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Before crisis: How near-miss affects organizational trust and industry transference in emerging industries

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Abstract

A near-miss, such as a narrowly avoided collision between vehicles, evades a full-scale accident but can generate media attention that threatens trust. In emerging industries, the effects of near-miss may extend beyond organizational boundaries and influence trust in the industry and technology. This study empirically tests these assertions by examining how media reports of near-miss affect organizational trustworthiness and how trust repair strategies after a near-miss influence organizational and industry trust and technology acceptance in the emerging commercial industry of unmanned aircraft. Notwithstanding parallels to paracrisis, near-miss communication is understudied in public relations research. Further, studies of trust in the context of crisis are recent (see Brühl et al., 2018; Fuoli et al., 2017), and have produced unexpected results that warrant continued exploration in public relations. Underpinned by attribution theory, this study adopts a 2 (near-miss cause: external, low controllability; internal, high controllability) x 3 (trust repair strategy delivered via news story: denial, excuse, apology) scenario-based experiment. This study found that near-miss reduced organizational trustworthiness regardless of whether the event was controllable or not, indicating that when it comes to trust perceptions, near-miss can operate similarly to crisis. Further, apology was the only strategy that arrested a fall in organizational trustworthiness. The study signaled a trust transfer effect where organizational trust influenced industry trust, which led to the acceptance of unmanned aircraft technology. In the context of emerging industries, these findings have implications for organizations that experience near-miss, highlighting the potential for a standardized initial strategy to acknowledge a reduction in trust in order to support trust beyond the organization.

Keywords *near miss, industry trust, trust repair, organizational trust*

Acknowledgement

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1. Introduction

A near-miss is “where a negative outcome could have happened because of hazardous conditions but did not” (Dillon, Tinsley, & Burns, 2014, p. 1980). Near-misses such as near-collisions between drones and passenger jets are commonly reported in media (Tiller & Bliss, 2017), which results in negative public attention. While near-miss is rarely (if at all) studied by public relations researchers, paracrisis is a closely related concept. Coombs and Holladay (2012) define paracrises as visible threats that associate an organization with irresponsible or unethical practice and threaten reputation. Paracrises include events such as the irresponsible sourcing of products (Coombs & Holladay, 2012; Roh, 2017). Both paracrises and near-misses represent possible warning signs for organizational crises but, at least at a conceptual level, are distinct from crises because neither active crisis management teams or affect financial viability (Coombs & Holladay, 2012).

While crisis communication has historical and widespread attention in public relations research, it is not the only domain that triggers responsive communication to restore trust and reputation. This study of near-miss takes paracrisis and risk communication research as its base, noting that reputational or natural hazard threats that can be mitigated through strategic communication (Coombs & Holladay, 2012; Rød, Botan, & Holen, 2011). Near-miss is a relevant public relations issue: Given its ability to gain media attention, a knowledge deficit about effective communication can affect the quality and longevity of public relationships, trigger crisis, and challenge practitioner decision-making.

Given the scant consideration of near-miss from a communication perspective, this paper examines the effect of near-miss news reports on trust, and, how trust repair strategies influence evaluations of organizational trustworthiness, organizational and industry trust, and technology acceptance. The extant post-crisis literature is also dominated by studies of reputation restoration in established or known industries. There is a lack of research examining both trust and emerging industries that may not have the established reputation to buffer the effects of a near-miss.

In contrast to trust, reputation is evaluated often by comparison to other similar organizations (Deephouse & Carter, 2005). This kind of evaluation does not hold as easily in the context of an emerging industry where organizations are building their standing. Further, by locating the study in the context of an emerging industry, the first critical news report may be significant in how people trust the organization and its actions. Once this position is formed, it may be hard to change, suggesting that it is even more important to understand the potential effectiveness of responses to near-misses for emerging organizations, industries and technologies.

2. Near-miss and reduced trust as a negative outcome

Near-miss is commonly studied in the context of safety in industries as diverse as construction (Raviv, Fishbain, & Shapira, 2017), health (Barach & Small, 2000) and transportation (Marín Puchades et al., 2018; Poulos et al., 2017). In the context of safety, while near-miss avoids extreme outcomes like death and injury, it can act as early warnings of future risk (Marín Puchades et al., 2018). In the field of management, researchers examined perceptions of decision-making that resulted in either a near-miss, successful outcome, or failed outcome (Dillon & Tinsley, 2008). They found that managers whose decisions resulted in a near-miss were evaluated as being equivalent to those that resulted in a

successful outcome, and at a significantly higher level than decisions that resulted in failure (Dillon & Tinsley, 2008). Participants appeared to be more influenced by the eventual outcome rather than the failure that might have occurred (Dillon & Tinsley, 2008). However, when a near-miss becomes part of the public record rather than being evaluated in the context of management decision-making, a negative perception may form that can result in negative communication outcomes, challenging traditional definitional assumptions for near-miss in the safety field.

