
- Australian
- Other – please describe: \_\_\_\_\_

9. Where were you born? (City, State; Country if outside the US)

\_\_\_\_\_

10. Is there a country other than the country in which you were born that you identify most with?

\_\_\_\_\_

11. Are you fluent in more than one language? If so, which languages, in order of most fluent to least fluent?

\_\_\_\_\_

12. Marital Status:

- Single
- Married
- Separated
- Divorced
- Widowed
- Living with Another
- Domestic Partnership

13. Are you an undergraduate or a graduate student?:

- Undergraduate
- Graduate

14. What year of school are you currently in? \_\_\_\_\_

15. How many credit hours are you enrolled in this semester? \_\_\_\_\_

16. Major: \_\_\_\_\_

17. Minor: \_\_\_\_\_

18. Do you have any other degrees?

- Yes
- No

If Yes, please list them here: \_\_\_\_\_

19. What is your employment status?

- Not Employed
- Self-Employed
- Student
- Employed Full-Time
- Employed Part-Time

20. Grade Point Average (GPA):

Overall UCF GPA \_\_\_\_\_

Overall high school GPA (if you have not started classes) \_\_\_\_\_

21. Please report your SAT scores:

Overall SAT score: \_\_\_\_\_

Verbal: \_\_\_\_\_

Math: \_\_\_\_\_

22. ACT Score: \_\_\_\_\_

23. Are you the first one in your immediate family to attend college? (Yes/No)

## APPENDIX D: FATALISM SCALES

### General Fatalism:

1. When bad things happen, we are not supposed to know why. We are just supposed to accept them.
2. People die when it is their time to die, and nothing can change that.
3. Everything that happens is a part of God's plan.
4. If bad things happen, it is because they were meant to be.

### Religious-Philosophical Determinism

1. My choices are limited by God's plan for my life.
2. When things are going well for me I consider it due to a run of good luck. R
3. My choices are constrained by God.
4. My decisions fit into and thus are limited by a larger plan.
5. God's will determines the choices I make.
6. God has my life planned out.

### Libertarianism

1. I will have free will all of my life.
2. I am free to make choices in my life regardless of social conditions.
3. I have free will in life, regardless of group expectations or pressures.
4. I have total free will.

### Psychosocial Determinism

1. My behaviors are limited by my background
2. My present behavior is totally a result of my childhood experiences.
3. My exercise of free will is limited by my upbringing
4. Because of my background influences, I have no real free will.
5. My free will is limited by such social conditions as wealth, career, and class.
6. My wealth, class, race, and gender determine my decisions and behavior.
7. My behaviors are determined by conditioning and life experiences.

## APPENDIX E: PROPENSITY TO TRUST SCALE



1. I tend to be accepting of others.
2. My relationships with others are characterized by trust and acceptance.
3. Basically I am a trusting person.
4. It is better to trust people until they prove otherwise than to be suspicious of others until they prove otherwise.
5. I accept others at "face value."
6. Most people are trustworthy.
7. It is better to be suspicious of people you have just met, until you know them better. R
8. I make friends easily.
9. Only a fool would trust most people. R
10. I find it better to accept others for what they say and what they appear to be.
11. I would admit to being more than a little paranoid about people I meet. R
12. I have few difficulties trusting people.
13. Basically, I tend to be distrustful of others. R
14. Experience has taught me to be doubtful of others until I know they can be trusted. R
15. I have a lot of faith in the people I know.
16. Even during the "bad times," I tend to think that things will work out in the end.
17. I tend to take others at their word.
18. When it comes to people I know, I am believing and accepting.
19. I feel I can depend on most people I know.
20. I almost always believe what people tell me.

## APPENDIX F: LOCUS OF CONTROL SCALE

1. When I get what I want, it's usually because I'm lucky.
2. I have often found that what is going to happen will happen.
3. It's mostly a matter of fate whether or not I have a few friends or many friends.
4. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.
5. Whether or not I get to be a leader depends on whether or not I'm lucky enough to be at the right place at the right time.
6. Often there is no chance of protecting my personal interest from bad luck happenings.
7. To a great extent my life is controlled by accidental happenings.
8. If important people were to decide that they didn't like me, I probably wouldn't make many friends.
9. My life is chiefly controlled by powerful others.
10. I feel like what happens in my life is mostly determined by powerful people.
11. Even if I were a good leader, I would not be made a leader unless I play up to those positions of power.
12. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.
13. People like myself have very little chances of protecting our personal interests when they conflict with those of powerful people.
14. Getting what I want means I have to please those people above me.
15. I am usually able to protect my personal interests. R
16. When I make plans, I am almost certain to make them work. R
17. I can pretty much determine what will happen in my life. R
18. When I get what I want, it's usually because I worked hard for it. R
19. My life is determined by my own actions. R
20. How many friends I have depends on how nice a person I am. R
21. Whether or not I get to be a leader depends mostly on my ability. R

## APPENDIX G: RELIGIOUS MOTIVATION SCALES

Are you a member of a religion? If yes, please indicate which religion you identify with.

Yes: \_\_\_\_\_

No

Regardless of whether or not you indicated that you are a member of a religion in the previous question, please rate the extent to which you agree with the following statements to the best of your ability:

Intrinsic Religiosity:

1. My faith involves all of my life.
2. One should seek God's guidance when making every important decision.
3. In my life I experience the presence of the Divine.
4. My faith sometimes restricts my actions.
5. Nothing is as important to me as serving God as best I know how.
6. I try hard to carry my religion over into all my other dealings in life.
7. Quite often I have been keenly aware of the presence of God or the Divine Being.
8. The prayers I say when I am alone are as meaningful as prayers I say during public religious services.
9. It is important to me to spend periods of time in private religious thought and meditation.
10. My religious beliefs lie behind my whole approach to life.
11. Religion is especially important to me because it answers many questions about the meaning of life.
12. If not prevented by unavoidable circumstances, I attend church/synagogue/ mosque.
13. I spend time trying to grow in understanding of my faith.
14. It is important to me to spend periods of time in private religious thought and reflection.
15. Religious beliefs influence all my dealings in life.
16. I often read books and magazines about my faith.
17. If I were to join a church/mosque group, I would prefer to join a Bible/Qu'ran study group rather than a social fellowship.

