PREDICTING PUBLICS’ COMMUNICATION BEHAVIOR AND INFORMATION CHANNEL SELECTION DURING AIRLINE CRISES

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This thesis work is dedicated to my wife, Katrin. You inspire me every day and you have been a constant source of support, encouragement and motivation during the challenges of graduate school and life in general. You have made great sacrifices in order for me to graduate with a master’s degree. The patience you showed and your unconditional support exceeded all I could have ever wished for. I am deeply grateful for everything you have done and for having you in my life. Thank you!
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Abstract

This thesis work examines the antecedent variables and potential mediating factors influencing individuals’ and publics’ communication behavior during airline crises along the situational theory of problem solving (STOPS; Kim & Grunig, 2011). It also assesses publics’ desired types of information as well as the types of information and communication channels they use. It was found that individuals who are generally more interested in aviation and airline topics perceive a closer connection to airline crises and fewer constraints to solve the problem situation. Highly involved individuals see airline crises as problematic issues and also have a greater motivation to solve the problem. A greater interest in aviation and airline issues, however, does not lead individuals to invoke information gathered from previous experiences with similar situations. The results provide a foundation framework for airline organizations to predict individuals’ communication behavior during airline crises based on empirical data. The Internet was found to be publics’ most important information and communication channel during airline crises, followed by TV. Interestingly, social media was found to be the least important channel. Further, the results show that information about what steps to take during airline crises is perceived as the most important information during airline crises, followed by information about accountability, the crisis cause, and the airline’s reputation. Demographic information and air travel habits were also tested to determine their influence on channel selection during airline crises. This present thesis contributes to crisis communication research and practice with a specific application to crises in the airline and aviation industry, helping organizations to leverage and optimize their communication resources with the aim of protecting and minimizing damage to the organizational reputation.
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Appendix
1 Introduction

On July 6th, 2013, Asiana flight 214 crashed during its final descent into San Francisco International Airport (SFO). News about the airplane crash surfaced quickly on social media, disseminated by witnesses and people on location (Van Derbeken, 2013). Not more than 30 seconds after the plane made impact with the runway, the first picture of the runway overcast with smoke from the accident already appeared on Twitter, uploaded by a random passenger at SFO, who boarded another plane (Seiden, 2013). Within minutes, social media was buzzing with conversations, pictures and first-hand accounts (Nigam, 2013). According to Nigam (2013), publics criticized Asiana Airlines on social media for its slow reaction to comment on the accident. Despite the great interest in the accident, and people talking about the crash online, Asiana Airlines did not communicate about the issue for four hours.

On April 16, 2013, a major operational dysfunction grounded all of American Airlines’ planes for several hours. More than 400 flights were delayed or entirely cancelled, leaving thousands of passengers stranded at airports nationwide (Mouawad, 2013). Abt and Buente (2014) found that several passengers complained about the airline’s communication at the crisis locations and then expressed their frustration on social media. The negative attention thus reached a greater audience and put the organization at risk of reputational damage.

Despite the differences in crisis origin and magnitude, both organizational crisis cases show that publics have a need for information and communication during airline crises. In both cases, the airline organization seemed to be unaware of its publics and their communicative behavior. This suggests that airline organizations may benefit from efficient and effective crisis communication strategies and measures in order to communicate the right messages to the right publics and understand their specific communicative behavior in crisis situations.
Airline organizations thus need to find out who their publics are and what their informational and communication needs as well as behaviors are with regards to airline crises. Grunig (1983a) argues that multiple publics form when individuals face problem situations. Airline crises can be considered major problem situations that implicate great public interest, vast media coverage (Ray, 1999) and thus form different publics. These publics display different communication behaviors, which are influenced by several factors and ultimately determine communication success (Grunig, 1983a; Kim & Grunig, 2011). This present thesis examines the mediating variables of publics’ communication behavior during airline crisis situations. Further, this study looks at publics’ specific information needs and their information and communication channel selection during airline crises. This receiver-oriented research thus becomes sender-oriented in its recommendations and provides airline organizations with a richer and more thorough understanding of how to predict the formation of different publics and their communication behaviors during airline crises.
2 Literature review

2.1 Crisis communication in the airline industry

This section reviews crisis communication literature with a particular focus on the airline industry and its features.

The airline industry is highly competitive and information-intense (Buhalis & Law, 2008), exposing it to great vulnerability to crisis events. Airline crises on the organizational level are defined as unexpected, non-routine events creating high levels of uncertainty and posing a threat to an organization’s high-priority goals (Ulmer et al., 2011). According to Hermann (1963), three conditions constitute a crisis: a triggering event causing a threat to the organization, a short term response by the organization and surprise. During crisis events, organizations experience an urgency to contain and at the same time provide information, which oftentimes interrupts an organization’s normal operations (Lee, 2005).

A crisis can damage an organization’s reputation, maintained by stakeholders and publics through information processed and gathered via media outlets (Bell, 2010). Organizational crisis response is thus considered essential in order to minimize reputational damage, remove the crisis threat and restore image (Ray, 1999). Specific crisis response strategies provide organizations with measures to repair and/or prevent (further) damage to their reputation (Coombs & Holladay, 2005; Coombs, 2007). However, in an event of a crisis, airlines may be faced with a multitude of information release restrictions and potential legal consequences that may influence their initial crisis response (Downing, 2004). Limiting information release can lead to misinformation, conflicting, or even false reports of unreliable eyewitnesses and journalists trying fill in information gaps (Calloway, 1991; Nigam, 2013). These developments can pose an enormous threat to an organization’s legitimacy. Despite any factual proof, Malaysia Airlines as an airline
organization was facing increased scrutiny as their pilots of vanished flight 370 became the focal point of the investigation a few days into the search (Almasy et al., 2014). The affordances of social media as uncontrolled communication channels amplify the aforementioned effects, exacerbating information control and thus increase the potential of reputation damage created through negative word-of-mouth (Jansen et al., 2009). In the airline industry, companies try to differentiate themselves with almost homogenous products, which makes brand and reputation management as well as effective crisis communication particularly relevant (Doganis, 2006). On social media platforms, different contexts, audiences and stakeholders collapse as crisis managers, influential bloggers, critics, crisis victims, existing and potential customers may all communicate actively or passively on these platforms (Coombs, 2007; Marwick & boyd, 2010, Litt, 2012). While organizations use these platforms as useful public relations and marketing tools (Wang, 2012), this context and audience collapse combined with user-generated content on social media amplifies the danger of exposure and reputation damage to an organization in crisis (DiStaso et al., 2011).

The Asiana Airlines crash at San Francisco International Airport and the ensuing online reactions exemplified the relevance of social media platforms for crisis communication. Peer-to-peer interaction as a phenomenon of sociological and technological design interest (Palen & Liu, 2007) has been facilitated and has changed crisis communication practice. The classical asymmetrical one-to-many, organization to public communication, by an organization’s spokesperson to the public, is challenged (Wright & Hinson, 2009), as members of a public can become more visibly involved in crisis events and can communicate reciprocally on a much broader scope (Palen & Liu, 2007). It was found that public’s usage of social media increases during times of crisis (Pew Internet & American Life, 2006), especially during the initial crisis
events (Thelwall & Stuart, 2007). Users turn to social media platforms, which provide emotional support, the opportunity to band together, share information in real-time and emotionally vent (Choi & Lin, 2009; Stephens & Malone, 2009; Jin & Liu, 2010). In addition, status updates have been found to provide situational awareness (Semaan & Mark, 2012).

Social media crisis communication can allow organizations to communicate more interactively with their audiences and respond to crises more immediately (Coombs, 2008). However, a survey of 300 respondents on business continuity and changing environments conducted by the consulting firm PricewaterhouseCoopers LLP (PwC) found that 57% of their respondents do not use social media as a resource for crisis management. Only 8% of the respondents view social media as an “enabler for their organization to proactively identify and respond to crisis events” (PwC, 2013). The findings suggest that organizations are still hesitant in their utilization of social media within their crisis communication plans (PwC, 2013). Despite its importance and increasing relevance, research incorporating social media in crisis communication is as well just emerging (Austin et al., 2012). The following section highlights literature on crisis communication research focusing on crisis information channels, form and source.
2.2 Effects of crisis information channel, form and source

Crisis communication research evolved from case study-based theory to experimental approaches, incorporating social media in the theoretical concepts and examining the importance of information channels, source and form (Jin et al. 2011; Austin et al., 2012). This section reviews several relevant studies, which looked at the effects of these factors and found implicating results with relevance for organizations in crisis.

Convenience, involvement, personal recommendation and information overload were found to be significant factors determining publics’ use of media during crises (Austin et al., 2012). The factor of convenience suggests that publics use the media channel that is most convenient to them in their specific situation. According to the researchers, publics are also most likely to seek further crisis information on the same channel through which they received the initial information. For instance, individuals likely seek further crisis information on television, when the initial crisis information was received through television. When the initial crisis information was received through social media, individuals are likely to seek further information on social media platforms and through interpersonal communications (Austin et al., 2012). These findings extend channel complimentary theory (Dutta-Bergman, 2006), which states that individuals likely use media channels that provide the most relevant functions to them.

Austin et al. (2012) also found that publics who are involved in the crisis issue to a greater degree are more likely to consume media. These findings relate to a study on media use in general, in which Hamilton (1992) found that active publics used media significantly more than other publics. The concepts of involvement and active publics will be introduced in greater detail in section 2.3 of this study. Personal recommendations from others were also found to determine media use during crises, when individuals followed upon a recommendation received from
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others to use specific media for crisis information-seeking (Austin et al., 2012). These findings are highly relevant for social media communication during crises, with the affordances of social media (boyd, 2011) encouraging the sharing of content and thus enabling individuals to easily bring crisis topics to other’s attention at the speed of clicking on a website. However, publics also indicated that information overload, a perceived excessive amount of information on one topic, prevents them from seeking further crisis information (Austin et al., 2012). Roughly ten days into the investigation, the Cable News Network (CNN) has been criticized by other news outlets and individuals on social media for its almost nonstop coverage of the missing Malaysia Airlines aircraft, despite the investigation’s lack of evidence and progress. However, while the network had to deal with criticism on one hand, their TV ratings surged during that time, supporting the claim for publics’ need for crisis information (Carter, 2014). In terms of social media use, humor was found to be a moderating factor of publics’ media use, when individuals purposely avoided or sought humorous content about crises on social media. Perceived function also emerged as an additional factor determining social media use during crises. Individuals may not associate social media with crisis information-seeking and may thus avoid these platforms for such purposes (Austin et al., 2012). In general, publics perceived traditional media to be more credible than social media (Austin et al., 2012), which contrasts previous findings from Bates and Callison (2008). Avery (2010) suggests that publics in crisis situations likely welcome crisis information through any channel and the perceived credibility criteria of information channels may be dropped in such situations. The findings contrast results from Austin et al. (2012), who suggest that publics’ rank the significance of their perceived channel credibility higher than their habitual media use in crisis situations. The review of existing literature highlights the information channel as an important component in publics’ information-seeking behavior.
In fact, the medium, through which crisis information is communicated, was found to have a great effect on publics’ perception of organizations in crisis.

In an experimental study, Schulz et al. (2011) examined the effects of organizations’ traditional and social-media crisis response strategies on stakeholders’ secondary crisis communication and reactions as well as on their perceptions of the organizations’ reputation. Secondary crisis communication is defined as crisis response recipients’ willingness to share received information about the crisis with others. Secondary crisis reactions are referred to as crisis response recipients’ behavioral intentions towards an organization after a crisis (Schultz et al., 2011). The researchers tested apologetic, sympathetic, and informative response strategies communicated through newspaper, blogs and Twitter as a microblogging tool and found that the medium had a greater effect on reputation, secondary crisis communication and reactions than the message itself.

The crisis message was found to have only an effect on secondary crisis reactions. Informative response strategies were most successful in the experiment and resulted in less negative crisis reactions than apologetic and sympathetic strategies (Schultz et al., 2011). These findings highlight the importance of informational messages in crisis situations. In general, publics firstly seek information about the reasons for the crisis, followed by information about who is accountable for the crisis (Austin et al., 2012). The researchers found that individuals seek out crisis information on social media to gain insider perspectives and in case of personal involvement, to find out about necessary response steps.

While the literature suggests that the crisis information channel, as well as the information form, play a significant role in publics’ information-seeking behavior, studies also show the importance of the crisis information source. It was found that the source distributing crisis
information has a moderating effect on publics’ information-seeking behavior and their acceptance of crisis response strategies (Austin et al., 2012). When crisis information was received directly from the organization, individuals are less likely to seek out further crisis information (Austin et al., 2012). These findings suggest that publics’ desire for information-seeking during crises is satisfied when they receive crisis information directly through organizational sources. Further, an organization’s defensive or evasive crisis response was found more likely to be accepted by publics when the source of information was the organization itself. These findings suggest a strong correlation between information form and source, which were further tested for perceived emotions. It was found that anger, disgust and contempt were most likely perceived by stakeholders when the crisis information was received through word-of-mouth and less likely when received through an organizational source or traditional media (Liu et al., 2011).