Traditionally, near-miss avoids overtly negative outcomes such as death or injury but may result in soft impacts such as a reduction in trust, which can be more insidious in the longer-term. This study argues that reduced trust could be a negative outcome associated with near-miss reporting. Near-misses between airborne vehicles are often reported by news media (Tiller & Bliss, 2017). For example, over the last year, online news reported near-miss between passenger jets and aircraft in the United Kingdom (Loganair flight in 'near miss' with drone near Glasgow Airport, 2019, 15 February; Near-miss between passenger jet & drone over London, report reveals, 2018, 21 October). Near-misses have also been an issue in the United States for years (Drone Pilot Dive Bombs Passenger Jet, 2018, 5 Feb; Passenger plane barely dodges drone above New York, 2015, 29 May), and the potential for near-misses caused substantial delays in Singapore this year when drones were sighted near Changi Airport (Drone sightings disrupt flights at Singapore's Changi airport, 2019, 25 June).

Context plays a critical role in this study. Like crisis, near-miss is context driven and occurs within or between newness, organizational, industry, and geographic boundaries. In the context of emerging industries, near-miss may reduce trust in organizations and acceptance of new technology applications, given that emerging industries and new technologies may not have the established levels of familiarity, reputation, and trust to buffer its effects. Further, much like crisis researchers have shown how national context can influence stakeholder attributions of crisis (Zhao, 2020), and the means by which organizations respond and societies trust (Cheng & Lee, 2019), the effects of near-miss may transcend national boundaries.

Trust has been a cornerstone for organization-public relations for many decades (Auger, 2014; Cheng, 2018; Huang, 2008), and its value is recognized in other disciplinary domains. For example, risk researchers note that trust influences the way people evaluate and accept products, services and organizations (Visschers & Siegrist, 2013). Given this study focuses on repairing trust in the context of near-miss, concepts that have history in the management literature, we follow Fuoli, van de Weijer, & Paradis (2017) and draw on management definitions of trust. Management scholars define trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer, Davis, & Schoorman, 1995, p. 712). Trust is determined by trustworthiness, which comprises three dimensions: ability, benevolence, and integrity (Mayer et al., 1995; Schoorman, Mayer, & Davis, 2007). Ability is defined as the skills and competencies displayed by the entity (Tomlinson & Mayer, 2009). Benevolence is the extent to which the entity “desire[s] to do positive things” for the trustor (Tomlinson & Mayer, 2009, p. 86). Integrity is defined as upholding standards, principles and values relevant to the trustor (Mayer et al., 1995; Tomlinson & Mayer, 2009). In the context of emerging industries, the authors first examine the potential for a publicized near-miss to reduce trust.

3. Assessing and repairing negative outcomes through trust and attribution theory

One theory that helps people make sense of events that have undesirable outcomes such as reduced trust is attribution theory (1995, Krueger, 2007; Weiner, 1985; Weiner, Figueroa-Munoz, & Kakihara, 1991). This theory proposes that after learning about or experiencing an event that leads to a negative outcome, people make attributions about its cause, which can affect their emotional responses and guide future behaviors (Weiner, 1985). People evaluate cause based on three continuous attribution dimensions: (1) locus of causality (internal or external); (2) controllability (degree of control an organization has over the outcome or on holding someone or something else accountable for the outcome); and (3) stability (degree to which the cause is constant or variable) (Weiner, 1985). If, for example, the cause of an event is perceived as internal, controllable and stable, then trust in the organization will decline (Tomlinson & Mayer, 2009). This leads to the following hypothesis:

H1. When reported by the media, an internal, high controllability near-miss reduces trustworthiness more than an external, low controllability near-miss.

Tomlinson and Mayer (2009) conceptualized three strategies to repair trust: denial, excuse, and apology. A denial states the organization is not responsible for the outcome and should not be held accountable (Tomlinson & Mayer, 2009). An excuse demonstrates that while the organization contributed in some way to the event, it was not fully responsible for it and its impact (Tomlinson & Mayer, 2009). An apology demonstrates that the organization accepts full responsibility and shows regret or remorse for the event (Tomlinson & Mayer, 2009). Two research disciplines have recently examined trust repair during an internal, integrity-based violation. In the public relations domain, Fuoli et al. (2017) examined the connections between evidence against a company, trustworthiness strategy (i.e., denial or apology), and trust. They found that for an internally-focused violation with weak evidence, denial outperformed apology in repairing trust (Fuoli et al., 2017). An unexpected result was that under a condition of strong evidence, apology was no more effective than denial, noting no significant results (Fuoli et al., 2017). Overall, denial was shown to outperform apology in restoring perceived ability (an element of trustworthiness) and intentions to trust (Fuoli et al., 2017).

