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CONSUMER TRUST RATINGS AFTER AN AIRLINE ACCIDENT: AN AFFECTIVE PERSPECTIVE

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Fortunately airline accidents are rare; however when one occurs it usually results in widespread media attention. The purpose of this study was to examine how consumers' trust ratings were impacted when one airline suffered an accident. The findings indicate that System Wide Trust (SWT) theory applies resulting in a trust reduction for all airlines, not just the accident airline. Affect was shown to act as a mediator in only three of the cases, which suggest that consumer's responses may not be strongly influenced by emotions. Practical implications and limitations of this study are provided.

Consumers have a unique role when it comes to trust in airlines. When a person boards an aircraft for flight, they are placing their trust in the airline. This may be from prior experience or even the experience(s) of another person. However, if an accident or incident were to occur, it is possible that a consumer's trust in that airline may be reduced. Additionally, if one airline has an accident, it is possible that a passenger's trust across multiple airlines may be diminished.

Literature Review

There are many definitions of trust. As it relates to airlines, Meyer, Davis, & Schoorman (1995) provides an applicable definition. In that context, trust is defined as one's ability to give up or relinquish control to another person or object. When it comes to passengers boarding airliners, they are giving up control to the airline and more specifically the flight crew operating the flight. The passengers may or may not have any direct contact with these individuals, yet they are trusting in them and the company to get them to their destination safely. Additional authors (Barber, 1983; Rampel et al., 1985; Rotter, 1967) suggest that trust is the result of expectations of certain events occurring. This expectation allows a person to predict what is most likely to occur, which may lead to a positive experience (Lee & See, 2004).

System-Wide Trust

System-Wide Trust (SWT) theory proposes that when operators or consumers view automated devices, they view them as one system. While the devices are independent, research suggests that both operators and consumers are unable to differentiate between devices and when one fails, they lose trust in other automated devices (Geels-Blair, Rice, & Schwark, 2013; Keller & Rice, 2010; Rice & Geels, 2010; Winter, Rice, & Reid, 2014). The current study sought to examine if SWT theory would apply to consumers rating trust in an airline after one suffered an accident.

Cultural Differences

In previous studies that have examined system-wide trust theory, there have been noticeable differences across cultures, specifically those that are individualistic and collectivistic. A definition of culture is the common societal norms, values, and practices in which one chooses to participate (Helmreich, 2000). Those from individualistic cultures have strong views of themselves while persons from collectivistic cultures have a more interdependent view towards one another (Markus & Kitayama, 1991). Persons from collectivistic cultures are more likely to be trusting, especially of new people (Hofstede, 1980). On the rating scale of individualistic/collectivist, the United States scores as the most individualistic country, while India was much more collectivistic (Robbins & Judge, 2009).

Affect

Human beings may or may not be able to remove emotions from their decision-making processes, and it has been demonstrated that affective and cognitive components are separate (Trafimow, & Sheeran, 1998, 2004; Trafimow et al., 2004). When present, emotions can have an influencing effect on the decision-making process. During situations when there is a shortage of time or decisions have to be made quickly without much time to

cognitively process, humans may respond in an effective manner. However, it is possible that these emotional responses may not always be the most appropriate. Earlier studies (Remy, Winter, & Rice, 2014; Winter, Rice, & Mehta, 2014) have examined consumer's perceptions towards pilots and found that emotions played a significant role in which pilots they trusted more or less based on various demographic features (e.g. weight, gender, age).

Current Study

The purpose of the current study was to examine how consumers trust ratings would be affected after one airline experienced a fatal accident. Individuals from India, a collectivistic country, and the United States, an individualistic country were selected to participate in the study. Affect measures were gathered to attempt and determine if affect acted as a mediator between the flight conditions and trust ratings. The study has the following hypotheses:

H₁: Participants would be less trusting of the airline that suffered the fatal accident.

H₂: American participants would have more extreme trust ratings (both positive and negative) due to cultural differences (Rice et al., 2014; Remy, Winter, Rice, 2014; Winter, Rice, & Mehta, 2014).

H₃: Affect will at least partially mediate the relationship between the flight condition and trust ratings.

Methodology

Participants

Four hundred and two (145 females) participants from India and the United States took part in the study. The mean age was 31.55 ($SD = 9.84$).

Materials and Recruitment

FluidSurveys[®], a web-based survey program was used to create and develop the survey. The researchers recruited participants via Amazon's[®] Mechanical Turk[®] (MTurk). MTurk is a global online service that enables participants (Turkers) to participate in Human Intelligence Tasks (HITs) in exchange for monetary compensation (typically .10 to .30 cents). Participation in any HIT is voluntary and anonymous. Research (Buhrmester, Kwang, & Gosling, 2011; Germine, et al., 2012) has shown that data collected via MTurk is as reliable as normal laboratory data.