It can be deduced that organizations, in this case airline organizations, should actively communicate informational crisis messages by carefully choosing the right communication channels in order to influence emotions and mitigate negative perceptions of their reputation. However, in order to be most effective and efficient, public relations practitioners and airline organizations’ departments in charge for disseminating crisis information need to be aware of their target audiences and define their publics. These publics will eventually determine the organizations’ success or failure (Cutlip et al., 2000) and thus require a thorough definition. Section 2.3 provides key definitions of publics and introduces the situational theory of publics in order to allow a more thorough segmentation.
2.3 Defining publics and the situational theory of publics

Public relations manage the “communication between an organization and its publics” (Grunig & Hunt, 1984, p. 6). It presumes that effective and efficient management, and thus organizational success, can be assured if the organization is knowledgeable about its publics (Grunig, 1997). Dewey (1927) and Blumer (1946) defined publics as groups actively involved in issues taking place in the communal space. According to Monberg (1998), “publics are created when citizens come together to form a community, deliberating about common aims and values” (p. 430). Blumer (1966), Grunig (1997), and Grunig and Hunt (1984) view publics as homogeneous social groups, who work together towards the solution of a common problem. Members of an organization’s public behave similarly toward a shared issue or problem but may demonstrate different degrees of activity and passivity as well as different potentials of communicating about issues with others (Cutlip et. al, 2000; Hallahan, 1999). Airline crises significantly affect the communal space and produce different publics with potentially differing informational needs, interests and communicative behaviors.

Grounded in systems theory, the situational theory of publics (Grunig, 1983a; 1989b; 1997) was created to provide a framework to predict publics’ response to problems as well as their communication behaviors in problem situations. By enabling the segmentation of publics into different groups, the theory predicts the effectiveness of communication aimed at certain groups of individuals (Grunig & Hunt, 1984). The efficiency and the effectiveness of an organization’s communication activities, which have been designed to achieve certain organizational and communicative objectives, can be increased by singling out a cohesive but distinct group of individuals from a general, greater population (Grunig, 1997). In the event of an airline crisis, publics are faced with a multitude of issues that may affect them in different ways.
In fact, the issues may not affect them at all. Therefore, the extent to which publics participate in communication behavior to resolve a problem situation is different (Grunig, 1983a).

The situational theory of publics (Grunig, 1983a; 1989b; 1997) asserts that individuals display two forms of communication behavior: active information-seeking and passive information-processing. These two behavioral outcome variables are influenced by the three independent variables of level of involvement, constraint recognition, and problem recognition (see figure 1; adapted from Grunig, 1997).

![Figure 1: Situational theory of publics, adopted from Grunig (1997)](image)

Level of involvement is described in the situational theory of publics as the degree an individual is personally involved in or connected to an issue (Grunig, 1997). Research found that a high level of involvement leads to resonating messages and to individuals processing messages at a greater rate (Aldoory, 2001; Grunig, 1997). When individuals perceive an issue or problem to be closely related to their personal life, their consumption of information becomes systematic
(Grunig, 1997). Problem recognition is described as the degree of individuals recognizing an issue as a problem (Grunig, 1997). Constraint recognition is the perceived extent of control over taking action to solve a problem and refers to the perceived barriers inhibiting individuals to react to a certain issue (Grunig, 1997). Referring back to the aforementioned information overload, it was found that when individuals perceive an excess of information about a certain issue, they desist from processing information (Aldoory & Van Dyke, 2006). Such a perceived overload of information is highly relevant and cannot be overlooked by public relations practitioners and organizations in this day and age with social media and new media technologies enabling citizen journalism (Allan & Thorsen, 2009) and accidental spokespersons (Nigam, 2014) to compete with traditional media about crisis information dissemination.

Information-seeking is described as the purposeful inquiry for messages about a certain issue (Grunig, 1997), whereas information-processing can be defined as the processing and pursuit of a message about an issue only after encountering it (Clarke & Kline, 1974).

According to the theory, different publics emerge based on these described variables (Grunig, 1997). Active publics are publics with high involvement in the problem, high problem recognition and low constraint recognition. According to Grunig (1992; 1997), these publics actively seek information and develop more organized attitudes towards and cognitions of the problem, as well as higher degrees of situational-relevant behavior.

Publics with low involvement in the problem, high problem recognition and low constraint recognition are considered to be aware with a tendency to be active. The same holds true for publics with high involvement, high problem and high constraint recognition. Publics with low involvement, high problem and high constraint recognition are considered latent with a tendency to become aware. Active but only reinforcing publics are considered publics with high
involvement but low problem and constraint recognition. Publics with low involvement, low problem and constraint recognition are defined as inactive publics with a tendency to become latent. High involvement and constraint recognition but low problem recognition leads to latent publics. Entirely inactive publics are those with low involvement, low problem recognition and high constraint recognition (Grunig, 1997). An overview of all behaviors and resulting publics is shown in table 1.

Table 1

*Communication behavior and publics*

<table>
<thead>
<tr>
<th>Behavior/Publics</th>
<th>Active/Reinforcing</th>
<th>Aware/Active</th>
<th>Aware/Active</th>
<th>Latent/Aware</th>
<th>Inactive/Latent</th>
<th>Latent</th>
<th>Inactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement Recognition</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Problem Recognition</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Constraint Recognition</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 1: Communication behavior and publics, adopted from Grunig and Hunt (1984).

In summary, active publics are much more likely to participate in communication behavior in order to resolve problems than latent publics. Latent publics may process information but are unmotivated and thus unlikely to become active in communication behavior to solve the problem. Inactive publics, or non-publics, do not engage in communication behavior at all, because they do not see the problem (Grunig, 1997).

The situational theory of publics supports the strategic management of public relations and information messages as it helps organizations to identify and interact with strategic publics in and around an organization (Grunig, Grunig, & Dozier, 2002) instead of communicating to one
general public. The theory has been applied to several different communication contexts and settings, such as health communication (Aldoory, 2001), cultural communication (Sriramesh et al., 2007), investor relations (Cameron, 1992) or activism (Grunig, 1989c). Studies of the theory in publics’ response to disasters support the theory’s assertion of multiple publics forming in response to crises instead of one general public (Grunig, 1997; Major, 1998). Aldoory and Van Dyke (2006) and Vardeman and Aldoory (2008) found the theory’s three independent variables closely related to factors such as perceived severity, perceived susceptibility, and low self-efficacy. Findings from these studies suggest that multiple publics with differing communication behaviors are likely to emerge during airline crises. It can be argued that airline crises induce high levels of uncertainty among publics and given the nature of these crises, publics may not feel that they can do much about the problem, leading to a more passive information-seeking approach. However, with these crises attracting great media coverage and public interest, as the TV ratings of CNN despite the criticism show, individuals may feel a greater need for information in airline crises and thus become more active information-seekers (Avery, 2010).

The situational theory of publics (Grunig, 1983a; 1989b; 1997) is considered to be capable of defining the different publics emerging in airline crises and of predicting their information-seeking behavior. However, the theory falls short of explaining publics’ information-providing behavior, which leads to a review of an extended and enhanced version of the situational theory of publics, the situational theory of problem solving (STOPS), developed by Kim and Grunig (2011).
2.4 The situational theory of problem solving (STOPS)

The STOPS is an evolved theoretical framework of the situational theory of publics (Kim & Grunig, 2011) and will be further introduced in this section.

The theory has been developed by integrating the communicative behavioral concepts of information-sharing and information-selecting in an effort to describe the communicative behavior of publics more holistically and with a focus on their communicative action instead of solely focusing on their information acquisition (Kim & Grunig, 2011). The two variables of information-sharing and information-selecting are considered significant for the description of individuals’ desire to solve problems. The assumption is that the selection of particular information over other information and sharing this information with others facilitates the problem solving process. These behaviors are said to reproduce similar perceptions about the issue among other individuals and thus may lead to greater attention to solving the problem (Chwe, 2001; Gamson, 1992).

Kim and Grunig (2011) reintroduced referent criterion as the fourth independent variable of the original situational theory of publics, of which it had been dropped, because it was determined to be not indicative of predicting information-seeking and processing (Grunig, 1997). Several researchers (Kim et al., 2008; Sriramesh et al., 2007), however, insisted on the conceptual and practical benefits of this variable. Kim and Grunig (2011) also added situational motivation as an antecedent variable to communicative action and tested its utility as a mediating factor of perception on communicative behaviors.

The situational theory of publics’ dependent variables of information-seeking and processing have been generalized by Kim and Grunig (2011) into communicative action in problem solving, which contains the variables of information-transmission, selecting and
acquisition, further described by active and passive components. Communicative action in problem solving contains six dependent communication subvariables in three domains of communicative action. Active information-seeking and passive information-attending in the information-acquiring domain; active information-forefending and passive information-permitting in the information-selecting domain, and active information-forwarding and passive information-sharing in the information-transmitting domain (see, figure 2, adapted from Kim & Grunig, 2011).

Figure 2: Situational theory of problem solving, adopted from Kim et al. (2011).
The STOPS assumes that individuals’ motivation to solve problems and their instrumental and purposeful use of communication increases the more problems are seen as more serious (Grunig, 1997). Individuals become selective in obtaining information and feel the desire to transmit information to others (Kim & Grunig, 2011), which in turn raises the level of attention paid by others towards the problem (Chwe, 2001) and may reinforce and reproduce similar problem perceptions among other individuals (Rosenstone & Hansen, 1996).

The two dependent variables of information-seeking and information-attending refer back to the situational theory of publics, with information-processing being recoded as information-attending in the STOPS, assuming that active publics both seek and attend to information about the problem, whereas less active publics only, if at all, attend to information (Kim & Grunig, 2011). In terms of information-selection, the variable of information-forefending describes the extent to which an individual fends off particular information in advance by assigning value and relevance for problem-solving on it. Kim and Grunig (2011) argue that individuals oftentimes forefend information because they select information based on what matches their own perspective rather than because they simply display apathy. On the other hand, information-permitting describes the extent to which an individual is open to any information related to solving the problem. It is assumed that motivation is a determining factor for information-permitting behavior as highly motivated individuals are more likely to show greater effort and are thus more open to a broader range of information (Kim & Grunig, 2011). In the realm of information-giving, passive information-sharing refers to individuals sharing information about the problem reactively or involuntarily, whereas information-forwarding individuals forward and thus share information about the problem proactively due to an increased problem perception.
Active problem solvers thus display the communicative behaviors of information-seeking, forwarding, and forefending, and passive problem solvers remain reactive and display greater degrees of information-attending, sharing, and permitting (Kim & Grunig, 2011).

The STOPS’ independent variables consist of problem recognition, involvement recognition, constraint recognition, referent criterion and situational motivation in problem solving (Kim & Grunig, 2011). Different from the definition of problem recognition in the situational theory of publics (Grunig, 1997), Kim and Grunig (2011) define this variable as “one’s perception that something is missing and that there is no immediately applicable solution to it” (p. 128). Based on the argument that individuals can only act towards solving a problem, when they perceive the situation as problematic, level of involvement (Grunig, 1997) has been redefined by Kim and Grunig (2011) to form the variable of involvement recognition, describing the perceived connection between oneself to a problem. The researchers adopt Grunig’s (1997) definition of constraint recognition, arguing that, despite high problem recognition, and/or perceived involvement, it discourages both individuals’ information-seeking and attending (Ramanadhan & Viswanath, 2006). Grounded in the assumption that individuals approach problem situations by referring back to experiences with similar situations (Carter, 1965; Higgins, 1996), the independent variable of referent criterion is defined by Kim and Grunig (2011) as “any knowledge or subjective judgmental system” (p. 131), which influences individuals’ behavior towards solving a problem situation. The researchers add that a stronger “presence and extent of wishful thinking and/or willful thinking” during the problem-solving process will lead to a greater degree of information-seeking, selecting, and giving. Kim and Grunig (2011) conceptualize the independent variable of situational motivation in problem solving as “the extent to which a person stops to think about, is curious about, or wants
more understanding of a problem” (p. 132). It is a goal-oriented, mediating concept, influencing the effect of the other independent variables of problem recognition, constraint recognition, and involvement recognition on information use that is different from other motivational concepts, such as the need for social interactions (Graham et al., 1993). The situational motivation increases when an individual perceives a problem and his or her connection to it without perceiving constraints (Kim & Grunig, 2011). Kim and Grunig (2011) found the situational motivation to be the most powerful predictor of communication activeness among all antecedent variables tested. The STOPS describes the communicative actions of passive, active and activist publics, i.e. individuals, who create a collective identity and movement network (Klandermans, 1994; Mueller, 1994) towards an issue by hyperactively spreading their opinions, perceptions and solutions among influential people (Ferre, 1992; Stewart et al., 1994; Tarrow, 1998) in greater detail, and segments publics into active publics with referent criterion, active publics without referent criterion, passive publics with referent criterion, and passive publics without referent criterion (Kim & Grunig, 2011).

In addition to examining the STOPS’ independent variables in an airline crises context, this study further explains the potential moderating effect of specific variables on some of the STOPS’ independent variables. The potential effects of individuals’ level of frequent air travel as well as their general interest in aviation and airline topics will be assessed. An illustration of the relationships is provided in figure 3 on page 20.
Figure 3: Partial model of the STOPS showing the moderating predictors and the potential influence on the model’s independent variables (modified figure adopted from Kim et al. (2011)).