In the management domain, a handful of studies examine trust repair at the organizational level (e.g., Brühl et al., 2018; Gillespie, Dietz, & Lockey, 2014). Of note, Brühl et al. (2018) examined trust repair strategies (in their case, an apology, excuse, and refusal) following an internally-caused integrity-based violation, concluding that apology was the effective strategy.

In the context of a specific crisis type, namely integrity-based violations, recent research presents equivocal evidence for the type of strategy to improve trust. However, there remains limited, if any, research on trust and near-miss, resulting in the following hypotheses:

H2. The trust repair strategy of denial will enhance organizational trustworthiness better than excuse and apology in an external, low controllability near-miss.

H2a. The trust repair strategy of apology will enhance organizational trustworthiness better than denial and excuse in an internal, high controllability near-miss.

3.1. Transferring trustworthiness

Trust transference is the means by which trust can be transferred from one organization or institution to another (Bachmann, Gillespie, & Priem, 2015), to benefit or buffer the other party. In management research, trust transference occurs when one trustworthy organization or institution is willing to transfer some of its trust to a transgressing party (Bachmann et al., 2015). But public relations researchers note that transfers may not always be beneficial with Laufer and Wang (2018) arguing that consumers can generalize one company's crisis to the industry level, resulting in negative outcomes for all parties. Further, while a recent study identified both differentiated and shared strategies used by blameless organizations within an industry sector when another organization is in crisis (Bozic, Siebert, & Martin, 2018), there is little consideration of the transfer effect of one organization's trust repair strategy on organizational trust (the outcome of trustworthiness according to Tomlinson & Mayer, 2009), and industry trust. Hence, in the context of a near-miss involving a new technology in which trust repair strategies are the most relevant, it is worth examining the extent to which an organization's trustworthiness transfers to trust in the organization and the industry in minimizing potential risk to people. This forms the basis for the final hypotheses:

H3. Following a publicized near-miss, organizational trustworthiness is positively associated with (a) organizational trust, (b) industry trust, and (c) technology acceptance.

H3a. Organizational trust is positively associated with industry trust.

H3b. Industry trust is positively associated with technology acceptance.

H4. Attribution of responsibility is negatively associated with trustworthiness.

4. Method

This study conducted a scenario-based experiment using a fictitious near-miss involving commercial unmanned aircraft systems (colloquially known as drones), which represent an emerging autonomy industry. In 2015, the commercial drone market had an estimated value of US\$2.145 billion (Allied Market Research, 2018). By 2030 in the United Kingdom, the industry is expected to contribute GBP42 billion to the economy and create 68,000 jobs (Emmanuel, 2018). Drones are suited to a broad range of commercial applications, including aerial photography, infrastructure inspection, package delivery, survey, law enforcement, and precision agriculture. In spite of the calls for harnessing the potential of drones, the operation of drones poses risks to other airspace users (due to possible mid-air collision) and members of the public due to the chance that an unmanned aircraft may crash.

The regulatory systems that guide commercial drone operations vary by region with some countries banning the use of commercial drones, others waiting on evaluations of other countries' regulations and legislation, and others regularly revising practices (Jones, 2017). For example, in Australia, drones flown for or at work will soon need to be registered with the Civilian Aviation Safety Authority if pilots do not already hold a remote pilot license (CASA, 2019). However, Japan, permission is only required if the drone operator is flying in restricted airspace around airports, in densely inhabited areas, or above 150 m (CAB, 2019). Despite variation, Jones (2017) argues that laws are moving towards a permissive regulatory stance. Although past research identified that the Australian public did not consider drones to be overly unsafe, risky, beneficial or threatening (Clothier, Greer, Greer, & Mehta, 2015), variation in laws across nations as well as their use for military and/or commercial operations may have implications for safety and risk perception.

In the United Kingdom, the number of drone incidents with aircrafts has risen from six in 2014 to 93 in 2017 (Reuters, 2018), with a major airport, Gatwick, closing in December 2018 following drone sightings. This study was reviewed and approved by QUT's Human Research Ethics Committee (approval number 1400000196).

4.1. Design and stimuli

This study used a 2 (near-miss: external, low controllability; internal, high controllability) x 3 (trust repair strategy: denial, excuse, apology) between-subjects repeated measures experimental design across three time points. Drawing on attribution theory, the locus and controllability aspects were controlled around a competence-based scenario. Stimuli were mocked up to represent news articles. At Time 1, the first news article introduced a fictitious drone operator, AeRobo, and its chief pilot, and described the organization's activities including the use of drones to track bushfires, traffic jams, and coastal erosion. After reading this article, respondents evaluated the trustworthiness, organizational trust, industry trust (commercial drone industry) and technology acceptance (of drones for traffic monitoring). These same questions were repeated after each stimuli.