Procedure

The study received ethics board approval. Participants began the study by completing an electronic consent form. They were then presented with the following scenario: "*On June 1st, 2009, Air France Flight 447 was operating on a flight from Rio de Janeiro, Brazil to Paris, France. Approximately 3 hours after departure, contact with the aircraft was lost. It was later determined that this aircraft crashed into the Atlantic Ocean killing all on-board.*" In a separate control condition, participants were presented with the following scenario "*On August 1st, 2009, Air France Flight 445 was operating on a flight from Rio de Janeiro, Brazil to Paris, France. Approximately 11 hours after departure, the flight arrived safely in Paris without incident.*" Participants were then asked to rate their trust in airlines (Asiana, Lufthansa, American, TAM, QANTAS, Ethiopian and Air France) on a Likert-type scale from -3 (extremely distrust) to +3 (extremely trust) with a neutral option of zero (neither trust nor distrust). Participants were asked to provide information on selected demographics and were then dismissed.

Design

This research study employed a mixed design with different participants in the experimental and control conditions, different participants from the two countries, and all participants providing ratings for all the different airlines.

Results

A three-way 2 x 2 x 7 analysis of variance (ANOVA) was performed on the data, with Country and Failure/Nonfailure being the between-participants conditions and Airline being the within-participants condition. There was an overall 3-way interaction in the data, $F(6, 2388) = 2.60, p < .05, \eta p^2 = .01$. The interaction between

Country and Airline was significant, $F(6, 2388) = 8.70, p < .001, \eta^2 = .02$, as was the interaction between FailureNonfailure and Airline, $F(6, 2388) = 13.76, p < .001, \eta^2 = .03$. The main effect of Airline was significant, $F(6, 2388) = 47.52, p < .001, \eta^2 = .11$. The main effect of FailureNonfailure was significant, $F(1, 398) = 33.83, p < .001, \eta^2 = .08$, however the main effect of Country was not significant, $F(1, 398) = 3.01, p = .08, \eta^2 = .01$. Figures 1 and 2 present the data for Indian and American participants, respectively.

This data suggests the following conclusions. First, there is a significant effect of trust based on the airline being rated and the difference was not significant between Indians and Americans. Second, there was a clear drop in trust of airlines in the failure condition when compared to the control condition. Third, the interactions suggest that trust ratings were significantly influenced based on the participant's country, the country in which the airline was based, and the amount of trust lost after the accident scenario. In general, Indian participants were more trusting of airlines in the control condition, and also demonstrated less of a trust drop after the accident when compared to the American participants.

Mediation Analyses

A mediation analysis was completed for Indian and American participants. Affect was not shown to mediate the relationship between trust in any of the airlines and the condition for Indian participants. For American participants, Affect was shown to mediate, at least partially, with three of the airlines: Asiana, TAM, and Air France. Figure 3 depicts the significant mediation relationships for the American participants. In order to conduct the mediation analysis, the correlation between Condition and Trust in Asiana was first found to be significant, $r = -.228, p = .001$, showing that the initial variable correlated with the outcome variable. The standardized path coefficients were: condition to affect ($-.887, p < .001$); affect to trust in Asiana ($.369, p = .015$); condition to trust in Asiana controlling for affect ($.099, p = .509$). These data show that Affect had complete mediation on the relationship between Condition and Trust in Asiana. The correlation between Condition and Trust in TAM was first found to be significant, $r = -.378, p < .001$, showing that the initial variable correlated with the outcome variable. The standardized path coefficients were: condition to affect ($-.887, p < .001$); affect to trust in TAM ($.641, p < .001$); condition to trust in TAM controlling for affect ($.191, p = .166$). These data show that Affect had some mediation on the relationship between Condition and Trust in TAM. Finally, the correlation between Condition and Trust in Air France was first found to be significant, $r = -.588, p = .001$, showing that the initial variable correlated with the outcome variable. The standardized path coefficients were: condition to affect ($-.887, p < .001$); affect to trust in Air France ($.966, p < .001$); condition to trust in Air France controlling for affect ($.269, p = .012$). These data show that Affect had some mediation on the relationship between Condition and Trust in Air France.

Discussion

The purpose of this study was to investigate whether consumers' trust ratings would be affected after one airline experienced a fatal accident. A unique aspect of this study was to investigate differences in culture and whether affect played a mediating role. Participants from America and India were presented with two scenarios wherein one scenario involved a fatal accident, and the other scenario had a safe flight.

