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ABSTRACT

While not all flying experiences are pleasant, the question of how to cope with and ease people's flying anxiety has long been an interesting topic. Previous research on cultivation theory found that television programs may affect people's perception and influence their behaviors (Miller, 2005). Media can strongly influence people's attitude toward flying and may contribute to people's fear of flying (Bon & Van Gerwen, 2003). The role-taking scenario method was used in this study. The results suggest that media usage has a positive relationship with people's anxiety level and a positive relationship with flying behavior. It also showed a relatively weak increase in stress level in reaction to viewing an airline accident on a television (TV) program.

Keywords: *fear of flying, flying anxiety, flying behavior, cultivation theory.*

INTRODUCTION

Compared to other methods of transportation, especially automobiles, air travel is proven to be a safer way to travel. Statistics show that for civilians, the chances of being involved in an aircraft accident are about 1 in 11 million (Fearless-Flight.com, 2008). In 2000, commercial airlines carried more than 1.09 million passengers on 18 million flights, while suffering only 20 fatal accidents with a total of 878 fatalities; in comparison to air travel, automobile accidents caused 41,800 fatalities in the year 2000 in the United States (Boeing, 2009). Furthermore, according to a report by Boeing, travelling by commercial aircraft is twenty-two times safer than by automobile on a per-mile basis (Ackman, 2001).

Although flying is generally considered to be safe, some people still have anxiety toward flying. Krijin et al. (2007) reported that 13.2% of the general population was affected by different levels of flying phobia. Fear of flying may have many facets, including the fear of heights, enclosed spaces and turbulence, concerns of not being in control, uncertainty about the pilot's performance and the possibility of terrorism (Abeyratne, 2007). While airlines and airports are striving to provide the best quality experience for passengers, anxiety toward air travel may cause unnecessary physical and psychological stress, and as a result, diminish the quality of their experience. In addition, airlines' livelihood may be threatened if the public's anxiety level toward flying is elevated. Historically, airlines have experienced extreme demand fluctuations after severe

events such as 9/11. Ito and Lee (2004) found that one of the reasons people were unwilling to fly after 9/11 was because they were afraid of flying.

Causes of anxiety toward flying can be complex and are beyond the scope of this study. Nonetheless, evidence from the literature indicates that media affects the public's perception of the risks associated with flying by discussing accidents and terrorist attacks (Bor & Van Gerwen, 2003). However, further studies are needed to examine the effect of media usage on people's anxiety toward flying and their fearful flying behaviors. Thus, the purpose of the study was to investigate: 1) whether there is a relationship between people's media usage and their anxiety toward flying; 2) whether there is a relationship between people's media usage and their fearful flying behavior; and 3) whether TV reports on airline accidents and commercials has an impact on people's anxiety level toward air travel.

DEVELOPMENT OF HYPOTHESES

Cultivation theorists believe that television viewing has a small but significant role in influencing people's attitudes and beliefs (Gerbner & Gross, 1976). They insist that heavy TV viewers are more likely to use TV content to answer real life questions than light TV viewers. According to Bor & Van Gerwen (2003), the media focus on negative events (e.g., crashes, emergency situations, and severe turbulence) that make people overestimate the risk of flying due to their lack of aviation knowledge and biased judgment. The author suggests the reason that people have unrealistic judgements is because they are overwhelmed by sophisticated media reports. Around 10% of those with a fear of flying have never flown before (as cited in Bor & Van Gerven, 2003), indicating that they developed their fear or anxiety from their perceptions of causes and rationals.

Television, newspapers and Internet news sources are often prone to sensationalism and choose the most colorful and vivid images to describe events including airplane crashes. According to Entman (1989), the media applies three principles to make crashes more captivating: simplification, personalization, and symbolization. To reach the largest audience, the media makes the story as concise and simple as possible; stories are required to be sensationalized and close to ordinary life. Four common elements can usually be identified in plane crash stories: damage, victims, cause, and cure. These features are designed to increase public attention and the discussion on determining responsibility for the crash. Cobb & Primo (2003) reported that during the week of July 14, 1996, none of the 842 deaths in automobile accidents were covered by the national media in the United States, while the loss of 230 lives on Trans World Flight 800 that crashed into the Atlantic Ocean was the top press story of the year. The sensationalization of media report on airline accidents may lead people to overestimate the risks of flying and thus create biased views towards air travel. *Therefore, it is hypothesized that the amount of media usage will have a positive relationship with a person's anxiety levels toward flying (H1).*