At Time 2, a second news article, dated one day after the first, introduced a near-miss between a drone and passenger jet that occurred while the drone was monitoring road traffic congestion. In aviation, mid-air near-miss is defined as when two aircrafts avoid colliding but breach a pre-determined safe minimum distance between each other. Respondents were randomly assigned to one of the two near-miss stimuli: (1) an external near-miss caused by uncontrollable strong winds and (2) an internal near-miss caused by controllable forces when the drone pilot incorrectly entered flight details, putting the aircraft offcourse. After reading the second news article, respondents evaluated responsibility attribution, measured as the extent to which the organization that operated the drone had caused the near-miss alongside the other measures.

At Time 3, the third news article reported the organization's communication strategy to repair trust. Respondents were randomly assigned to one of the three strategies: a denial, excuse, or apology. Following Tomlinson and Mayer (2009), in the denial condition, the organization denied the status of the near collision as causing a negative outcome (e.g., "No real crisis occurred"). In the excuse condition, the organization described the near-miss as being mostly out of its control (e.g., "This was an unusual event. We could not have anticipated a failure in the altimeter") and in its apology, the organization apologized for the near-miss (e.g., "This was regrettable and we take full responsibility") (Tomlinson & Mayer, 2009). Full stimuli can be requested by contacting the corresponding author.

4.2. Participants and procedure

An Australian market research company, SSI, recruited a nationally representative sample reflecting the Australian population in line with census data from the Australian Bureau of Statistics. A total of 435 responses were requested and received. Of the 435 respondents, 51 percent were male and 49 percent were female, and 24 percent lived in rural areas and 76 percent lived in urban areas. Their ages ranged from 18 to over 65 years. The majority (68.8 %) of the sample had some postsecondary education and of the sample, 1.4 percent worked in aviation and 9.7 percent were interested in aviation. Results from t-tests and analysis of variance (ANOVAs) showed no statistically significant associations between these

demographic variables and the five variables measured in the study. Each experimental condition received between 70 and 74 responses.

Table 1

Mean and Standard Error (SE) of the Mean for Items.

Variable	Item	Scale	Time 1 Mean (SE)	Time 2 Mean (SE)	Time 3 Mean (SE)
Trustworthiness (integrity) (α : .945)	I like AeRobo's values.	1-7	4.74 (.058)	4.20 (.061)	4.01 (.072)
	Sound principles seem to guide AeRobo's behaviour.	("strongly agree" to "strongly disagree")	4.85 (.054)	4.17 (.060)	4.01 (.072)
	AeRobo has a great deal of integrity.		4.35 (.053)	4.11 (.058)	3.98 (.073)
AeRobo's employees are very capable of performing their job.	4.97 (.053)		3.96 (.069)	3.93 (.074)	
Trustworthiness (ability) (α : .947)	I have confidence in the skills of AeRobo's employees.		4.83 (.056)	3.88 (.068)	3.85 (.075)
	AeRobo's employees are well qualified.		4.96 (.055)	4.21 (.065)	4.14 (.071)
Trustworthiness (benevolence) (α : .953)	AeRobo's employees look out for what is important to me.		4.36 (.060)	3.98 (.064)	3.86 (.072)
	AeRobo's employees would not knowingly do anything to hurt me.		4.49 (.061)	4.37 (.064)	4.31 (.070)
	AeRobo's employees are very concerned about my welfare.		4.12 (.062)	3.97 (.064)	3.91 (.072)
Responsibility Attribution	The near-miss was caused by a problem inside AeRobo.		–	4.42 (.073)	4.40 (.078)
Organizational Trust	How much do you trust AeRobo to minimise potential risks to people?	1-7 ("strongly trust" to "strongly distrust")	4.58 (.063)	4.09 (.069)	3.96 (.076)
Industry Trust	How much do you trust the commercial drone industry to minimise potential risks to people?		4.53 (.070)	4.08 (.072)	3.94 (.076)
Drone Acceptance	Rate the acceptability of drones for traffic monitoring.	1–7 ("totally acceptable" to "totally unacceptable")	5.06 (.071)	4.49 (.078)	4.36 (.080)

4.3. Measures

Five variables were measured in this study. As formative variables, organizational trustworthiness was measured with three items each for integrity, ability, and benevolence (Mayer et al., 1995) and respondents also evaluated responsibility attribution (Brown & Ki, 2013). As reflective variables, organizational trust, industry trust (Cobb & Macoubrie, 2004), and drone acceptance (Bronfman, Vázquez, & Dorantes, 2009) were measured using single item measures aligning with existing research into public acceptance of trust and risk and Mayer et al's (1995) model of trust. Single item variables can provide predictive validity and stability over time (Lantian, Muller, Nurra, & Douglas, 2016). All items were measured on a seven-point scale ranging from one (strongly disagree, strongly distrust, totally unacceptable) to seven (strongly agree, strongly trust, totally acceptable). Table 1 shows the mean and standard error of the mean for each item following three stimuli noted as Time 1, Time 2, and Time 3, and outlined in Section 3.1.