The following section introduces the research questions and hypotheses to be addressed in this study.
3 Research questions and hypotheses

The STOPS has been tested and applied to different contexts (Kim et al., 2011; Kim et al., 2012; Ni, 2012). The theoretical concepts have been widely supported and the theory was found to provide an excellent framework for the purpose of this thesis. This study focuses on the independent variables of the STOPS and their application to airline crisis context as well as on potential mediating factors predicting publics’ communicative behavior during airline crises. Therefore, the following overarching research question has been developed:

*RQ1*: With a focus on the independent variables of the STOPS, how does the model relate to airline crisis situations and how do potential mediating factors influence the independent variables?

According to Kim and Grunig (2011), involvement recognition and situational motivation in problem solving describe the perceived connection between oneself to a problem, and “the extent to which a person stops to think about, is curious about, or wants more understanding of a problem” (p. 132), respectively. Kim and Grunig (2011) and Kim et al. (2011) found positive relationships between involvement recognition and situational motivation, which leads to believe that individuals, who perceive a stronger connection to airline crises show a greater degree in curiosity and motivation to solve the issue. Therefore, the following hypothesis has been developed:

*H1*: Individuals’ involvement recognition is positively correlated with their situational motivation in problem solving during airline crises.
According to Kim and Grunig’s (2011), a referent criterion is defined as “any knowledge or subjective judgmental system” (p. 131), which influences individuals’ behavior towards solving a problem situation. The researchers assert that individuals judge a problem situation based on past experiences. It can thus be assumed that individuals, who are more frequent air travelers, subscribe to a referent criterion at a greater degree during airline crises based on their greater experience with air travel. The following has therefore been hypothesized:

H2: Frequent air travel is positively correlated to a greater subscription to a referent criterion, in that the more frequent an individual travels by air, the greater the subscription to a referent criterion in airline crises.

The STOPS’ variables of problem recognition and involvement recognition measure “one’s perception that something is missing and that there is no immediately applicable solution to it” (Kim & Grunig, 2011, p. 128), and the perceived connection between oneself to a problem, respectively. The variables of constraint recognition and referent criterion assess the perceived extent of control over taking action to solve a problem (Grunig, 1997), and “any knowledge or subjective judgmental system” (Kim & Grunig, 2011, p. 131), influencing individuals’ behavior towards solving a problem situation. Kim et al. (2012) found that cross-situational factors can influence individuals’ communicative behavior. They assert that a greater general interest in the topic the problem is situated in, leads to greater problem perceptions and stronger cognitive frames about the issue in form of increased problem and involvement recognition, less constraint recognition and an increased activated referent criterion. This leads to the assumption that individuals, who have a general interest in airline and aviation topics, develop a greater problem and involvement recognition but perceive fewer constraints during airline crises and refer back to
similar crisis situations more often than individuals with less general interest in these topics. Therefore, the following hypotheses have been developed:

**H3:** The greater an individual’s general interest in aviation and airline topics, the greater their problem and involvement recognition during airline crises.

**H4:** A greater individual general interest in aviation and airline topics leads to a lesser degree of constraint recognition during airline crises.

**H5:** The greater an individual’s general interest in aviation and airline topics, the more their subscription to a referent criterion increases.

With regard to the importance of crisis information channel, form, and source described in section 2.2 of this study, the situational theory of publics is further used to segment publics and explain their informational needs, and information and communication channel selection during airline crises. According to the situational theory of publics (Grunig, 1997), an assessment of the three independent variables of problem recognition, constraint recognition, and level of involvement, measuring the degree of individuals’ recognizing an issue as a problem, the perceived extent of control over taking action to solve a problem, and the degree an individual is personally involved in or connected to an issue, respectively, segments individuals in active, aware, latent and non-publics. Literature suggests that different publics use different media channels for information-seeking purposes. Active publics likely seek information on whatever channel they can use, whereas less active publics likely utilize channels they habitually use in non-problem-related situations (Hamilton, 1992). Major (1998) found that highly involved individuals likely rely on interpersonal communication channels.
Avery (2010) supports these findings and found that direct communication as an active channel is used significantly more by those highly involved in health crises. Therefore, the following research question has been developed:

*RQ2*: How, if at all, do publics differ in terms of their selection of information and communication channels during airline crises?

Research on the effects of crisis messages and form on publics highlighted the importance of informational messages communicated directly by the organization, providing information about the crisis cause and accountability. So far, the very specific content of information individuals perceive as important during airline crises has not been researched. In addition, it would be of interest to see if specific crisis information is viewed differently by different publics in terms of their perceived importance. Therefore, the following research question has been established:

*RQ3*: What specific crisis information do publics perceive as important during airline crises and what, if any, are the differences in perception among different publics?

Demographic information and air travel habits will be examined for potential mediating roles in determining what information and communication channels publics use for problem solving during airline crises, leading to the development of the following research question:

*RQ4*: What, if any, are the effects of demographics and air travel habits on information and communication channel selection for communicative action in problem solving?
4 Methods

The following sections introduce the studied population as well as sampling form and provide an overview of the methods used for data gathering and analyses. The sections further explain the creation and administration of the research instrument.

4.1 Population and sampling

The studied population consisted of individuals, who were at least 18 years of age or older, had access to the Internet and are able to understand the English language. The research problem does not address a specific population and aside from the abovementioned characteristics, there were no particular participation criteria. Therefore, a non-random convenience sample has been determined to be the appropriate sampling form for this study (Reinard, 2008).

4.2 Instrument creation

In order to add intriguing information to the knowledge of crisis communication in the airline industry and about mediating factors of publics’ communication behavior during airline crises, a questionnaire survey has been created (Reinard, 2008), using both existing scales and context-specific scales added by the researcher. This section provides a description of how the different variables in the study’s hypotheses and research questions will be operationalized. An overview of all variables and their respective operationalization is shown in table 2 on pages 26 – 28.
<table>
<thead>
<tr>
<th>Hypothesis or RQ</th>
<th>Variable name</th>
<th>Type of variable</th>
<th>Operationalized</th>
<th>Represented items in the survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1</td>
<td>Individuals’ involvement recognition</td>
<td>Independent</td>
<td>In three (3) Likert scale items adopted from Kim et al. (2012), modified to fit the context of this study.</td>
<td>Section 1, items 1 and 2; section 2, item 4</td>
</tr>
<tr>
<td>Hypothesis 1</td>
<td>Individuals’ situational motivation in problem solving</td>
<td>Dependent</td>
<td>In three (3) Likert scale items adopted from Kim et al. (2012), modified to fit the context of this study.</td>
<td>Section 1, items 2 and 3, section 2, item 4</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>Individuals’ level of frequent air travel</td>
<td>Independent</td>
<td>In seven (7) multiple choice items.</td>
<td>Section 4, items 9 and 10</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>Individual’s referent criterion subscription</td>
<td>Dependent</td>
<td>In three (3) Likert scale items adopted from Kim et al. (2012), modified to fit the context of this study.</td>
<td>Section 2, item 5</td>
</tr>
<tr>
<td>Hypotheses 3 – 5</td>
<td>Individuals’ general interest in aviation and airline topics</td>
<td>Independent</td>
<td>In four (4) Likert scale items adopted from Kim et al. (2012), modified to fit the context of this study.</td>
<td>Section 5, item 13</td>
</tr>
<tr>
<td>Hypothesis or RQ</td>
<td>Variable name</td>
<td>Type of variable</td>
<td>Operationalized</td>
<td>Represented items in the survey</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------</td>
<td>------------------</td>
<td>------------------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>Individuals’ problem recognition</td>
<td>Dependent</td>
<td>In three (3) Likert scale items adopted from Kim et al. (2012), modified to fit the context of this study.</td>
<td>Section 1, item 2; section 2, item 4</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>Individuals’ involvement recognition</td>
<td>Dependent</td>
<td>In three (3) Likert scale items adopted from Kim et al. (2012), modified to fit the context of this study.</td>
<td>Section 1, items 1 and 2, section 2, item 4</td>
</tr>
<tr>
<td>Hypothesis 4</td>
<td>Individuals’ constraint recognition</td>
<td>Dependent</td>
<td>In two (2) Likert scale items adopted from Kim et al. (2012), modified to fit the context of this study.</td>
<td>Section 1, item 2; section 2, item 4</td>
</tr>
<tr>
<td>Hypothesis 5</td>
<td>Individuals’ referent criterion subscription</td>
<td>Dependent</td>
<td>In three (3) Likert scale items adopted from Kim et al. (2012), modified to fit the context of this study.</td>
<td>Section 2, item 5</td>
</tr>
<tr>
<td>Research question</td>
<td>Variable name</td>
<td>Type of variable</td>
<td>Operationalized</td>
<td>Represented items in the survey</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------</td>
<td>------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>2</td>
<td>Different publics</td>
<td>Independent</td>
<td>Through segmentation of publics in three (3) Likert scale items adopted from Grunig and Hunt (1984), modified to fit the context of this study.</td>
<td>Section 3, items 6 – 8</td>
</tr>
<tr>
<td>2</td>
<td>Individuals’ channel selection</td>
<td>Dependent</td>
<td>In one (1) Likert scale item.</td>
<td>Section 5, item 12</td>
</tr>
<tr>
<td>3</td>
<td>Different publics</td>
<td>Independent</td>
<td>Through segmentation of publics in three (3) Likert scale items adopted from Grunig and Hunt (1984), modified to fit the context of this study.</td>
<td>Section 3, items 6 – 8</td>
</tr>
<tr>
<td>3</td>
<td>Specific crisis information</td>
<td>Dependent</td>
<td>In one (1) Likert scale item.</td>
<td>Section 5, item 11</td>
</tr>
<tr>
<td>4</td>
<td>Demographics</td>
<td>Independent</td>
<td>In four (4) multiple choice items.</td>
<td>Section 6, items 14 – 17</td>
</tr>
<tr>
<td>4</td>
<td>Air travel habits</td>
<td>Independent</td>
<td>In seven (7) multiple choice items.</td>
<td>Section 4, items 9 and 10</td>
</tr>
<tr>
<td>4</td>
<td>Individuals’ channel selection</td>
<td>Dependent</td>
<td>In one (1) Likert scale item.</td>
<td>Section 5, item 12</td>
</tr>
</tbody>
</table>

Table 2: Overview of variables and operationalization (ranges from pp. 27 – 28)
Research question 1 (RQ1) is an overarching research question that is further examined with an assessment of the following hypotheses 1 through 5 (H1 – H5). It therefore has no separate and distinct variables. The question is answered in accordance with the results of hypotheses 1 through 5 (H1 – H5). Hypothesis 1 (H1) addresses individuals’ involvement recognition and their situational motivation in problem solving during airline crises. These variables have been measured by assessing the studied population’s level of agreement on a 7-point Likert scale (1 = not at all to 7 = extremely) to six (6) items adopted from Kim et al. (2012) and modified to fit the context of this study. Items 1 and 2 in section 1, and item 4 in section 2 of the instrument assessed involvement recognition and have been phrased as follows:

- In your mind, how much of a connection do you see between yourself and airline crises?
- To what extent do you believe airline crises could involve you or someone close to you at some point?
- How much do you believe airline crises affect or could affect you personally?

Situational motivation in problem solving has been assessed in items 2 and 3 in section 1, and item 4 in section 2 of the instrument. The questions were asked as follows:

- How often do you stop to think about airline crises?
- To what extent would you say you are curious about airline crises?
- Please indicate how much you would like to understand airline crises better.

Hypothesis 2 (H2) looks at the relation of frequent air travel and individuals’ subscription to a referent criterion. Frequent air travel has been measured by assessing the studied population’s air travel habits. Respondents were asked to answer seven (7) multiple choice questions. The exact wording of these items represented in items 9 and 10 in section 4 of the survey instrument is outlined in the appendix.
Referent criterion, as a variable of the STOPS (Kim & Grunig, 2011), has been measured by assessing the studied population’s level of agreement on a 7-point Likert scale (1 = not at all to 7 = extremely) to the following three (3) items adopted from Kim et al. (2012) and modified to fit the context of this study.

The items were represented in item 5 in section 2 of the survey instrument.

- I know how I should behave regarding airline crises.
- I strongly support a certain way of doing something about airline crises.
- Past experience has provided me with guidelines for doing something about airline crises.

Hypotheses 3 to 5 (H3 – H5) address the relation between an individual’s general interest in aviation and airline topics and their problem, constraint and involvement recognition as well as to their subscription to a referent criterion during airline crises. In order to measure individuals’ general interest in aviation and airline topics, respondents were asked to indicate their level of agreement on a 7-point Likert scale (1 = not at all to 7 = extremely) to four (4) items adopted from Kim et al. (2012) and modified to fit the context of this study. The following items were represented in item 13 in section 5 of the survey instrument:

- I enjoy reading airline and/or aviation news in newspapers and magazines.
- I personally subscribe or used to subscribe to online or printed publications that cover airline and/or aviation issues or agendas.
- I enjoy talking about news or information about airline and/or aviation issues with friends or family.
- Even if there are no particular airline and/or aviation hot issues, I enjoy conversations with acquaintances about airline and/or aviation topics or news.
The STOPs’ variables of problem, constraint and involvement recognition have been measured by assessing the studied population’s level of agreement on a 7-point Likert scale (1 = not at all to 7 = extremely) to 11 items adopted from Kim et al. (2012) and modified to fit the context of this study.