The literature suggests that the amount of media consumed may have a relationship in determining a person's behavior. Plog (2001) suggested that people's home behaviors reflect and provide indications of their travel behaviors, that is, the more conservative at home, relative to the rest of the population, the more conservative on a trip. The author categorized tourists into two personality types: psychocentric and allocentric. Psychocentric tourists tend to be more dependable and conservative in their daily lives. They look for guidance and direction, as they are uncertain about their decision-making abilities. They do not seek new ideas and restrict the variety of contacts they might have around them. They read less but watch more TV. Therefore, they travel less frequently

and stay for shorter periods of time. They prefer to go by the family automobile rather than by air because that makes the trip more comfortable and less anxiety producing. Allocentric tourists like to choose new products and challenge themselves in their daily lives. They watch less TV, seek novelty, and try new products. When traveling, they would rather take longer trips and seek new destinations. They take to the air more often than do another group (Plog, 2001, p.16-17). From this sense, people's personality characteristics reflect the way of seeking knowledge and therefore determine their travel patterns and preference.

Tourism is dynamic and vulnerable; it is a combination of phenomenon and industry (Leiper, 1979; Turner, 1974; Cohen, 1979). In the history of air travel, several events have encouraged public flying anxiety and caused people's behavioral changes toward air travel (Ito & Lee, 2005). The terrorist attack in 2001 is a good example. It brought even the most confident flyers to the road. Due to the fear of flying and increasing demands of security post-9/11, there was a severe decrease (26.2%) in short haul flights (less than 250 miles) for the end of June 2003 compared to the end June 2001 (Ito & Lee, 2005). The authors also suggested that compared to events that had previously impacted the U.S. airline industry, such as the air traffic controllers' strike in 1981 and the Gulf War in 1991, 9/11 imposed a more lasting impact on the demand in the airline and tourism industries. People began seeking safer and more comfortable home-based entertainments. Traditional family reunions, gatherings of friends, and outdoor picnics increased. When people did travel, they first chose in-state destinations followed by out-of-state destinations and lastly, international destinations (Chen & Chen, 2003).The authors further explained that this result was because cars can more easily reach in-state destinations, whereas the further people travel away from home, the more likely it is that their plans will involve air travel. Therefore, contemporary events may influence people's attitude toward flying, and therefore result in their anxiety toward flying and lead to travel behavioral changes.

In addition, reports of airline accidents from various media can also trigger stressful or sometimes irrational behavioral patterns in air travel (Bor, 2007). The incidences of in-flight psychiatric emergencies range from 3.5%-15% of in-flight medical emergencies, and most of those are anxiety disorders such as flying phobia and claustrophobia (Pierson, 2007). Therefore, fear of flying has the potential to turn a normally calm person into an unruly passenger. Passenger, environmental, or airport/carrier factors are always considered when researching the instances of passenger misconduct events (Pierson, 2007). Blended with excessive alcohol use and abstinence from tobacco smoking onboard, the effects of psychological stress have the potential to result in passengers' unruly behaviors. As an example, a heavily intoxicated passenger on board a KLM flight from Bangkok to Amsterdam stabbed a cabin attendant; the passenger was constrained in a locked space for a period of time because the other passengers were frightened (Abeyratne, 2007). *Therefore, it's hypothesized that the amount of media usage will have a positive relationship with a person's fearful flying behavior (H2)*

TV has been cited as a source used by individuals to form their social reality. Statistics shows that Americans spend excessive amounts of time watching television. Ninety-nine percent of American households have at least one color TV, and 74% have two or more sets (Russell, 2002). According to a Nielsen study, American household television watching hours averages 8 hours 18 minutes per day, or an average of 4 hours 45 minutes per person per day (Stokes, 2008). Before graduation from high school, the average American child will spend 27,000 hours watching television, which exceeds their 18,000 hours in a classroom (Gartner, 1993). Television is the primary source of image

formation and is the most influential media in forming viewers' perception of reality (Gartner, 1993; Gerbner & Gross, 1976; Mallard, 1991).