5. Results

To answer the hypotheses, data analysis involved a three-stage process: (a) assessing the multi-item scales for trustworthiness as a one-factor measurement model using confirmatory factor analysis (CFA) after which weighted composites for trustworthiness were created for each time point, (b) testing the effects of near-miss type on responsibility attribution using t-tests, and testing the effects of trust repair strategy on organizational trustworthiness using analysis of variance (ANOVA), and (c) testing the relationships among the variables using structural equation modeling (SEM).

5.1. Reliability

The multi-item scale for trustworthiness has acceptable reliability (α Integrity = .945; α Ability = .947; α Benevolence = .953). When the three dimensions are combined into one single scale, Cronbach's alpha was .976. To further test the scale as a one-factor measurement model consisting of three dimensions, confirmatory factor analysis (CFA) was conducted using AMOS. Data collected at all the three time points showed acceptable model fit (Time 1: $\chi^2 = 50.547$, $df = 21$, $\chi^2/df = 2.407$ ($p < .001$), CFI = .991, RMSEA = .057, SRMR = .0205; Time 2: $\chi^2 = 75.812$, $df = 22$, $\chi^2/df = 3.446$ ($p < .001$), CFI = .988, RMSEA = .075, SRMR = .0210; Time 3: $\chi^2 = 48.801$, $df = 22$, $\chi^2/df = 2.218$ ($p = .001$), CFI = .995, RMSEA = .053, SRMR = .0135) based on Hu and Bentler's (1999) cutoff criteria for fit indices (greater than or equal to .95 for CFI, and smaller than or equal to .06 for RMSEA, and .08 for SRMR). Although it is desirable to have a value of under 3 for χ^2/df , a value of under 5 could be deemed permissible due to the large sample sizes (Marsh & Hocevar, 1985). Prior to conducting a set of ANOVAs and SEM, the factor score weights for each item were used to create weighted composite scores for trustworthiness at each time point. Assumption checks were undertaken and indicated that the normality and the homogeneity of variance assumptions were met.

5.2. Manipulation checks

Manipulation checks revealed the experimental manipulations worked as anticipated. An independent sample t-test was conducted to examine whether the manipulation for the cause of the near-miss made a significant difference on responsibility attribution. For Time 2, Levene's Test for Equality of Variances showed no violations, $p = .148$. The manipulation

was successful, $t(433) = -5.774$, $p < .001$, Cohen's $D = .55$. For Time 3, Levene's Test for Equality of Variances showed violations, $p = .033$. Not assuming equal variances, the manipulation was successful, $t(432.55) = -5.223$, $p < .001$, Cohen's $D = .50$.

5.3. Results

Hypothesis 1 proposed that an internal, high controllability near-miss would reduce trustworthiness more than an external, low controllability near-miss, thereby producing a negative communication outcome. A t-test was conducted to first compare the effects of the types of near-miss (i.e., external, low controllability and internal, high controllability) on trustworthiness. Levene's Test for Equality of Variances showed no violations, $p = .635$. Organizational trustworthiness showed significant differences ($t(430.89) = 3.374$, $p = .001$) between external, low controllability near-miss ($M = 4.193$, $SD = 1.39$, $SE = .095$), and internal, high controllability near-miss ($M = 3.752$, $SD = 1.34$, $SE = .090$). A one-way repeated measures ANOVA was conducted for organizational trustworthiness. As Mauchly's test of sphericity was violated, results were interpreted based on Huynh-Feldt Epsilon ($F(71.624) = 157.39$, $p < .001$), as recommended by Tabachnick and Fidell (2007). Organizational trustworthiness was the highest at Time 1 ($M = 4.75$, $SD = 1.01$, $SE = .069$), and reduced at Time 2 ($M = 4.19$, $SD = 1.12$, $SE = .077$). This showed that near-miss can result in a negative outcome of a fall in organizational trustworthiness.