The following items were represented in items 1 and 2 in section 1, and item 4 in section 2 (involvement, problem and constraint recognition), and item 5 in section 2 (referent criterion) of the survey instrument:

Problem recognition:

- To what extent do you think there is something missing about airline crises?
- How much does an airline crisis situation differ from your expectations?
- How strongly do you feel that something needs to be done to improve the situation for airline crises?

Constraint recognition:

- Please consider whether you, personally, could do anything that would make a difference in the way airline crisis situations are handled. If you wanted to do something, would your efforts make a difference? (R)
- To what extent do you believe that you could affect the way airline crises are eventually solved if you wanted to? (R)

Involvement recognition:

- In your mind, how much of a connection do you see between yourself and airline crises?
- To what extent do you believe airline crises could involve you or someone close to you at some point?
- How much do you believe airline crises affect or could affect you personally?
Referent criterion:

- I know how I should behave regarding airline crises.
- I strongly support a certain way of doing something about airline crises.
- Past experience has provided me with guidelines for doing something about airline crises.

Research question 2 (RQ2) examines potential differences in publics’ selections of information and communication channels during airline crises. In order to address this hypothesis, a segmentation of publics into active, aware, latent and non-publics was necessary. For these measures, the segmentation procedures of Grunig and Hunt (1984) have been followed. The three independent variables of the situational theory of publics, problem recognition, constraint recognition, and level of involvement (Grunig, 1997), have been assessed in three (3) items represented in items 6 – 8 in section 3 of the survey instrument. Wording of the items has been adopted from Grunig and Hunt (1984) and modified to fit the context of this study.

Problem recognition has been measured by asking respondents to indicate how often they stop and think about six issues on a 4-point Likert scale from 1 (never) to 4 (often).

Constraint recognition has been measured by asking respondents to indicate their agreement on whether they think they could do anything about the way the six issues are handled on a 4-point Likert scale from 1 (none) to 4 (great deal).

Level of involvement has been assessed by asking respondents to indicate the strength of the connection between them and each of the six issues on a 4-point Likert scale from 1 (none) to 4 (strong).

A detailed listing and exact wording of the operationalization of these variables can be found in the appendix.
Individuals’ selection of information and communication channels during airline crises has been measured by assessing their importance of different channels in airline crisis situations. Respondents were asked the following one (1) question, represented in item 12 in section 5 of the survey instrument:

How important are the following information and communication channels to you in airline crisis situations?

Respondents were then asked to indicate the importance of the following channels to them on a 7-point Likert scale from 1 (not at all important) to 7 (extremely important):

- TV
- Print media
- Internet (without social media)
- Social media
- Interpersonal communication

Research question 3 ($RQ3$) attends to the specific crisis information publics perceive as important during airline crises and any potential differences in perception among different publics. In order to measure what specific crisis information publics perceive as important during airline crises, respondents were asked the following one (1) question, represented in item 11 in section 5 of the survey instrument:

How important is the following information to you during airline crises?

Respondents were then asked to indicate the level of importance of the following answers to them on a 7-point Likert scale from 1 (not at all important) to 7 (extremely important):

- Cause of accident
- Potential victims
PUBLICS’ COMMUNICATION DURING AIRLINE CRISES

- Implications for travel
- Airline’s reaction
- Relief/care/what steps to take for those affected
- Progress of accident/incident investigation
- Insider information
- Airline’s reputation
- Accountability

The segmentation of publics has been measured by using the data gathered to address research question 2 (RQ2) following Grunig and Hunt’s (1984) approach. A detailed explanation of the operationalization of this variable can be found in the operationalization of research question 2 (RQ2).

In order to address research question 4 (RQ4), to obtain descriptive statistics and to examine potential mediating roles in determining what information and communication channels publics use for problem solving during airline crises, demographic information has been collected by asking respondents to answer four (4) multiple choice questions, represented in items 14 – 17 in section 6 of the survey instrument. The detailed wording of these items can be found in the appendix. Air travel habits have been assessed by using data gathered from attending hypothesis 2 (H2). Respondents were asked to answer seven (7) multiple choice questions. The exact wording of these items can be found in the appendix. Individuals’ information and communication channel selection for communicative action in problem solving has been assessed by using data gathered from attending research question 2 (RQ2). The operationalization can found in the description of research question 2 (RQ2).
4.3 Survey administration

The survey has been administered anonymously online, using the survey software Qualtrics. Since there was no specific target group, the invitation link to the survey has been posted on public forums that do not focus on a specific theme, asking for voluntary completion. The invitation link has also been distributed through social media and via email to achieve a greater rate of respondents. An informational consent form, which had to be digitally acknowledged by the respondents prior to the beginning of the survey, ensured that all participants were at least 18 years of age or older. IRB approval to conduct this research has been obtained by the researcher prior to the collection of data.

4.4 Results

Reliability of the survey items had been tested using Cronbach’s Alpha (Cronbach, 1951). Overall, the instrument was found to be internally consistent. The coefficient for individuals’ involvement recognition was $\alpha = 0.903$. For an individual’s situational motivation in problem solving, the coefficient was $\alpha = 0.846$, for referent criterion $\alpha = 0.780$, for general interest in aviation and airline topics $\alpha = 0.822$, and for constraint recognition $\alpha = 0.766$. For involvement recognition as part of the segmentation of publics, Cronbach’s Alpha was $\alpha = 0.897$, for problem recognition $\alpha = 0.810$, and for constraint recognition $\alpha = 0.882$. Cronbach’s Alpha for problem recognition was the only coefficient with a lower value of $\alpha = 0.597$. Since the corresponding scale only consisted of three (3) items, the researcher acknowledged the lower value. No item has been dropped as a consequence. An overview of the Cronbach’s Alpha coefficient values for all scale items is provided in table 3 on page 36.
Table 3

Cronbach’s Alpha coefficients of scale items

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Cronbach’s Alpha α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement Recognition</td>
<td>.903</td>
</tr>
<tr>
<td>Situational Motivation</td>
<td>.846</td>
</tr>
<tr>
<td>Problem Recognition</td>
<td>.597</td>
</tr>
<tr>
<td>General Interest</td>
<td>.822</td>
</tr>
<tr>
<td>Constraint Recognition</td>
<td>.766</td>
</tr>
<tr>
<td>Referent Criterion</td>
<td>.780</td>
</tr>
<tr>
<td>Involvement Recognition*</td>
<td>.897</td>
</tr>
<tr>
<td>Problem Recognition*</td>
<td>.810</td>
</tr>
<tr>
<td>Constraint Recognition*</td>
<td>.822</td>
</tr>
</tbody>
</table>

Note: * As part of the segmentation into publics following the procedures of Hunt and Grunig (1984)

Table 3: Overview of Cronbach’s Alpha coefficients of the research instrument’s scale items

A total of 106 individuals completed the survey. Of the 106 respondents, 95 individuals indicated their gender. 53.7% (N = 51) of the respondents were female, 46.3% (N = 44) male. Of the total 106 respondents, 96 individuals indicated their age, with 1% (N = 1) aged between 18 and 21 years old, 25% (N = 24) aged between 22 and 30, 29.2% (N = 28) between 31 and 40, 15.6% (N = 15) between 41 and 50, 16.7% (N = 16) between 51 and 60, 7.3% (N = 7) between 61 and 70, and 5.2% (N = 5) were aged over 70. Table 4 on page 37 provides an overview of age demographics.
Table 4

Distribution of the respondents’ age

<table>
<thead>
<tr>
<th>Age*</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 21</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>22 - 30</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td>31 - 40</td>
<td>28</td>
<td>29.2</td>
</tr>
<tr>
<td>41 - 50</td>
<td>15</td>
<td>15.6</td>
</tr>
<tr>
<td>51 - 60</td>
<td>16</td>
<td>16.7</td>
</tr>
<tr>
<td>61 - 70</td>
<td>7</td>
<td>7.3</td>
</tr>
<tr>
<td>&gt;70</td>
<td>5</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Note: * Total N = 96

Table 4: Demographic information: Distribution of the respondents’ age

96 individuals of the total 106 respondents of the survey indicated their highest level of education. Of those respondents, 2.1% \((N = 2)\) declared a high school degree as their highest level of education, 9.4% \((N = 9)\) stated some college education, 26% \((N = 25)\) an undergraduate degree, and 62.5% \((N = 60)\) a graduate degree. 0% \((N = 0)\) of the respondents indicated no level of education. Table 5 on page 38 provides an overview of respondents’ indicated highest level of education.
97 individuals of the total \( N = 106 \) stated the geographical region they live in. Of those respondents, 81.4\% \( (N = 79) \) were from North America, 11.3 \% \( (N = 11) \) from Europe, 2.1\% \( (N = 2) \) from Asia, 1\% \( (N = 1) \) from Africa, 4.1\% \( (N = 4) \) from Australia and Oceania, 0\% \( (N = 0) \) from the Middle East, and 0\% \( (N = 0) \) from Middle and South America. Table 6 on page 39 provides an overview of respondents’ indicated residence by geographic region.
Table 6: Respondents’ residence by geographic region

<table>
<thead>
<tr>
<th>Residence</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>79</td>
<td>81.4</td>
</tr>
<tr>
<td>Europe</td>
<td>11</td>
<td>11.3</td>
</tr>
<tr>
<td>Asia</td>
<td>2</td>
<td>2.1</td>
</tr>
<tr>
<td>Middle &amp; South America</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Africa</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Middle East</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Australia &amp; Oceania</td>
<td>4</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Note: * Total N = 97

In order to assess hypothesis 1 (H1) as part of the overarching research question 1 (RQ1), Pearson’s correlation coefficient analysis indicated that there is a strong and significant linear relationship ($r = 0.719$, $p = 0.00$, 1-tailed) between an individual’s involvement recognition and situational motivation in problem solving during airline crises. For these data, the mean for involvement recognition was 10.42 with a standard deviation (SD) of 5.07 ($N = 106$), and for situational motivation in problem solving 10.89 ($SD = 4.63$, $N = 105$). Hypothesis 1 (H1) is therefore supported.

One-way Analysis of Variance (ANOVA) was performed to test the hypothesis that the more frequent an individual travels by air, the greater the subscription to a referent criterion during airline crises (H2). A total of 98 individuals responded to the survey items. Due to a low number of individuals who travelled between 51-100 times by air within the last 3 years ($N = 8$), this category had been combined with the one of individuals who travelled more than 100 times
by air during the same time span ($N = 11$). It was determined by the researcher that a combination of both categories is possible as they both indicate a high level of frequent travel. For the purpose of illustrating the variance between categories of individuals who travelled and those who did not travel by air, the low number of individuals who did not travel by air at all within the last 3 years ($N = 3$) did not result in a combination of categories. The degree of individuals’ subscription to a referent criterion was found to be different across levels of frequency an individual travels by air, $F(4, 93) = 2.371, p = 0.058$. The difference approached significance and multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean subscription to a referent criterion of individuals who travelled 26-50 times by air during the past three years was significantly higher ($M = 14.50, SD = 3.94, N = 20$) than that of individuals who travelled 1-10 times ($M = 11.11, SD = 3.94, N = 27$) by air, and that of individuals who travelled 11-25 times ($M = 11.31, SD = 4.29, N = 29$) by air during the same span of time. The mean was not significantly higher than that of individuals who travelled more than 50 times by air during that time span ($M = 12.16, SD = 4.81, N = 19$), and of those who did not travel by air at all ($M = 13.67, SD = 2.08, N = 3$). All other possible comparisons between the mean degree of individuals’ subscription to a referent criterion and frequencies of air travel were not found to be significantly different from each other. Table 7 on page 41 provides an overview of the ANOVA results.
The difference in subscribing to a referent criterion was only found to be approaching significance between groups, indicating that the results need further evaluation. Therefore, with the results present, the hypothesis is not supported.

Hypotheses 3 to 5 (H3 – H5) assess the relation between an individual’s general interest in aviation and airline topics and their problem, constraint and involvement recognition as well as to their subscription to a referent criterion during airline crises. Pearson’s correlation analysis was performed and an overview of the results is presented in table 8 on page 42.

Table 7: Individuals’ frequency of air travel and their subscription to a referent criterion

<table>
<thead>
<tr>
<th>Frequency of air travel</th>
<th>Referent criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>0</td>
<td>13.67</td>
</tr>
<tr>
<td>1-10</td>
<td>11.11</td>
</tr>
<tr>
<td>11-25</td>
<td>11.31</td>
</tr>
<tr>
<td>26-50</td>
<td>14.50*</td>
</tr>
<tr>
<td>&gt;50</td>
<td>12.16</td>
</tr>
</tbody>
</table>

Note: * p = < .05
For hypothesis 3 (H3), Pearson’s correlation coefficient analysis indicated that there is a moderate, positive and significant linear relationship \( r = 0.289, p = 0.023, 1\text{-tailed} \) between an individual’s general interest in aviation and airline topics and an individual’s involvement recognition. For these data, the mean for general interest in aviation and airline topics was 11.60 \( (SD = 6.15, N = 48) \), and for involvement recognition 10.42 \( (SD = 5.07, N = 106) \). However, Pearson’s correlation analysis further indicated that there is a weak, positive, and not significant linear relationship \( r = 0.183, p = 0.109, 1\text{-tailed} \) between an individual’s general interest in aviation and airline topics and an individual’s problem recognition. The mean for general interest in aviation and airline topics was 11.60 \( (SD = 6.15, N = 48) \), and for problem recognition 12.18 \( (SD = 4.22, N = 105) \). Therefore, hypothesis 3 (H3) is only partially supported. The analysis further revealed a strong, positive, and significant linear relationship \( r = 0.569 \) and \( p = 0.001, 1\text{-tailed} \).
1-tailed) between an individual’s involvement and problem recognition. For these data, the mean for problem recognition was 12.18 ($SD = 4.22, N = 105$), and for involvement recognition 10.42 ($SD = 5.07, N = 106$).