Television serves the same communication function as newspapers and magazines, but it employs different strategies to convey its information. Burgoon (1980) asserted that the pictures and video clips presented by television enhance the credibility of news reports. People gain a sense of witnessing an event when they see it presented in moving pictures, and they tend to trust what they see more than what they hear or read (Mallard, 1991). Gartner (1993) indicated that television's primary advantages are the emotional appeal and visual images in combination with extensive market exposure. Communication studies have shown that pictures make information transmission more rapid, realistic, and accurate than is possible in purely verbal messages (Lewis, 1984). Other studies have also indicated that printed or spoken messages excel in providing story background, context, and explanation. Pictures are more likely to make audiences care about an issue and the people involved in it (Lau & Sears, 1986). Gerbner & Gross (1976) also suggested, "Unlike print, television does not require literacy. Unlike the movies, television is "free"…and it is always running. Unlike radio, television can show as well as tell. Unlike the theater, concerts, movies, and even churches, television does not require mobility…" (p. 5). Therefore, television, with the repetitiveness and consistency of its content and characterization, has the potential to shape an individual's social reality.

Some TV viewers are passive, vulnerable and easily manipulated. When they are bombarded with the media reports on an airline accident or a negative incidence (e.g. pilots fall asleep in cockpit, pilots have high blood alcohol level, etc.), they can be overwhelmed and think that flying is dangerous (Bor & Van Gerven, 2003). The news stories are programmed to be breaking news, and almost never mention the rarity of such incidents. The information reported by the TV does not always represent a balanced picture of aviation safety. The messages and pictures about the crashes may exacerbate people's fear. Consumer research indicates that mental contamination occurs as people unconsciously produce unwanted judgment or emotion toward flying (Wilson & Brekke, 1994). As the unwanted anxiety-producing messages processed, contamination continues if the person cannot successfully identify the messages, become motivated to correct the bias, become aware of the direction and magnitude of the bias, or be able to correct or adjust the response (Wilson & Brekke, 1994). If none of the above interference functions occur to reevaluate the original judgment, viewers will then derive and confirm mental contamination-fear of flying from the cultivation effects by viewing negative air-travel related TV programs. *Therefore, it is hypothesized that viewing programs related to accidents, increased fear of flying (H3).*

METHOD

A 2x2 experimental design was adapted to examine the anxiety levels of conveniently selected college students before and after viewing airline-related TV programs. Both groups were college students and somewhat homogenous being similar in age, education, and marital status. Group A watched a TV program reporting the Trans World Airlines' aircraft explosion in 1996. Group B watched a collection of airline commercials at equivalent length. The role-taking scenario method was used in this study. This method makes it easy for researchers to replicate a real-world situation at low cost. The participants were exposed to identical situations and surroundings, so their responses were more reliable than surveying in the field. TV programs delivered the scenario to ensure experimental consistency.

Two questionnaires were developed to collect information needed to test the hypotheses. The pre-video survey solicited information on participants' media usage, anxiety levels toward air travel, fearful flying behaviors, and demographic information. After they watched the videos, the same participants were asked to imagine that they were about to take a flight, and to report their anxiety levels again. *Media usage* was measured by self-reported amount of time (in minutes) respondents spent using each form of media per day. Anxiety level toward flying was measured using 16 common phobic reactions toward flying as indicators of anxious feelings toward flying (Bor & Van Gerwen, 2003; Abeyratne, 2007; Pierson et al., 2007). Each item was measured on a 7-point scale; 1 = "Strongly Disagree" and 7 = "Strongly Agree." Fearful flying behaviors were selected from Mallard's (1991) study on flying anxiety. These 18 items were measured on a 7-point scale, with 1 = "Least Likely" and 7 = "Most Likely." Demographic information included participants' age, gender and class level.

RESULTS

A total of 149 completed surveys were collected from the Group A (those who watched airplane crash video), and 111from the Group B (those who watched non-accident video). Of the total 260 respondents, about 60% were female. The reported average age was 20.7 years, with the majority of respondents (88.7%) being from 19 to 22 years old. Of the respondents, 29.9% were seniors, followed by juniors (26.6%), sophomores (25%), and freshmen (18.4%). Respondents spent an average of 3.5 hours per day surfing the Internet, 2.5 hours watching TV, and 1.5 hours using mobile phones to obtain news and information. Before treatment, there were no significant differences found between the two groups on gender (λ^2 = .911, p > .30), media usage, any of the anxiety items and fearful behavior items. Although, Group A (20.59 years) was younger than the Group B (20.94) (t = 1.848; p = .004), the difference was so small that combined with other variables examined, it was concluded that the two groups were comparable groups.