Extrinsic Religiosity:

1. It doesn't matter so much what I believe as long as I lead a moral life.
2. Although I am a religious person, I refuse to let religious considerations influence my everyday affairs.
3. Although I believe in my religion, I feel there are many more important things in life.
4. The church/synagogue/ mosque is most important as a place to formulate good social relationships.
5. The purpose of prayer is to secure a happy and peaceful life.

6. What religion offers me most is comfort when sorrows and misfortune strike.
7. I pray mainly because I have been taught to pray.
8. A primary reason for my interest in religion is that my church/synagogue/mosque is a pleasant social activity.
9. Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic well-being.
10. The primary purpose of prayer is to gain relief and protection.
11. Religion helps to keep my life balanced and steady in exactly the same way as my citizenship, friendships, and other memberships do.
12. One reason for my being a church/synagogue/mosque member is that such membership helps to establish a person in the community.
13. I enjoy working in the activities of my religious organization.
14. I enjoy spending time with others of my religious affiliation.
15. I keep well informed about my local religious group and have some influence in its decisions.
16. I make financial contributions to my religious organization.
17. The church/synagogue/ mosque is most important as a place to formulate good social relationships.
18. I contribute time and knowledge to my religious organizations.
19. I respect other religious identities.
20. I am curious to learn about other religions.
21. All religions guide us to lead a peaceful life.

APPENDIX H: PERSONAL RESPONSIBILITY SCALE

Please rate the extent to which you agree or disagree with the following statements:

1. I leave my things all over the place (e.g., clothes, books, dishes). R
2. When I borrow something, I fail to return it. R
3. I turn all my assignments in on time.
4. At home or at college I do my fair share of the household chores.
5. I miss class often. R
6. I send a thank you note after receiving a gift from someone.
7. I am often late for class or work. R
8. I miss appointments I have made if I'd rather not go. R
9. When I promise to help with a project, I follow through.
10. I delay studying if it means giving up some personal pleasures. R



APPENDIX I: PERSONAL AGENCY SCALE

1. I can think of many ways to get out of a jam.
2. I energetically pursue my goals.
3. There are lots of ways around any problem.
4. I can think of many ways to get the things in life that are most important to me.
5. Even when others get discouraged, I know I can find a way to solve the problem.
6. My past experiences have prepared me well for my future.
7. I've been pretty successful in life.
8. I meet the goals that I set for myself.

## APPENDIX J: APATHY SCALE

1. I am interested in things.
2. I get things done during the day.
3. Getting things started on my own is important to me.
4. I am interested in having new experiences.
5. I am interested in learning new things.
6. I put little effort into anything. R
7. Approaching life with intensity is important to me.
8. Seeing a job through to the end is important to me.
9. I spend time doing things that interest me.
10. Someone has to tell me what to do each day. R
11. I am less concerned about my problems than I should be. R
12. I have friends.
13. Getting together with friends is important to me.
14. When something good happens, I get excited.
15. I have an accurate understanding of my problems.
16. Getting things done during the day is important to me.
17. I have initiative.
18. I have motivation.

## APPENDIX K: TRUST AND DISTRUST SCALES

To what extent do you feel...

Trust

1. Faith that the other player can do the task at hand?
2. Certain that the other player will perform well?
3. Confident in the other player's ability to complete a task?
4. Assured that the other player will make intelligent decisions?
5. Positive that the other player will try and do what is best for the team?
6. Convinced that you can rely on the other player to try their hardest?
7. Confident that the other player will do as he/she says?
8. Confident that the other player will try to do things that benefit the team?

Distrust

1. Concerned that the other player will fail?
2. Compelled to keep tabs on the other player to be sure things get done?
3. Worried that the other player will do something wrong?
4. Afraid that the other player will make a mistake?
5. Cautious about the other player's intentions for the team?
6. Suspicious about the other player's reasons behind certain decisions?
7. Afraid that the other player will purposefully do something that isn't helpful?
8. Nervous that the other player will betray you?

APPENDIX L: UCF IRB HUMAN SUBJECTS PERMISSION LETTER



University of Central Florida Institutional Review Board  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, Florida 32826-3246  
Telephone: 407-823-2901 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

## Approval of Human Research

From: **UCF Institutional Review Board #1  
FWA00000351, IRB00001138**

To: **Eduardo Salas and Co-PIs: Jessica Wildman, Maritza R. Salazar**

Date: **March 22, 2011**

Dear Researcher:

On 3/22/2011, the IRB approved the following human participant research until 3/21/2012 inclusive:

Type of Review: UCF Initial Review Submission Form  
Expedited Review Category #7  
This approval includes Alteration of the Consent Process and  
Waiver of Written Documentation of Consent

Project Title: A Study of Collaboration in a Computer Game  
Investigator: Eduardo Salas  
IRB Number: SBE-11-07535

Funding Agency: Army Research Office( ARO ), University of Maryland  
Grant Title: University of Maryland MURI: Dynamic Models of the Effect of  
Culture on Collaboration and Negotiation  
64-01-8116

Research ID: N/A

The Continuing Review Application must be submitted 30days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 3/21/2012, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Joseph Bielitzki, DVM, UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 03/22/2011 09:39:17 AM EST



*James Munatori*

IRB Coordinator

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