The results supported the first hypothesis. The condition that suffered the fatal accident experienced a significant drop in airlines overall trust between both cultural groups. This finding supports the idea that consumers measure their trust on the system as a whole and perhaps have a hard time differentiating between separate independent components, or events in this case, when it comes to failures; the same results found in earlier studies (Geels, Blair, Rice, & Schwark, 2013; Keller & Rice, 2010; Rice & Geels, 2010). Aviation as a whole is a safe industry. Airlines dedicate themselves to the safety of their operations, from Safety Management Systems (SMS), to recurrent training for their pilots. Consumers may not know the background information regarding the steps taken by the airlines to ensure a safe operation of their fleet. This may be a driving factor in the large drop in safety across different airlines regardless of the airline that had the accident. It is perhaps difficult for consumers to consider the fact that the accident was an unfortunate series of events that would be very unlikely to reoccur with another airline.

The results also indicated that Indians had a higher level of trust in the control condition, and also demonstrated a lower drop in trust scores compared to the Indian participants. There are some different aspects between the Indian collectivistic cultures compared to the American individualistic culture. It has been identified that the collectivistic culture is more trusting and rely on decisions and statements made by an authority figure. In

this case, it could be argued that the aviation governing bodies deem the airlines to be safe, and therefore Indian participants that relate themselves with a collectivist culture would therefore have higher trust levels. Furthermore, even though a fatal accident may occur, they may experience a lower drop in trust due to the same reasoning regarding governing bodies and the authority that may indicate that the accident was something that would not happen again (Markus and Kitayama, 1991; Robbins and Judge, 2009). This also related to previous research that has proposed that the collectivistic nature instills one not be a challenger. This therefore can influence ratings of trust, comfort, and willingness (Gaines et al., 1997; Omodei and McLennan, 2000; Shikishima et al., 2006).

It is also seen that Affect plays a role as a mediator between the condition and the trust levels of an individual, at least for a few of the conditions. This may be due to the fact that humans are emotional beings; however, for many of the conditions Affect did not mediate the relationship between trust and the condition. When faced with an accident, participants may feel their lack of trust is justified and triggered more from a cognitive perspective rather than an affective domain. Further research should be completed to identify how consumer trust levels are motivated after an airline accident occurs.

Practical Implications, Limitations, and Future Research

The findings of this study offer some interesting practical implications. First, despite any logical connection between the airline that had the fatal accident and airlines as a whole, participants from both experimental conditions expressed an overall decrease in their trust level of all airlines. The aviation industry, and in this case airlines, plays a significant role in the transportation of passengers if it were to be compared to light rail, and other forms of ground transportation. Its ability to travel far distances in short amounts of time, and the fair prices for tickets to be able to do that plays a role in why there are so many air passengers per year. Accidents do happen, but very rarely. However, due to the nature of the accident and the number of fatalities that are involved with such tragic events, the public tends to react very strongly as indicated in this research. While it can be argued that people will still fly even after an accident, the public reaction does play a role in the economics of the airlines and the aviation industry.

By understanding the cultural differences and the fact that affect plays a role, the findings of this study can be used by the airlines to see how they should promote their practices that are dedicated to their customer's safety. This study indicates that all airlines become affected with a fatal accident. This should demonstrate the need for airlines to work together to ensure safety throughout all aspects of aviation. Furthermore, the general airline consumer that reads this may see that their response to airlines as a whole after a fatal accident is purely an emotional reaction as opposed to a logical one. It would be interesting for future research to investigate whether trust levels decrease across another industry when an accident occurs. For example, it would be interesting to see if a particular accident that involved a particular train company, such as the EuroStar, affects consumer trust across all forms of light rail. Similarly, this could be applied with cruise liners as well.

A limitation to this study was that scenarios had to be used instead of conducting the experiment in a real-world situation. However, if it were to have been conducted during the time frame of a real-world aviation accident, the results would have been skewed and affected through the history effect. Lastly, there appear to be cultural influences impacting the results of the study. Additional research could investigate this possible explanation in greater detail and attempt to examine how these and other cultural components may influence SWT. Finally, participant's familiarity with the aviation industry may play a role in their level of SWT. Previous experience with aviation or any industry that highly promotes safety may not demonstrate SWT issues. Further research should be conducted to determine how participant familiarity effects SWT and to verify the accuracy of this study's findings.

Conclusions

The purpose of this study was to examine how an airline accident at one airline could influence the trust ratings of participants across multiple airlines. System-wide trust theory suggests that operators and consumers may view multiple organizations as one system, and a negative event could pull down trust ratings in all organization, not just the accident organization. The data from this study supports that idea as trust levels across all airlines were reduced in the accident condition. Trust levels also varied by the airlines themselves. Affect was only found to mediate the relationship between the condition and trust in three of the cases with American participants and none of the cases with Indian participants suggesting that Affect may not explain much of the reason for the loss of consumer trust after an airline accident.