In order to address hypothesis 4 ($H4$) Pearson’s correlation coefficient analysis indicated that there is a moderate, positive, and significant negative relationship ($r = -0.390$ and $p = 0.003$, 1-tailed) between an individual’s general interest in aviation and airline topics and an individual’s constraint recognition. For these data, the mean for general interest in aviation and airline topics was 11.60 ($SD = 6.15, N = 48$), and for constraint recognition 10.99 ($SD = 2.92, N = 105$). Hypothesis 4 ($H4$) is therefore supported.

Assessing hypothesis 5 ($H5$), Pearson’s correlation coefficient analysis indicated that there is a weak, positive, but not significant linear relationship ($r = 0.193$ and $p = 0.095$, 1-tailed) between an individual’s general interest in aviation and airline topics and an individual’s subscription to a referent criterion. For these data, the mean for general interest in aviation and airline topics was 11.60 ($SD = 6.15, N = 48$), and for referent criterion 12.12 ($SD = 4.36, N = 105$). Hypothesis 5 is therefore not supported.

According to results of testing hypotheses 1 through 5 ($H1 - H5$), research question 1 ($RQ1$) is answered in that the higher an individual’s involvement recognition during airline crises, the higher this individual’s situational motivation in problem solving. In addition, individuals who travelled 26 – 50 times within the past three (3) years subscribe to a referent criterion to a greater degree than those who travelled less or more during the same time span. However, the significance of the relationship only approached significance. An individual's general interest in aviation and airline topics also positively relates to an individual’s involvement, but not problem recognition and negatively to an individual’s subscription to a referent criterion. An individual’s
involvement recognition is also positively related to problem recognition.

Research question 2 (RQ2) and research question 3 (RQ3) required a segmentation of survey respondents into different publics following the procedures of Grunig and Hunt (1984). The individuals’ responses to the different survey items were assigned a corresponding value (1 – 4). The values were added to create a compound score for each individual’s involvement, problem, and constraint recognition. Based on the highest (24) and lowest (6) possible scores, a cutoff point has been determined by the researcher to distinguish whether an individual scored high or low in each one of the categories. An individual would thus attain a low score for involvement, problem, and constraint recognition if the score per category ranged between 6 and 14. Scores between 15 and 24 indicated a high score in the respective category. The categories then determined the placement of the individuals in one of the corresponding eight (8) possible publics based on the criteria set by Grunig and Hunt (1984, see table 1 in section 2.3). Of the total 106 survey respondents, 83 individuals responded to the survey items for the segmentation of publics. An initial descriptive analysis of the segmentation indicated low numbers of individuals placed in inactive (N = 2), latent (N = 1), and latent/aware (N = 2) publics. As a result, these publics have been dropped from further analysis. Individuals could be placed in the two aware/active publics with two different possible behavioral combinations. After combining the two publics into one single public, the remaining four publics (number of total individuals N = 78) of inactive/latent (N = 35), aware/active (N = 20), active/reinforcing (N = 9), and active (N = 14) were assessed for further analysis.
Assessing research question 2 (RQ2), one-way ANOVA was performed to assess how, and if at all, publics differ in terms of their selection of information and communication channels during airline crises. Table 9 provides an overview of the mean scores and standard deviations for all variables.

Table 9

*Publics’ indicated importance of different information and communication channels*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Inactive/Latent</th>
<th>Aware/Active</th>
<th>Active/Reinforcing</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>TV</td>
<td>4.17</td>
<td>1.92</td>
<td>5.05</td>
<td>1.93</td>
</tr>
<tr>
<td>Print Media</td>
<td>4.20</td>
<td>1.61</td>
<td>4.05</td>
<td>1.73</td>
</tr>
<tr>
<td>Internet</td>
<td>5.59</td>
<td>1.35</td>
<td>6.25</td>
<td>0.79</td>
</tr>
<tr>
<td>Social Media</td>
<td>4.03</td>
<td>2.01</td>
<td>4.85</td>
<td>1.84</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>4.26</td>
<td>2.02</td>
<td>5.10</td>
<td>1.71</td>
</tr>
</tbody>
</table>

Note: * p = < .05

Table 9: Publics’ indicated importance of different information and communication channels

The total mean scores of all communication channels examined showed the following order of importance indicated by the respondents from most important to least important: Internet without social media (M = 5.87), TV (M = 4.82), interpersonal communication (M = 4.74), print media (M = 4.32), social media (M = 4.01).
77 of the 78 segmented individuals responded to the item assessing the importance of the TV as a communication channel during airline crises. The degree of importance of the TV was found to be different across publics, $F(3, 74) = 3.185, p = 0.029$. Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of the TV as a communication channel during airline crises of active publics was significantly higher ($M = 5.64, SD = 0.84, N = 14$) than that of inactive/latent publics ($M = 4.17, SD = 1.92, N = 35$). The mean of active publics was not significantly higher than that of aware/active and active/reinforcing publics. LSD procedure also found that the mean importance of the TV of active/reinforcing publics was significantly higher ($M = 5.56, SD = 1.88, N = 9$) than that of inactive/latent publics ($M = 4.17, SD = 1.92, N = 35$). The mean of active/reinforcing publics was not significantly higher than that of active and aware/active publics. All other possible comparisons between the mean degree of importance of the TV and different publics were not found to be significantly different from each other.

77 of the 78 segmented individuals responded to the item assessing the importance of print media as a communication channel during airline crises. The degree of importance of print media was found not to be different across publics, $F(3, 74) = 0.865, p = 0.463$.

76 of the 78 segmented individuals responded to the item assessing the importance of the Internet (without social media) as a communication channel during airline crises. The degree of importance of the Internet without social media was found not to be different across publics, $F(3, 73) = 1.234, p = 0.303$.

Of the 78 segmented individuals, 77 responded to the item assessing the importance of social media as a communication channel during airline crises. The degree of importance of social media was found not to be different across publics, $F(3, 74) = 1.941, p = 0.130$. 

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77 of the 78 segmented individuals responded to the item assessing the importance of interpersonal communication as a communication channel during airline crises. The degree of importance of interpersonal communication was found not to be different across publics, $F(3, 74) = 1.477, p = 0.228$.

According to the results of the analyses described in the previous paragraphs, significant differences in publics’ assessment of the importance of different communication channels during airline crises were only found for the TV as an information and communication channel. Active and active/reinforcing publics indicated a significantly greater degree of importance of the TV during airline crises than inactive/latent publics.

Assessing research question 3 ($RQ3$), one-way ANOVA was also performed to assess what specific crisis information publics perceive as important during airline crises as well as the differences in perception among different publics. Table 10 on page 48 provides an overview of the mean scores and standard deviations for all variables.
The total mean scores for importance of specific crisis information indicated by all respondents showed that information about what steps to take \( (M = 5.67) \) was perceived as the most important information during airline crises, followed by information about accountability \( (M = 5.58) \), the crisis cause \( (M = 5.54) \), and the airline’s reputation \( (M = 5.53) \). This specific crisis information was perceived as moderately to very important, followed by information about the implications for travel \( (M = 5.42) \), the airline’s reaction \( (M = 5.42) \), the progress of the investigation \( (M = 5.18) \), information about potential victims \( (M = 5.14) \), and insider information.
Respondents perceived this information as moderately important and in the case of insider information neutral to moderately important.

77 of the 78 segmented individuals responded to the item assessing the importance of information about the crisis cause during airline crises. The degree of importance of crisis cause was found to be different across publics, $F(3, 74) = 3.517, p = 0.019$. Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of information about crisis cause of active publics was significantly higher ($M = 6.57, SD = 0.65, N = 14$) than that of inactive/latent publics ($M = 5.03, SD = 1.90, N = 35$; see a superscripted in table 10). The mean of active publics was not significantly higher than that of aware/active and active/reinforcing publics. All other possible comparisons between the mean degree of importance of information about crisis cause and different publics were not found to be significantly different from each other.

Of the 78 segmented individuals, 77 responded to the item assessing the importance of information about potential victims during airline crises. The degree of importance of such information was found to be different across publics, $F(3, 74) = 3.693, p = 0.016$. Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of information about potential victims during airline crises of active/reinforcing publics was significantly higher ($M = 6.11, SD = 1.05, N = 9$) than that of inactive/latent publics ($M = 4.49, SD = 2.06, N = 35$; see b superscripted in table 10). The mean of active/reinforcing publics was not significantly higher than that of aware/active and active publics. LSD procedure also found that the mean importance of information about potential victims of active publics was significantly higher ($M = 5.79, SD = 0.97, N = 14$) than that of inactive/latent publics ($M = 4.49, SD = 2.06, N = 35$; see c superscripted in table 10). The mean of active publics was not
significantly higher than that of aware/active and active/reinforcing publics. All other possible comparisons between the mean degree of importance of information about potential victims and different publics were not found to be significantly different from each other.

77 of the 78 segmented individuals responded to the item assessing the importance of information about implications for travel during airline crises. The degree of importance of such information was found to be different across publics, $F(3, 74) = 4.143, p = 0.009$. Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of information about implications for travel during airline crises of active publics was significantly higher ($M = 6.36, SD = 0.93, N = 14$) than that of inactive/latent publics ($M = 4.83, SD = 1.95, N = 35$; see d superscripted in table 10). The mean of active publics was not significantly higher than that of active/reinforcing and aware/active publics. LSD procedure also found that the mean importance of information about implications for travel of active/reinforcing publics was significantly higher ($M = 6.22, SD = 0.67, N = 9$) than that of inactive/latent publics ($M = 4.83, SD = 1.95, N = 35$; see e superscripted in table 10). The mean of active/reinforcing publics was not significantly higher than that of active and aware/active publics. All other possible comparisons between the mean degree of importance of information about implications for travel and different publics were not found to be significantly different from each other.

Of the 78 segmented individuals, 76 responded to the item assessing the importance of information about the airline’s reaction during airline crises. The degree of importance of such information was found to be different across publics, $F(3, 73) = 4.261, p = 0.008$. Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of information about the airline’s reaction during airline crises of active publics was
significantly higher \((M = 6.36, SD = 0.74, N = 14)\) than that of inactive/latent publics 
\((M = 4.79, SD = 1.86, N = 34; \text{see f superscripted in table 10})\). The mean of active publics was not significantly higher than that of active/reinforcing and aware/active publics. LSD procedure also found that the mean importance of information about the airline’s reaction of aware/active publics was significantly higher \((M = 5.65, SD = 1.27, N = 20)\) than that of inactive/latent publics 
\((M = 4.79, SD = 1.86, N = 34; \text{see g superscripted in table 10})\). The mean of aware/active publics was not significantly higher than that of active and active/reinforcing publics. All other possible comparisons between the mean degree of importance of information about the airline’s reaction and different publics were not found to be significantly different from each other.

77 of the 78 segmented individuals responded to the item assessing the importance of information about what steps to take during airline crises. The degree of importance of such information was found to be different across publics, \(F(3, 74) = 3.661, p = 0.016\). Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of information about what steps to take during airline crises of active publics was significantly higher \((M = 6.50, SD = 0.52, N = 14)\) than that of inactive/latent publics 
\((M = 5.09, SD = 1.92, N = 35; \text{see h superscripted in table 10})\). The mean of active publics was not significantly higher than that of active/reinforcing and aware/active publics. LSD procedure also found that the mean importance of information about what steps to take of active/reinforcing publics was significantly higher \((M = 6.22, SD = 1.09, N = 9)\) than that of inactive/latent publics 
\((M = 5.09, SD = 1.92, N = 35; \text{see i superscripted in table 10})\). The mean of active/reinforcing publics was not significantly higher than that of active and aware/active publics. All other possible comparisons between the mean degree of importance of information about what steps to take and different publics were not found to be significantly different from each other.
Of the 78 segmented individuals, 77 responded to the item assessing the importance of information about the progress of the investigation during airline crises. The degree of importance of such information was found to be different across publics, $F(3, 74) = 5.619$, $p = 0.002$. Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of information about the progress of investigation during airline crises of active/reinforcing publics was significantly higher ($M = 6.22, SD = 0.83, N = 9$) than that of inactive/latent publics ($M = 4.49, SD = 1.88, N = 35$; see j superscripted in table 10). The mean of active/reinforcing publics was not significantly higher than that of active and aware/active publics. LSD procedure also found that the mean importance of information about the progress of investigation of active publics ($M = 6.00, SD = 0.68, N = 14$) and aware/active publics ($M = 5.35, SD = 1.23, N = 20$) were significantly higher than that of inactive/latent publics ($M = 4.49, SD = 1.88, N = 35$; see k and l respectively superscripted in table 10). All other possible comparisons between the mean degree of importance of information about the progress of investigation and different publics were not found to be significantly different from each other.