Hypothesis 2 investigated which trust repair strategy worked best to enhance organizational trustworthiness. In the external, low controllability near-miss, a one-way repeated measures ANOVA from Time 2 to Time 3 was conducted. As Mauchly's test of sphericity was violated, results were interpreted based on Huynh-Feldt Epsilon ($F(1.62) = 53.969$, $p < .001$). To identify which strategy (i.e., denial, excuse, apology) was most effective at restoring trustworthiness, examination of means showed apology being the preferred method of restoring trustworthiness as it was the only strategy that resulted in the stabilization of trust ($M = 4.51$, $SD = 1.19$, $SE = .14$), as opposed to continuing to decline as was the case for both denial ($M = 4.05$, $SD = 1.37$, $SE = .16$), and excuse ($M = 4.01$, $SD = 1.55$, $SE = .18$). This is illustrated in Fig. 1. Pairwise comparisons (Bonferroni) showed significant pairwise differences for all trust repair strategies ($p = .003$ for denial, $p = .002$ for excuse, and $p < .001$ for apology).

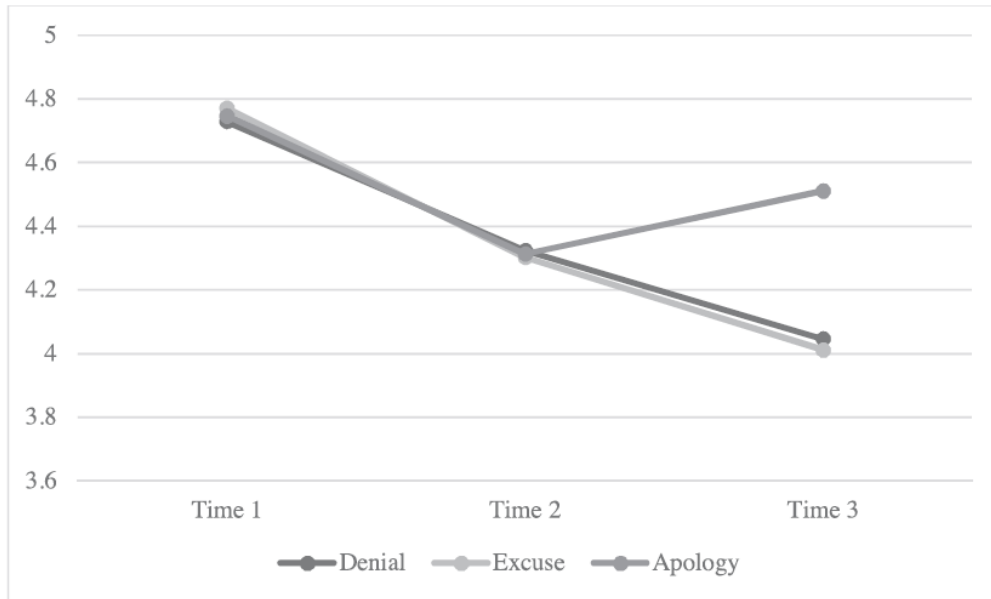


Fig. 1. Changes in trustworthiness from trust repair strategies in an *external, low controllability* near-miss.

For an internal, high controllability near-miss, a one-way repeated measures ANOVA from Time 2 to Time 3 was also conducted. As Mauchly's test of sphericity was violated, results were interpreted based on Huynh-Feldt Epsilon ($F(1.62) = 108.195, p < .001$). To illustrate which of the three possible strategies (e.g., denial, excuse, apology) was most effective at restoring trustworthiness, examination of means showed a trend for an apology being the preferred method of restoring trustworthiness as illustrated in Fig. 2. Apology was the only strategy that halted a fall of trustworthiness and a partial recovery (increase) in the level of trustworthiness ($M = 3.88, SD = 1.30, SE = .15$). Both denial ($M = 3.79, SD = 1.34, SE = .16$) and excuse ($M = 3.59, SD = 1.38, SE = .16$) resulted in a continuing decline in trustworthiness. Pairwise comparisons (Bonferroni) showed significant pairwise differences for all trust repair strategies ($p = .028$ for denial, $p < .001$ for excuse, and $p = .009$ for apology). In considering the study overall, apology was the only strategy that arrested a fall in trustworthiness.