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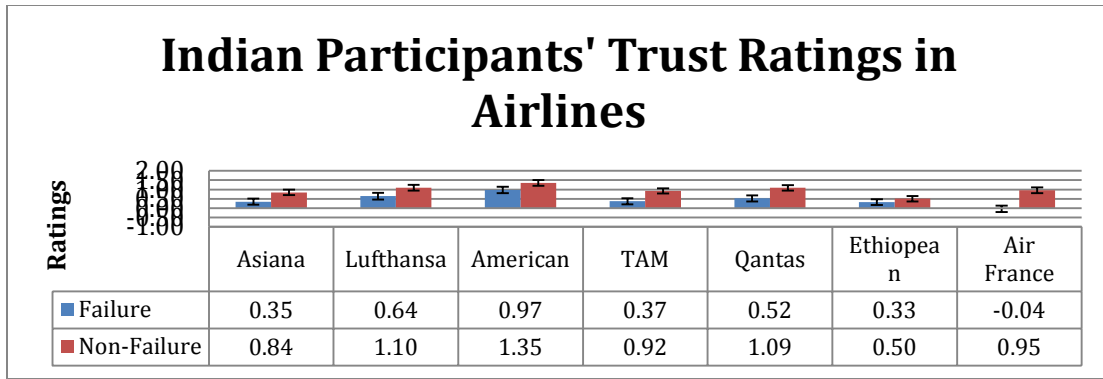


Figure 1. Trust ratings for Indian participants (SE bars included).

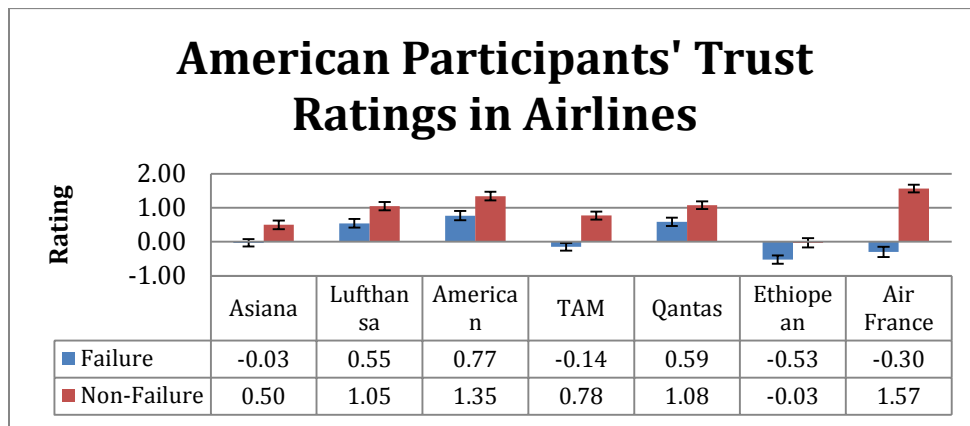


Figure 2. Trust ratings for American participants (SE bars included).

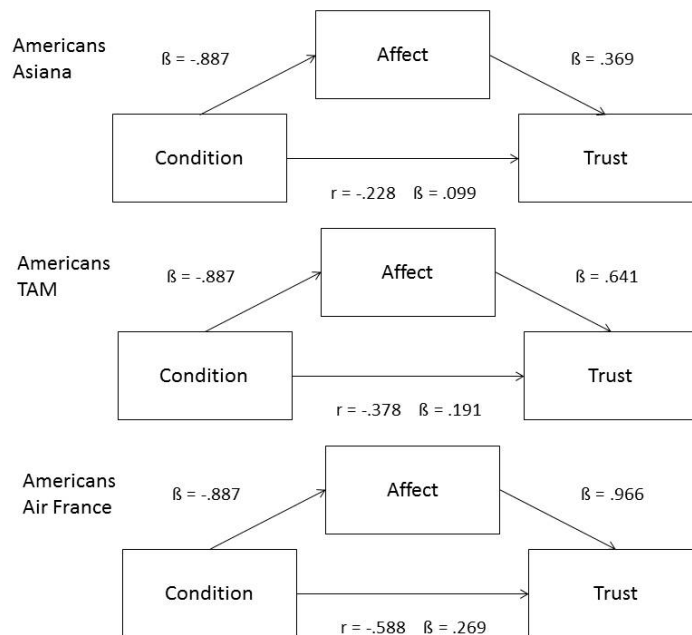


Figure 3: Path analysis for American participants.