77 of the 78 segmented individuals responded to the item assessing the importance of insider information during airline crises. The degree of importance of such information was found to be different across publics, $F(3, 74) = 9.347$, $p = 0.000$. Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of insider information during airline crises of active publics was significantly higher ($M = 5.93, SD = 1.00, N = 14$) than that of inactive/latent publics ($M = 3.63, SD = 1.90, N = 35$; see m superscripted in table 10). The mean of active publics was also significantly higher than that of aware/active publics ($M = 4.75, SD = 1.48, N = 20$; see n superscripted in table 10), but not significantly higher than that of active/reinforcing publics. LSD procedure also found that the
mean importance of insider information of aware/active publics was significantly higher \((M = 4.75, SD = 1.48, N = 20)\), than that of inactive.latent publics \((M = 3.63, SD = 1.90, N = 35);\) see superscripted in table 10). The mean of aware/active publics was not significantly different than that of active/reinforcing publics. Further, the mean importance of insider information of active/reinforcing publics was significantly higher \((M = 5.78, SD = 1.09, N = 9)\), than that of inactive.latent publics \((M = 3.63, SD = 1.90, N = 35);\) see superscripted in table 10). All other possible comparisons between the mean degree of importance of insider information and different publics were not found to be significantly different from each other.

Of the 78 segmented individuals, 76 responded to the item assessing the importance of information about the airline’s reputation during airline crises. The degree of importance of such information was found to be different across publics, \(F(3, 73) = 2.319, p = 0.082\). Since the difference is approaching significance, multiple comparisons at the 0.05 significance level using the LSD procedure have been performed. It was found that the mean importance of information about the airline’s reputation during airline crises of active publics was significantly higher \((M = 5.29, SD = 1.64, N = 14)\) than that of inactive.latent publics \((M = 4.09, SD = 1.56, N = 34);\) see superscripted in table 10). The mean of active publics was not significantly higher than that of aware/active and active/reinforcing publics. All other possible comparisons between the mean degree of importance of information about the airline’s reputation and different publics were not found to be significantly different from each other.

77 of the 78 segmented individuals responded to the item assessing the importance of information about accountability during airline crises. The degree of importance of such information was found to be different across publics, \(F(3, 74) = 3.760, p = 0.014\).
Multiple comparisons at the 0.05 significance level using the LSD procedure found that the mean importance of information about accountability during airline crises of active publics was significantly higher ($M = 6.57$, $SD = 0.65$, $N = 14$) than that of inactive/latent publics ($M = 5.00$, $SD = 1.94$, $N = 35$; see superscripted in table 10). The mean of active publics was not significantly higher than that of aware/active and active/reinforcing publics. All other possible comparisons between the mean degree of importance of information about accountability and different publics were not found to be significantly different from each other.

According to the results of the analyses described in the previous paragraphs, significant differences in publics’ assessment of the importance of different specific crisis information during airline crises were detected for all items. Active publics indicated a significantly greater degree of importance of information about crisis cause, potential victims, implications for travel, the airline’s reaction and reputation, what steps to take during airline crises, the progress of investigation, accountability as well as insider information than inactive/latent publics. Active publics also indicated a significantly greater importance of insider information than aware/active publics. Active/reinforcing publics further indicated a significantly greater importance of information about potential victims, implications for travel, what steps to take, progress of investigation, insider information than inactive/latent publics. Aware/active publics indicated greater importance of information about the airline’s reaction and insider information than inactive/latent publics.

In order to assess research question 4 ($RQ4$), multiple regression analyses were conducted to examine what, if any, the effects of demographics and air travel habits are on information and communication channel selection for communicative action in problem solving during airline crises. The predictors for the multiple regression analysis were four (4) demographic items
(gender, age, residence, and level of education) as well as seven (7) air travel habits as indicated by the respondents’ travel within the past three years (frequency of air travel, frequency of domestic and international travel, frequency of travel in economy, business and first class, and business as well as leisure as purpose of travel). The criterion variable was the importance of the respective information and communication channel during airline crises (TV, print media, Internet without social media, social media, and interpersonal communication). For the analysis, the modified categories of the variable of individuals’ level of air travel frequency created during the analysis of hypothesis 2 (H2) had been adopted. In accordance with this procedure, all other variables to assess individuals’ air travel habits were modified as well due to a low number of respondents indicating travel in excess of 51 times for either one of the variables. Therefore, the frequency categories of 51-100 and >100 were combined to >50.

The linear combination of demographics and air travel habits was not significantly related to the importance of the TV as an information and communication channel during airline crises, $R^2 = 0.188$, adjusted $R^2 = 0.071$, $F(11, 76) = 1.605$, $p = 0.114$. The linear combination of demographics and air travel habits was also not significantly related to the importance of print media, $R^2 = 0.177$, adjusted $R^2 = 0.057$, $F(11, 76) = 1.482$, $p = 0.156$, the Internet without social media, $R^2 = 0.162$, adjusted $R^2 = 0.040$, $F(11, 76) = 1.333$, $p = 0.223$, and interpersonal communication, $R^2 = 0.117$, adjusted $R^2 = -0.011$, $F(11, 76) = 0.916$, $p = 0.530$, as information and communication channels during airline crises. The linear combination of demographics and air travel habits related to the importance of social media only approached significance, $R^2 = 0.210$, adjusted $R^2 = 0.096$, $F(11, 76) = 1.835$, $p = 0.062$. The results of the multiple regressions are presented in table 11 on page 56.
PUBLICS’ COMMUNICATION DURING AIRLINE CRISSES

Table 11

*Linear regression of demographics and air travel habits*

<table>
<thead>
<tr>
<th>Channel</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>0.188</td>
<td>0.071</td>
<td>1.605</td>
</tr>
<tr>
<td>Print Media</td>
<td>0.177</td>
<td>0.057</td>
<td>1.482</td>
</tr>
<tr>
<td>Internet</td>
<td>0.162</td>
<td>0.040</td>
<td>1.333</td>
</tr>
<tr>
<td>Social Media</td>
<td>0.210</td>
<td>0.096</td>
<td>1.835</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>0.117</td>
<td>–0.011</td>
<td>0.916</td>
</tr>
</tbody>
</table>

Table 11: Linear regression showing the influence of demographics and air travel habits on individuals’ channel selection

Due to the low number of total respondents and the relatively high number of predictors, separate multiple regression analyses were conducted to control for demographic variables as well as air travel habits only. The predictors for the first regression were the four (4) demographic items of gender, age, residence, and level of education. The results showed significance ($p < .05$) of demographics on social media with $R^2 = 0.112$, adjusted $R^2 = 0.072$, $F(4, 89) = 2.805$, $p = 0.030$, and print media with $R^2 = 0.107$, adjusted $R^2 = 0.067$, $F(4, 89) = 2.660$, $p = 0.038$. Level of education as an index of print media was statistically significant ($b = –0.580$, $t(93) = –2.49$, $p = 0.015$). Holding all other variables constant, level of education negatively predicted the importance of print media by 58%. Age as an index of social media was also statistically significant ($b = –0.351$, $t(93) = –2.52$, $p = 0.013$). Holding all other variables constant, age negatively predicted the importance of social media by 35%.  

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For air travel habits only, the regression results showed approaching significance \((p < .05)\) of air travel habits on the Internet with \(R^2 = 0.134\), adjusted \(R^2 = 0.061\), \(F(7, 83) = 1.831, p = 0.092\), and on the TV with \(R^2 = 0.138\), adjusted \(R^2 = 0.066\), \(F(7, 84) = 1.914, p = 0.077\). In order to further assess any potential relationship between the variables of air travel habits and the indicated importance of different information and communication channels beyond the regression results that only approached significance, Pearson’s correlation analysis was conducted. The results are presented in table 12.

Table 12

<table>
<thead>
<tr>
<th>Variable</th>
<th>TV</th>
<th>Print Media</th>
<th>Internet</th>
<th>Social Media</th>
<th>Inter-personal</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of air travel</td>
<td>−0.242**</td>
<td>−0.190*</td>
<td>−0.167</td>
<td>−0.153</td>
<td>−0.100</td>
<td>3.26</td>
<td>1.15</td>
</tr>
<tr>
<td>International air travel</td>
<td>−0.248**</td>
<td>−0.119</td>
<td>−0.152</td>
<td>−0.135</td>
<td>−0.116</td>
<td>1.44</td>
<td>0.77</td>
</tr>
<tr>
<td>Domestic air travel</td>
<td>−0.219*</td>
<td>−0.121</td>
<td>−0.120</td>
<td>−0.212*</td>
<td>−0.087</td>
<td>1.93</td>
<td>1.02</td>
</tr>
<tr>
<td>Economy class travel</td>
<td>−0.184*</td>
<td>−0.160</td>
<td>−0.172*</td>
<td>−0.173*</td>
<td>−0.065</td>
<td>1.91</td>
<td>1.06</td>
</tr>
<tr>
<td>Business/First class travel</td>
<td>−0.303**</td>
<td>−0.103</td>
<td>−0.229*</td>
<td>−0.236*</td>
<td>−0.192*</td>
<td>1.40</td>
<td>0.86</td>
</tr>
<tr>
<td>Business as travel purpose</td>
<td>−0.186*</td>
<td>−0.107</td>
<td>−0.197*</td>
<td>−0.125</td>
<td>−0.053</td>
<td>1.51</td>
<td>0.96</td>
</tr>
<tr>
<td>Leisure as travel purpose</td>
<td>−0.167</td>
<td>−0.062</td>
<td>−0.093</td>
<td>−0.165</td>
<td>−0.148</td>
<td>1.79</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Note: * \(p < .05\); ** \(p < .01\)

Table 12: Correlation between air travel habits and importance of information and communication channel

Pearson’s correlation coefficient analysis indicated that there is a weak, significant, linear, negative relationship \((r = −0.242, p = 0.009, 1\text{-tailed})\) between an individual’s frequency of air travel and the importance of the TV as a communication channel.
The results further showed a weak and significant, linear, negative relationship \( r = -0.248, p = 0.007 \), 1-tailed) between the frequency of international air travel, between the frequency of domestic travel \( r = -0.219, p = 0.016 \), 1-tailed), between economy class travel \( r = -0.184, p = 0.035 \), 1-tailed) and the importance of the TV as an information and communication channel. There was also a moderate and significant, linear, negative relationship between business/first class travel \( r = -0.303, p = 0.001 \), 1-tailed) and the TV as a channel. Pearson’s correlation coefficient analysis also indicated that there is a weak and significant, linear, negative relationship \( r = -0.190, p = 0.032 \), 1-tailed) between an individual’s frequency of air travel and the importance of print media as a communication channel. The results further indicated that there is a weak and significant, linear, negative relationship \( r = -0.172, p = 0.046 \), 1-tailed) between economy class travel and the importance of the Internet as a communication channel. A weak and significant, linear, negative relationship \( r = -0.229, p = 0.013 \), 1-tailed) between business/first class travel, as well as between business as the travel purpose \( r = -0.197, p = 0.028 \), 1-tailed) and the importance of the Internet was also found. For social media, Pearson’s correlation analysis indicated that there is a weak and significant, linear, negative relationship \( r = -0.212, p = 0.018 \), 1-tailed) between domestic air travel and social media as an information and communication channel. Further, the results showed that there is a weak and significant, linear, negative relationship \( r = -0.173, p = 0.044 \), 1-tailed) between economy class travel, as well as between business/first class travel \( r = -0.236, p = 0.010 \), 1-tailed) and social media as an information and communication channel. The analysis also indicated a weak and significant, linear, negative relationship \( r = -0.192, p = 0.031 \), 1-tailed) between business/first class travel and interpersonal communication as an information and communication channel.
5 Discussion

While this study produced some notable results that strongly advance the understanding of publics’ communication behavior during airline crises, this study also contains several limitations that provide opportunities for further research in certain areas. The survey was created in the English language, making English proficiency a requirement for respondents to complete the survey. In addition, the survey was conducted online which limited the studied population to English-speaking individuals with access to the Internet. The survey link was further distributed via email and social media following a snowball procedure which makes it likely that the link was shared by people with similar interest. The sampling method also likely contributed to the overwhelming number of respondents from the North American region indicating a graduate degree as the highest level of education. The biggest limitation of this study, however, is the low total number of respondents who completed the survey, as well as the low numbers of responses to particular questions. This limits the study’s findings and do not allow a generalization of results. A greater and more diverse population is thus needed to eradicate this limitation. However, the results presented in this study nonetheless significantly contribute to crisis communication research and crisis communication in airline and aviation contexts and provide a solid foundation for an extension of the findings and future research opportunities.