Pearson correlations were calculated to test the first two hypotheses. Of the 16 anxiety level items, it was found that respondents' amount of media usage had significant (p<.05) positive relationships with 11 of the items. The more time respondents spent using all forms of media daily, the more likely they were afraid of using airplanes in general, flying long-haul flights, being hijacked, airplane crash/accidents, heights, losing control, the skills of pilots, flying over water, darkness, congested space, and turbulence. Hypothesis 1 *the amount of media usage will have a positive relationship with a person's anxiety levels toward flying* was partially supported.

Of the 18 fearful flying behaviors, media usage was found to positively correlate (p<.05) with 9 items. The more time respondents spent using all forms of media daily, the more likely they would ask for a seat in the safest part of the plane, take medication for nerves, always fly with a friend or relative, make out a will, pray for safety, read the on-board safety card, fly to less busy hubs, check the weather, and bargain with God. Therefore, hypothesis 2 *the amount of media usage will have a positive relationship with a person's fearful flying behavior* was also partially supported.

To test Hypothesis 3, the pre- and post- mean scores of anxiety for both groups were compared using t-tests. For Group A, who watched an accident video, of the 16 anxiety items, it was found that respondents had an anxiety increase in 10 of the items. Respondents tended to be anxious about airplanes in general, flying on their own, flying long haul flights, flying in small airplanes, being hijacked, airplane crash, heights, losing control, the skills of pilots, and flying over water. Especially, significant differences were

found in 2 items: losing control and losing luggage. After viewing the video on the accidents, participants were less anxious about losing luggage. However, they became significantly more anxious on the possibility of pilots' losing control of the airplane. The evidence showed partial support for Hypothesis 3. *Viewing programs related to accidents, increased fear of flying* (Table 1).

Table 1
Pre- and Post- Anxiety Levels of Group A (Watched accident videos)

	Pre-test Mean, SD	Post-test Mean, SD	Diff. Post-Pre	*t*	*p*
Fly in general	2.07	2.47	.3	-1.84	.068
Flying alone	2.36	2.47	.11	-.57	.57
Long haul flight	2.29	2.61	.32	1.543	.125
Small airplane	3.05	3.18	.13	-.561	.576
Lost luggage	4.22	3.78	-.44	1.986	**.049***
Sit with fearful fliers	3.56	3.22	-.34	1.534	.127
Not catching connection flight	3.83	3.54	-.29	1.259	.21
Being hijacked	2.66	2.8	.14	-.585	.559
Airplane crash	3.18	3.47	.29	-1.175	.242
Vertigo	1.81	2.09	.28	-1.407	.162
Lose control	2.21	2.72	.51	-2.124	**.035***
Pilot skill	2.14	2.31	.17	-.814	.417
Fly over water	2.28	2.57	.29	-1.241	.217
Darkness	2.28	1.9	-.38	-1.078	.283
Congested space	2.37	2.31	-.06	-.292	.771
Turbulence	3.02	3.02	0	.000	1.00

*Significance is at the 0.05 level (2-tailed)

For Group B, of the 16 anxiety level items, it was found that respondents had a decrease in anxiety level in 13 items after viewing airline commercial advertisements. The results show that respondents were less afraid of flying in general, flying on their own, flying in long haul flight, flying in small airplane, losing luggage, sitting with fearful fliers, not catching connection flight, airplane crash, the skills of pilots, flying over water, darkness, congested space, and turbulence. Especially, the decrease was significant in the concern of not catching connection flight (Table 2). Participants showed minimal decrease in most anxiety levels after watching advertisement program about airlines.

Table 2
Pre- and Post- Anxiety Levels Group B (Watched airline advertisement videos)

	Pre-test Mean, SD	Post-test Mean, SD	Diff. Post-Pre	*t*	*p*
Fly in general	2.21	1.95	-.26	1.151	.252
Flying alone	2.23	2.01	-.22	1.018	.311
Long haul flight	2.46	2.11	-.35	1.714	.089
Small airplane	3.13	2.73	-.4	1.57	.119
Lost luggage	4.23	3.83	-.4	1.618	.109
Sit with fearful fliers	3.19	2.84	-.35	1.608	.111
Not catching connection flight	4.00	3.48	-.52	2.112	**.037**∗
Being hijacked	2.32	2.5	.18	-.878	.382
Airplane crash	2.86	2.68	-.18	.758	.45
Vertigo	1.68	1.69	.01	-.093	.926
Lose control	2.05	2.16	.11	-.548	.585
Pilot skill	2.09	1.98	-.11	.548	.585
Fly over water	2.3	2.03	-.27	1.352	.179
Darkness	1.69	1.56	-.13	.894	.373
Congested space	2.43	2.25	-.18	.81	.42
Turbulence	3.07	2.75	-.32	1.341	.183