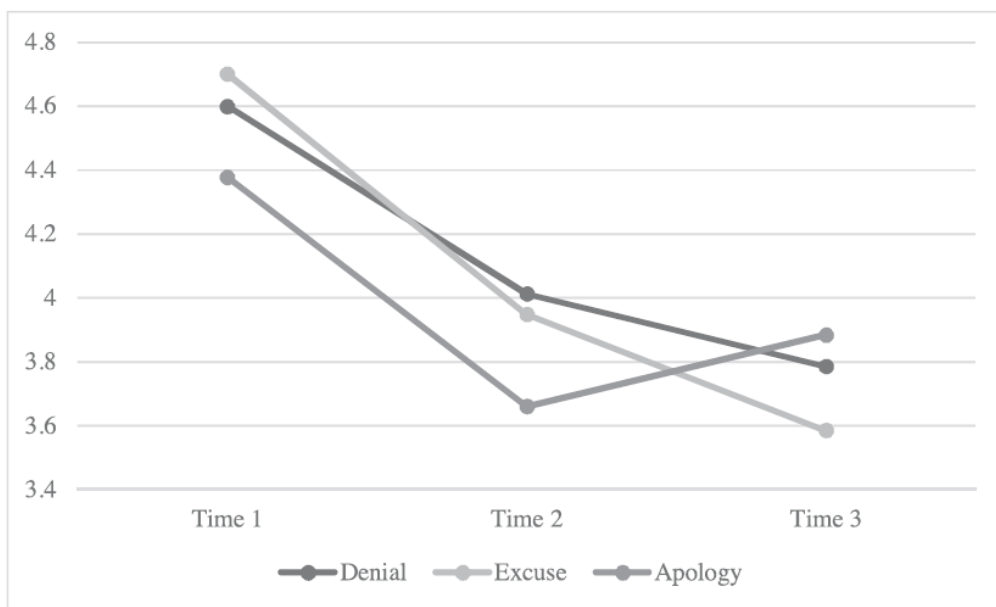


Fig. 2. Changes in trustworthiness from trust repair strategies in an *internal, high controllability* near-miss.

Hypotheses 3 and 4 examined how organizational trustworthiness transferred to affect organizational and industry trust and acceptance of drones. Structural models were used to examine hypotheses at each time point. At Time 1, trustworthiness had positive relationships with organizational trust ($\beta = .779, p < .001$), industry trust ($\beta = .195, p < .001$), and acceptance of drones ($\beta = .207, p < .001$). Organizational trust had a positive association with industry trust ($\beta = .714, p < .001$), and industry trust had a positive relationship with acceptance of drones ($\beta = .530, p < .001$). The structural model showed acceptable model fit ($\chi^2=2.299, df=1, \chi^2/df= 2.299 (p = .129), CFI=.999, RMSEA=.055, SRMR=.0076$).

At Time 2, attribution of responsibility was added into the model. Negative association was found between attribution of responsibility and trustworthiness ($\beta=-0.099, p = .038$). Subsequently, like Time 1, trustworthiness had positive associations with organizational trust ($\beta = .813, p < .001$), industry trust ($\beta = .071, p = .025$), and acceptance of drones ($\beta = .207, p < .001$). Organizational trust had a positive association with industry trust ($\beta = .865, p < .001$), and in turn, industry trust had a positive association with acceptance of drones ($\beta = .582, p < .001$). The structural model also showed acceptable model fit ($\chi^2=4.354, df=4, \chi^2/df= 1.088, (p = .360), CFI=.999, RMSEA=.014, SRMR=.0088$).

At Time 3, as illustrated in Fig. 3, trust repair strategies were added into the model. Positive association was found between the strategy and trustworthiness ($\beta = .095, p = .047$). Negative association was found between attribution of responsibility and trustworthiness ($\beta=-.096, p = .044$). Trustworthiness had positive associations with organizational trust ($\beta = .871, p < .001$), industry trust ($\beta = .118, p < .001$), and acceptance of drones ($\beta = .123, p = .034$). Organizational trust had positive associations with industry trust ($\beta = .839, p < .001$). There was also a positive association between industry trust and acceptance of drones ($\beta = .664, p < .001$). The structural model also showed acceptable model fit ($\chi^2=20.755, df=7, \chi^2/df= 2.965 (p = .004), CFI=.993, RMSEA=.067, SRMR=.0298$). In essence, this structural model indicates that organizational trustworthiness does indeed transfer from an organization to the industry as a whole—whether for better or worse.