Focusing specifically on the independent variables of the STOPS, research question 1 (RQ1) addressed the model’s relation to airline crisis situations and explored potential external mediating factors that may influence the independent variables. It was found that the STOPS’ performance in airline crisis contexts is similar to the predictions of Kim and Grunig (2011). The data analysis for testing hypothesis 1 (H1) confirmed a positive relationship between an
individual’s involvement recognition and the situational motivation in problem solving during airline crises. These findings indeed echo Kim and Grunig (2011) in that individuals, who perceive a stronger connection to a problem situation, in this case airline crises, are more curious and motivated to do something about the issue to resolve it. According to the researchers, the antecedent variable of situational motivation is the strongest predictor of communicative activeness. With the findings presented in this study, which focus on the mediating variables predicting communication behavior, it can be concluded that individuals, who perceive a strong connection between themselves and airline crises, are more motivated to solve the problem situation and thus become more active communicators during a crisis. The individuals perceive the situation as more serious and their purposeful use of communication increases (Grunig, 1997). Consequently, and according to the STOPS (Kim & Grunig, 2011), they are more likely to seek further crisis information instead of passively attend to it, and are more likely to engage in the active behaviors of information forefending and forwarding. Kim and Grunig (2011) state that active communicators pre-assign value to specific problem information and discard certain information that may be irrelevant to them in advance. While that could mean that they actively process and sort out crisis information more thoroughly rather than considering a broader range of information, the researchers add that these individuals oftentimes pre-select information based on congruence with their own perspective. In airline crisis situations, in which credible information may not be publicly available immediately, combined with the influence of citizen journalism (Allan & Thorsen, 2009) and accidental spokespersons (Nigam, 2014) through social media and speculations, forefending certain information can be considered helpful in order to make sense of the crisis. However, evaluating available information based on what matches the own perspective can also hinder the process of understanding the crisis. In addition, Kim and
Grunig (2011) state that highly motivated individuals are said to more likely show a greater effort and are more open to a broader range of information. In that regard, further research needs to be conducted in order to examine the relationship between an individual’s situational motivation and the STOPs’ dependent subvariables of selecting information, information-forefending and information-permitting. According to the findings of this study, individuals with a greater perceived involvement in the crisis will be more motivated to actively forward information instead of passively sharing it. This is of great relevance as airline organizations would benefit from prioritizing sharing their accounts with highly involved individuals and immediate stakeholders, such as passengers and known frequent fliers or business partners.

Findings from Carter (1965) and Higgins (1996) suggest that individuals approach problem situations by referring back to experiences with similar situations. Kim and Grunig (2011) assert that this reference back to similar situations from the past influences individuals’ behavior towards a problem situation. Based on these findings and the assumption that individuals who travel more frequently by air are more exposed to potential airline crises, hypothesis 2 (H2) examined the relationship between individuals’ level of frequent air travel and their subscription to a referent criterion, in that the more frequent an individual travels by air, the greater the subscription to a referent criterion in airline crises. The results showed only an approaching significance, indicating further necessary examination. However, and with the approaching significance in mind, it was found that individuals who travelled 26-50 times by air during the past three years subscribe to a referent criterion at a significantly greater degree than individuals who do not travel as often. Individuals likely refer to their experience with air travel when they incur an airline crisis in order to make sense of the situation and act accordingly. It was found, however, that the subscription to a referent criterion was not found to be significantly
greater if an individual travelled more than 50 times by air within the past three years. This leads to believe that a fairly frequent amount of air travel is enough to judge airline crisis situations to a degree that is not significantly different from those who fly not as frequently. The subscription, however not significantly, was still greater of those who travelled more than 50 times than of those who travelled 1-25 times. Interestingly, and even though the number of respondents in this category was very low (N = 3), individuals who did not travel by air within the last three years, subscribed to a referent criterion to a greater degree, not significantly however, than those who travelled 1-25 times. While it may be possible that these individuals did travel before, just not within the last three years, the findings lead to believe that individuals, who have no recent experience of travelling by air, actively judge an airline crisis situation based on other experiences they have. One explanation could be that the detailed media coverage of modern day airline crises contributes to the wealth of experience used by individuals who experience a crisis either actively or passively. In general, a greater subscription to a referent criterion influences communicative behavior in that it leads to more active ways of communicative action in problem solving. From the findings presented in this study it can thus be concluded that individuals who travel more frequently by air, generally refer to past experiences with air travel to a greater degree, which leads to more active communication behavior in the process of solving airline crisis situations.

With regard to solving a problem situation, it was found that cross-situational factors can influence individuals’ communicative behavior (Kim et al., 2012) in that a greater general interest in issues related to the problem leads to an increased problem and involvement recognition, less constraint recognition and an increased activated referent criterion. Hypotheses 3 to 5 (H3 - H5) assessed these assumptions and it was found that an individual’s general interest
in aviation and airline topics indeed positively influences an individual’s involvement recognition in airline crises. Individuals who are more interested in airline and aviation issues in general feel more connected to airline crises than those who are not as interested. The more frequent, willful, and active exposure to aviation issues increases the proximity to airline crises for individuals. The closer proximity leads to a positive influence of the situational motivation in solving airline crises (Kim & Grunig, 2011). However, the results presented in this study do not support Kim et al.’s (2012) findings in that a greater general interest in topics of the problem situation leads to greater problem perceptions. It was found in this study that an individual’s general interest in aviation and airline topics does not significantly increase an individual’s problem recognition during airline crises. Since Kim and Grunig (2011) define problem recognition as “one’s perception that something is missing and that there is no immediately applicable solution to it” (p. 128), one explanation for the incongruence with previous research could be that individuals do not perceive certain situations as problematic due to a greater understanding of the problem context. Individuals with a greater interest in aviation topics are likely more informed about the problem context and may not perceive something to be missing about the situation. They may also have an applicable solution to the issue, and therefore do not perceive the situation to be problematic. The data analysis further revealed that individuals who are more connected to airline crises have an increased perception of the problem. This means that individuals who are closely affected by airline crises have an increased belief that there is no applicable solution to the issue and something needs to be done to solve it. The analysis also showed a significant negative relationship between an individual’s general interest in aviation and airline topics and an individual’s constraint recognition. This supports findings from Kim et al. (2012) in that a greater general interest in issues related to the problem leads to individuals’
perceiving less constraint recognition. The greater attraction to and understanding of airline and aviation issues do not discourage individuals from seeking and attending information during airline crises and therefore solve the problem (Ramanadhan & Viswanath, 2006). It can be concluded that the vast media coverage of airline crises and the huge amount of crisis information distributed through multiple channels does not inhibit informed individuals, who are interested in aviation topics, in doing something about the crisis.

The results from this study further indicate that there is no significant relationship between an individual’s general interest in aviation and airline topics and an individual’s subscription to a referent criterion, contrasting findings from Kim et al. (2012). Individuals who have an increased interest in aviation and airline issues do not refer to past experiences of similar situations (Carter, 1965; Higgins, 1996) to a greater degree in order to subjectively judge the crisis situation and act accordingly (Kim & Grunig, 2011). It can thus be concluded that a general interest in aviation topics does not contribute to the experiences used by individuals in airline crisis situation in order to actively solve the problem. In summary, the results of testing hypotheses 3 to 5 (H3 - H5), and thus the mediating effect of the external variable of general interest in airline and aviation topics on the STOPs’ independent variables, show that

For the purpose of this study, only the independent variables of the STOPs have been examined in an airline crisis context. In order to fully understand the communication behavior of individuals in airline crises, future research needs to extend the findings of this study by including the model’s dependent variables in the analysis. An inclusion of the dependent variable of communicative action in problem solving, and therefore its different subvariables, in the analysis would lead to a thorough understanding of how individuals select, transmit, and acquire information during airline crises. A more accurate prediction of individuals’ communicative
behavior during airline crises is thus possible, which will be beneficial for airline and aviation organizations’ crisis communication planning and extend crisis communication research in the field of aviation.

In addressing research question 2 (RQ2), it was found that publics have different degrees of importance in selecting information and communication channels during airline crises. It was found that the Internet without social media is the most important channel among all respondents, followed by the TV, interpersonal communication, print media, and social media. The results support findings from Taylor and Kent (2007), who acknowledge the Internet as a popular instrument for crisis communication and organizations making use of it in particular. The popularity of the Internet indicated by the respondents thus points to the fact that airline and aviation organizations need to include this medium in their crisis communication measures as it is heavily used by individuals and potential stakeholders during airline crises.

In terms of differences between groups, the TV as a communication channel was found to be most important for active publics, followed by active/reinforcing, aware/active, and inactive/latent publics. However, the difference in importance was only found to be significant between active and inactive/latent, as well as between active/reinforcing and inactive/latent publics. With higher perceived involvement in airline crises than inactive/latent publics, active as well as active/reinforcing publics perceive the TV as more important during airline crises. Although none of the differences in importance were found to be significant for print media, the channel was found to be most important for active publics, followed by active/reinforcing, inactive/latent, and active/reinforcing publics. These findings support previous research that more active publics, characterized by developing more organized attitudes towards and cognitions about problem situations (Grunig, 1992; 1997), make use of any communication
channel for information-seeking purposes (Hamilton, 1992). During airline crises, more active publics even regard rather passive communication channels, such as the TV and print media, which only allow one-way communication to be received, as more important than other publics. The results therefore extend previous research to the context of airline crises. Even though the Internet without social media was found to be the most important information and communication channel among all respondents regardless of their belonging into a certain public, no significant differences were found in its importance among the different publics. In addition, no significant differences in publics’ indicated importance of using social media and interpersonal communication as information and communication channels during airline crises have been found. However, despite the insignificance of difference in using social media during airline crises, the mean scores revealed that active publics indicated the lowest degree of importance of social media among all publics. Considering the fact that social media are highly active communication channels that allow two-way communication and a variety of active behaviors such as seeking and forwarding information, the results need further evaluation and point to a potential difference in the conceptualization of an active public. Active publics actively seek information and process it at a greater rate (Grunig, 1992; 1997; Aldoory, 2001). One reason for the low importance of social media for this public can be a perceived overload of available information on social media (Austin et al., 2012). Aldoory and Van Dyke (2006) found that when individuals perceive an excess of information about a certain issue, they desist from processing information. Combined with a potentially perceived inappropriateness of social media as a communication channel during airline crises (Austin et al., 2012) and possible doubts of finding accurate information circulating on social media, active individuals seeking relevant crisis information in order to solve the problem situation may thus refrain from social media
during airline crises and focus on more traditional channels that feature more credible sources. This provides an opportunity for further research assessing the perceived credibility of information and communication channels during airline crises and its influence on individuals’ and publics’ channel selection. The credibility of communication channels has not been addressed in this study and the resulting findings would provide an insight to the contrasting findings of channel credibility reported by Austin et al. (2012) and Bates and Callison (2008) with regards to airline crises in particular.

Organizations involved in crisis situations should nonetheless avoid disregarding social media in their crisis communication measures. Active publics are still more likely to engage and participate in communication behavior (Grunig, 1997) in order to resolve issues, making social media convenient outlets for secondary crisis communication and information forwarding. Known influencers that have a proven credibility in the airline industry among an organization’s social media followers may actually help spread credible and relevant crisis information to greater audiences and mitigate speculation. In addition, Austin et al. (2012) found that individuals seek out crisis information on social media to gain insider perspectives if they are personally involved. Therefore, active, active/reinforcing, as well as aware/active publics with high involvement recognition may seek insider perspectives during airline crises via social media. Since the medium of crisis information dissemination was found to have a great effect on an organization’s reputation as well as secondary crisis communication and reactions (Schultz et al., 2011), airline organizations need thus be strategic in using different channels to communicate with their publics. Providing information via the Internet and distributing news and developments to reports in order to achieve traditional TV coverage can be assumed to be most effective according to the findings presented in this study. The findings can be extended by
assessing individuals’ habitual use of information and communication channels. Further research thus needs to examine if the preferred communication channels indicated by the different publics serve as a primary information source outside of airline crises. The findings would serve as an extension of channel complimentary theory (Dutta-Bergman, 2006) into airline crisis situations as well.