*Significance is at the 0.05 level (2-tailed)

DISCUSSIONS

The study found that the amount of time respondents spent using media had a significant positive relationship with their anxiety levels toward several aspects of air travel. In addition, the more time they spent using the media, the more likely they would demonstrate habitual flying behavior such as praying for safety and taking medication for nerves. The study further empirically tested the effect of TV viewing on respondents' anxiety levels. While a decrease was found in viewers' anxiety levels towards the possibility of losing luggage, viewers' anxiety levels towards the possibility of a pilot losing control of the airplane increased after watching the crash video. These findings indicate that information presented by media can potentially play a significant role in how we feel about air travel. If sensationalization of airline accidents in the media can increase the audience's anxiety toward flying, the media may also lower their anxiety using programs or reports that have calming effects. In fact, although significance was only found in the possibility of not catching connection flights in their pre and post anxiety scores, the Group B's anxiety levels showed a pattern of decline in 13 of the 16

items after viewing the relaxed and humorous commercials. In order to ensure the public keeps a balanced view about air travel, airline management may want to present more commercials focused on positive information about the airlines.

Caution should be exercised, however, when interpreting the results of the study. First, respondents did not have a high average level of anxiety, nor did they demonstrate a high likelihood of fearful flying behavior. The mean pre-test anxiety levels ranged from 1.70 to 4.23, and the means of fearful flying behavior ranged from 1.34 to 5.10. Even after viewing the programs, the Group A's mean scores on anxiety ranged from 1.90 to 3.77. These may be due to the fact that subjects were relatively young and may not have yet formulated or developed established attitudes and judgments toward flying. Second, anxiety toward flying is hardly to be formed and indentified by a one-time viewing of a TV program on negative airplane news. The perception toward flying is accumulated over time and adjusted by people's own flying experience. Thus future study could increase the length of exposure to the TV program. The effect of multiple media forms such as an integration of using print media and TV programs could also be investigated. Further, this study could be viewed from the perspective of a triangulation of psychological cognition theories and marketing theories. Research in the emotion literature suggests that negative and positive emotions affect cognition and people's behavior in different ways (Murry & Dacin, 1996; Goldberg and Gorn, 1987). Tourism researchers could apply consumer theories to improve our understanding of tourist perceptions, emotions, and behaviors.

From a view of consumer behavior research, this study indicates the needs of applying coping theories and decision-making theories to the current tourist behavior studies. Literature suggested that different patterns of cognitive appraisals such as anxiety and fear exist in people's emotion which moderates consumers' decision making (Raghunathan & Pham, 1999). Smith & Ellsworth (1985) also indicated that fear was described as an unpleasant state and was associated with maximal uncertainty and situational control. Therefore, fear of flying is not always a consistent mood and could be eased by efforts such as keeping airline accident reports less sensationalized and providing more positive messages. Further, for those who are not familiar with flying, providing more information about the safety, comfort and features of airplanes can moderate anxiety and uncertainty. For those who have a fear of flying, they could consult with airlines or clinics to participate in a flight simulation or attend fear of flying courses. Onboard interventions such as providing relaxing entertainments and games can also be considered as a remedy. Future studies may be implemented to look at which is the most effective effort to intercept people's attitudes and emotions.

Further, the effects of a media message vary before and after the message is processed (Brino *et al*, 2007). Therefore, this study reveals the potential investigations on when travelers intervene with a message and how strong/relevant the message is. By knowing the power and validity of a message, the researcher can further examine the effect of the message and its relationship in making decisions on the mode of transportation and other travel behaviors. Airline management should explore the most effective advertising time throughout a year and enhance the power of persuasion/interception toward consumers' attitude and behavior change by promoting positive advertisements.

Lastly, the effects of post-experience advertising also influence tourist memory. People perceive their own experiences as special and direct experiences and the effects of learning from their experience may not immediately happen after the experience (Braun, 1999). The advertising information reconstructs tourist memory formation and affects

how they remember their trips. Therefore, airline marketing planners may consider a post-trip intervention by sending out thank-you emails and reinforce the frequent flyer program by staying in connections with their consumers. Airlines may create rapports with their customers and consumers, in return, will be more likely to perceive airlines and flying in a positive way.

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