Research question 3 (RQ3) addressed what specific crisis information publics perceive as important during airline crises and assessed if there are any differences in perception among different publics. It was found that information about what steps to take and information about accountability are generally perceived as most important during airline crises, closely followed by information about the crisis cause and the airline’s reputation. The results closely mirror findings from Austin et al. (2012), who found information about the crisis cause to be most important for publics seeking immediate information, followed by information about accountability. Airline crises result in great perceived uncertainty among individuals. By finding out who is accountable for the crisis as well as who or what caused the crisis, along with gathering information about the airline’s reputation, individuals try to alleviate some of the uncertainty and likely assess the proximity and connection of the crisis to themselves. If the crisis is perceived as being close to an individual, information about accountability, crisis cause and reputation may influence their future travel arrangements and behavior. It can be argued that the uncertainty of who is accountable for and what caused the disappearance of flight MH370, combined with potential reputational effects due to the airline being involved in two major incidents in a short period of time, likely contributes to the difficulties Malaysia Airlines experiences in the aftermath of their vanished aircraft and the downing of flight MH17 (Jacobs, 2014). Information about implications for travel, the airline’s reaction, the progress of the
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investigation, and information about potential victims was found to be moderately important by the respondents. Airline crises can cause major ripple effects that may significantly impact global operations for extended periods of time. Dependent on the connection to and proximity of the particular crisis, individuals can further alleviate some uncertainty caused by airline crises by finding out about potential implications for travel and the progress of the investigation. The progress of the investigation directly affects the timeline of crisis recovery and further contributes to assigning responsibility. The airline’s reaction to a crisis is potentially of interest to individuals when they assign responsibility for the issue and decide about future brand affiliation and loyalty. Schultz et al. (2011) highlighted the importance of the informational message during crisis situations. The findings of this study thus suggest that organizations involved in airline crises benefit from issuing informational messages with a focus on how to proceed for individuals, who is accountable for the crisis, what caused the crisis and what steps to take throughout the duration of the crisis in order to keep audiences informed. In addition, messages that reassure stakeholders of the organization’s legitimacy, and thus impact their assessment of the organization’s reputation (Ray, 1999), are recommended to influence their emotional reaction (Liu et al., 2011) and communicative behavior. During the process of alleviating uncertainty, individuals seek information about potential victims in order to assess the scope of the crisis. An airline crisis involving a greater number of potential victims is likely found to be more severe than situations with fewer or no victims. Insider information was found to be the least important type of information during airline crises as indicated by the respondents. Austin et al. (2012) found that insider information is often sought by individuals via social media. The low popularity of social media as an information and communication channel during airline crises among the respondents found in this study may thus contribute to an equally low
The degree of importance of specific crisis information was found to be different among publics. Active publics perceive information about the crisis cause, potential victims, implications for travel, the airline’s reaction, what steps to take, progress of the investigation, insider information, and accountability as more important than inactive/latent publics. In addition, it was found that active publics view information about the airline’s reputation as more important than inactive/latent publics, although the difference is only approaching significance. Active publics have high involvement and problem recognition, combined with perceiving low constraints to solve issue. Therefore, they regard virtually all information examined as more important than inactive/latent publics, who have low involvement in airline crises, do not perceive airline crises as problematic issues, and thus have low constraints in solving the issue. Active publics also perceive insider information as more important than aware/active publics. The difference between the two publics is that active/aware publics have low involvement in the issue as opposed to active publics. It is important to note that they also have a tendency to become active. It can thus be argued that once these publics perceive a greater connection to airline crises, the importance of insider information to them increases. Active/reinforcing publics indicated a greater importance of information about potential victims, implications for travel, what steps to take, progress of the investigation, than inactive/latent publics, which may be due to their greater involvement in the issue. Despite both publics having low recognition for airline crises as issues, active/reinforcing publics are more involved, and thus perceive this information as more important. In particular, active/reinforcing publics found information that allows them to move forward during airline crises significantly more important than inactive/latent publics. Information about implications for travel, about what steps to take, and the progress of the
investigation all provide an outlook toward the future and post-crisis recovery, rather than looking back at what caused the issue. Aware/active publics indicated a greater importance of information about the airline’s reaction, progress of the investigation, and insider information than inactive/latent publics. These publics have a tendency to become active and can have either low involvement and low constraint recognition or high involvement and high constraint recognition. In all cases, their problem recognition is high as opposed to a low perception of the problem as an issue of inactive/latent publics. With higher problem perceptions, aware/active publics are thus more interested in solving the issue and gaining more understanding of the airline crisis situation.

The segmentation into publics for the assessment of research questions 2 and 3 (RQ2, RQ3) was limited due to the low total number of respondents and the shortcomings of the instrument administration mentioned earlier in this section. The low number respondents likely contributed to low and insufficient numbers of respondents placed in several categories as a result of segmenting respondents into publics. The categories of inactive, latent, and latent/aware publics had to be dropped as a result in order to continue with the ANOVA and post-hoc LSD tests. Therefore, the analyses involving the segmented publics were limited in scope and need further examination that includes enough respondents to assess all publics defined by Grunig and Hunt (1984).

The exploratory assessment of the combined influence of demographics and individuals’ air travel habits on their indicated importance of different information and communication channels during airline crises was found not to be statistically significant. The low total number of respondents likely contributed to the insignificant results of the initial multiple regression analysis assessing the influence of demographics and air travel habits combined. As a
consequence, the analysis had to be modified and requires a reassessment with a greater number of respondents that controls for all independent variables at once for future research. However, the separate analyses of demographics and air travel habits showed that the level of education among the demographic factors has a significant negative effect on the importance of print media as an information and communication channel during airline crises. In addition, age was found to have a significant negative effect on the importance of social media. Given that all other demographic variables remain constant, the level of individuals’ education significantly predicts the decreasing importance of print media. Likewise, individuals’ age significantly predicts the decreasing importance of social media during airline crises. The results are not necessarily surprising, given that social media as communication channels in general are usually more popular among the younger population. However, the fact that higher educational levels negatively predict the importance of print media during airline crises is an interesting finding. It may be explained with individuals’ reliance on news outlets’ more current distribution of developments via their online platforms. Physical hard copies of newspapers mostly mirror online content and are distributed somewhat delayed in comparison to the rapid pace of online news. Higher educated individuals may want to be informed more quickly about the newest developments during airline crises and may therefore choose to look online instead of seeking news in print media. Correlating air travel habits and individuals’ preferred channels during airline crises showed that a higher frequency of flying in general, as well as a higher frequency of flying internationally, domestically, in economy as well as business/first class, and of travelling with business as the main purpose, the lower the importance of the TV during airline crises. Given that leisure as the main purpose of travelling is the only variable not significantly related to the importance of the TV, these results may simply reflect that the greater amounts of
time spent flying for business, the less time these individuals have to use the TV as an information and communication channel. Hence, the importance of this channel decreases. In addition, it was found that the more frequent an individual travels, the less important print media become as channels during airline crises. This finding may be attributed to the factor of convenience (Austin et al., 2012) and channel complimentary (Dutta-Bergman, 2006). More frequent travelers may use channels that provide more relevant functions to them, thus regarding print media as not as useful as other channels during airline crises. Frequent economy as well as business/first class travel was found to be negatively related to the importance of the Internet and social media during airline crises. Higher frequencies of business as the travel purpose were also related to decreasing importance of the Internet. In addition, more frequent domestic travel was negatively related to the importance of social media during airline crises. These findings may be due to the greater amounts of time spent in the air in general that do not allow frequent Internet and social media use. However, given the increasing and enhanced onboard connectivity offered by airlines around the world, the results may be different if assessed again in the future. Business/first class travel was also found to be negative related to interpersonal communication.

The findings from this exploratory analysis provide a valuable foundation for airline and aviation organizations to predict and assess their audiences’ preferences of information and communication channels during crisis situations based on their demographics and air travel habits. However, these foundational findings require further assessment in order to find out more about the factors influencing channel selection and thus more thoroughly direct messages through respective channels to achieve the utmost success in conveyance. Further evaluation is necessary to find out how exactly demographic variables and air travel habits serve as combined predictors for individuals’ indicated importance of different information and communication
channels during airline crises. A different operationalization of air travel habits may be used to focus on more general habits rather than categorizing respondents solely based on past travel habits. In addition, and similar to the assessment of the influence of demographics and air travel habits on channel preference, the same population could then be used to assess whether these factors possess the potential of mediating individuals’ preference of specific information during airline crises as well. The results would extend the findings presented in this study and further contribute to crisis communication in the field of aviation and the understanding of how individuals and specific publics consume media during airline crises.
6 Conclusion

The present thesis examined the antecedent variables and potential mediating factors influencing individuals’ and publics’ communication behavior during airline crises and assessed the types of information they seek as well as the types of information and communication channels they use. In order to assess how external factors, the perceived connection to airline crises, the perception of airline crises being a problem and the perceived constraints to solve the problem determine individuals’ communication behavior, the STOPS (Kim & Grunig, 2011) has been used as a framework to apply its independent variables to the context of airline crisis situations. It was found that individuals who are generally more interested in aviation and airline topics perceive a closer connection to airline crises and fewer constraints to do something about the problem. In turn, it was found that highly involved individuals see airline crises as problematic issues and also have a greater motivation to solve the crisis situation. It was also found that a greater interest in aviation and airline issues does not lead individuals to invoke information gathered from previous experiences with similar situations. However, a difference that approached significance was found between individuals’ frequency of travelling by air and their reference to past experiences. Despite further evaluation being necessary to closer examine the approaching significance, the results of the analysis lead to believe that those who travelled between 26 and 50 times during the past three years relate to their experiences with airline crises to a greater degree than individuals who did not travel as frequently during the same time. However, according to the results, the degree of referring to previous knowledge during airline crises was found not to increase significantly if an individual travelled even more frequently. This indicates that there are only a certain number of flights necessary for individuals to refer to their knowledge during airline crises in order to make sense of it. The study thus provides a
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foundation framework for airline organizations to predict individuals’ communication behavior during airline crises based on empirical data, which can be extended by adding the application of the STOPS’ dependent variables.

This study also provided insight in individuals’ preferred crisis information and information and communication channels during airline crises. It was found that the Internet is the most important information and communication channel during airline crises, followed by the TV. Interestingly, social media was found to be the least important channel. Further, the respondents indicated that information about what steps to take during airline crises is perceived as the most important information during airline crises, followed by information about accountability, the crisis cause, and the airline’s reputation. Demographic information and air travel habits have also been tested for influencing channel selection during airline crises. The results indicate a generally decreasing importance of the TV with increased levels of air travel, regardless of cabin and destination. Several relationships between air travel habits and the importance of certain channels have been discovered that require further research to validate and confirm the preliminary findings of this study. In order to predict communication behavior based on the perceived importance of specific information and information and communication channels more precisely during airline crises, respondents of this study have been segmented into different publics. The preferences of the examined publics have been discussed in detail and thus provide thorough knowledge about informational needs and preferred communication channels during airline crises to be used by airline organizations to improve their strategic communication planning and maximize the effectiveness and efficiency of their communication resources and measures.
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The present thesis contributes to crisis communication research and practice with a specific application to crises in the airline and aviation industry. The findings build a guiding framework for organizations to predict individuals’ and publics’ communication behavior during airline crises. In addition, the findings provide detailed knowledge about preferred crisis information and information and communication channels helping organizations to leverage and optimize their communication resources with the aim of protecting and minimizing damage to the organizational reputation.
References


Appendix

Survey items to measure air travel habits and frequent air travelling

1. Within the last 3 years, how many times have you travelled by air, using a commercial airline? Please count each individual leg.
   
   1 – 10
   
   11 – 25
   
   26 – 50
   
   51 – 100
   
   more than 100

2. Within the last 3 years, how many times have you travelled domestically by air, using a commercial airline? Please count each individual leg.

   0 – 10
   
   11 – 25
   
   26 – 50
   
   51 – 100
   
   more than 100

3. Within the last 3 years, how many times have you travelled internationally by air, using a commercial airline? Please count each individual leg.

   0 – 10
   
   11 – 25
   
   26 – 50
   
   51 – 100
   
   more than 100
4. Of all your flights, using a commercial airline within the last 3 years, how many times have you travelled in economy or any kind of premium economy class? Please count each individual leg.

0 – 10
11 – 25
26 – 50
51 – 100
more than 100

5. Of all your flights, using a commercial airline within the last 3 years, how many times have you travelled in business or first class? Please count each individual leg.

0 – 10
11 – 25
26 – 50
51 – 100
more than 100

6. Of all your flights, using a commercial airline within the last 3 years, how many times was the primary purpose of your travel business? Please count each individual leg.

0 – 10
11 – 25
26 – 50
51 – 100
more than 100
7. Of all your flights, using a commercial airline within the last 3 years, how many times was the primary purpose of your travel leisure? Please count each individual leg.

- 0 – 10
- 11 – 25
- 26 – 50
- 51 – 100
- more than 100

Survey items to segment publics adapted by Grunig and Hunt (1984)

Problem recognition:

I would like you to consider how often you stop and think about each of six issues. After I name each of these issues, please tell me whether you stop and think about the situation often (4), sometimes (3), rarely (2) or never (1).

- Major operational disruption due to inclement weather
- Aircraft technical or product failure
- Ethical wrongdoing of an airline
- Poor aircraft maintenance
- Terrorism
- Sabotage

Constraint recognition:

Please think of whether you could do anything personally that would make a difference in the way these issues are handled. If you wanted to do something, would your efforts make a great deal of difference (4), some difference (3), very little difference (2), or no difference (1)?
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- Major operational disruption due to inclement weather
- Aircraft technical or product failure
- Ethical wrongdoing of an airline
- Poor aircraft maintenance
- Terrorism
- Sabotage

Level of involvement:

For each of the same situations, tell me to what extent you see a connection between yourself, personally, and each of these situations. There would be a connection if you believe the issue has affected or could affect you. Tell me if the connection is strong (4), moderate (3), weak (2), or if you see no connection (1).

- Major operational disruption due to inclement weather
- Aircraft technical or product failure
- Ethical wrongdoing of an airline
- Poor aircraft maintenance
- Terrorism
- Sabotage

Survey items to obtain demographic information

1. What is your gender?
   - male
   - female
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2 What is your age?

18 - 21
22 – 30
31 – 40
41 – 50
51 – 60
61 – 70
70 <

3 What is your highest level of education?

High school or equivalent
Some college
Undergraduate degree
Graduate degree
None

4 Where do you live?

North America
Middle/South America
Europe
Asia
Middle East
Africa
Australia and Oceania