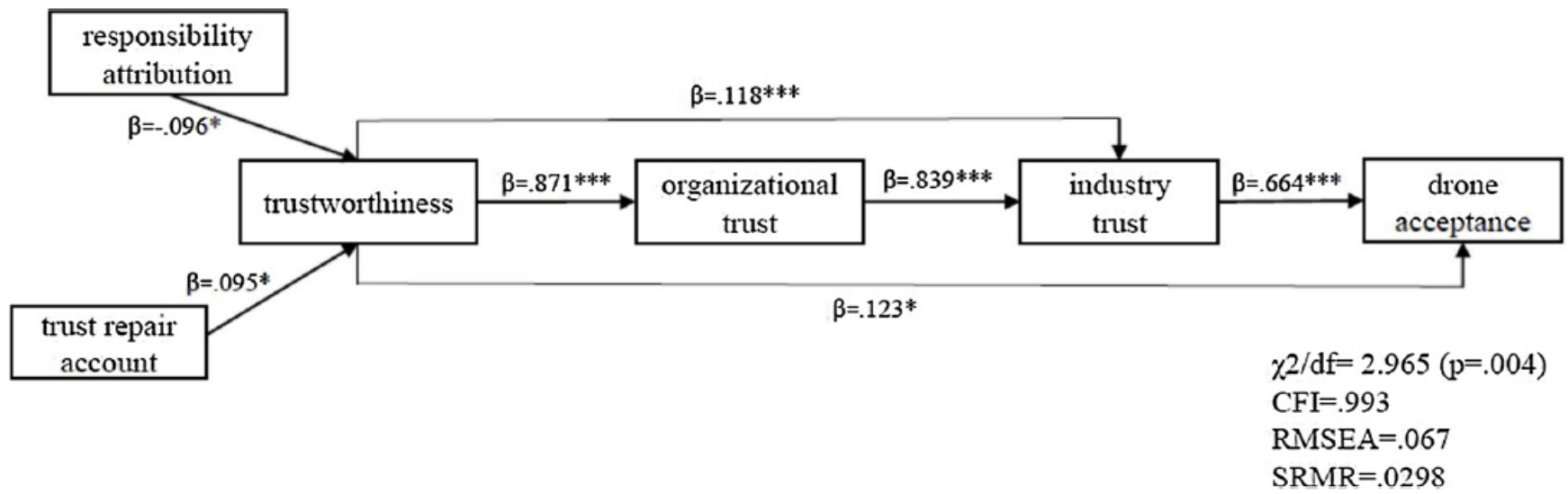


Fig. 3. Structural model for trustworthiness transference at Time 3 following introduction of trust repair strategies (* $p < .05$, *** $p < .001$).

6. Discussion

Given that near-miss has received limited (if any) attention in public relations research and only a small number of studies examine trust in the context of crisis, this paper makes an empirical contribution to research on trust and near-miss in emerging industries. It provides evidence that when publicized by media, a near-miss can reduce trust, therefore producing a negative communication outcome. This finding suggests that near-miss creates a negative perception in much the same way that an actual crisis produces both a negative outcome and negative perception. The study also provides insight about how trust repair strategies influence organizational trustworthiness and trust, industry trust, and technology acceptance following near-miss. Given the lack of near-miss literature in public relations, we consider our results against findings from crisis communication, management, and risk studies.

This study found that responsibility for a near-miss was judged in a similar way to responsibility for an actual crisis (see Hwang & Jeong, 2012; Jorgensen, 1996; Lee, 2004). In internal, high controllability near-misses, responsibility was attributed to the organization more strongly than an external, low controllability near-misses. When considering the effect of trust repair strategies, apology was the only option across both types of near-miss that arrested a fall in trust. Notably, strategies of denial and excuse, which arguably were more ecologically valid, further reduced trustworthiness. In other words, when organizations did not apologize, regardless of whether the near-miss was within their control or not, they faced a further decline in trust.

These findings warrant further exploration based on the following observations. First, it is interesting that an apology strategy arrests a fall in trust for a near-miss that caused no physical damage. It is possible that participants cannot or do not distinguish differences between a near-miss and a real crisis or accident. Noting Dillon and Tinsley's (2008) findings that show equivalence between success and near-miss as opposed to failure outcomes, this distinction should be tested in future studies. For example, future research could consider the effects of a highly publicized near-miss alongside an actual accident to determine its conceptual elasticity and location on a continuum from risk to paracrisis to crisis by examining the severity of the scenario (i.e., near-miss, paracrisis, crisis) and its effects. Second, the context of this study, the emerging industry of commercial drones as part of the aviation sector, may unwittingly influence participants' perceptions and expectations, suggesting that future studies should consider alternate contexts for near-miss such as alternate new technologies (e.g., driverless cars or robots). Third, the findings show only a moderate improvement in trust but not the full restoration of trust to the pre-nearmiss situation. This suggests that multiple presentations of or exposure to trust repair strategies alongside other changes may be needed to fully restore trust. Alongside competence-based violations, future research could also consider integrity- and benevolence-based scenarios, noting these may best be examined in the context of established industries, as different violations may have implications on the loss and repair of trust.

Overall, this study appends existing research that examined trust repair under only one type of crisis event, an internal, integrity-based violation resulting in divergent findings: Brühl et al. (2018) identified an apology and Fuoli et al. (2017) identified denial as the most effective means to repair trust following a crisis. Given this study examines near-miss, it has implications for existing paracrisis and crisis communication research. That an apology is the only strategy to repair and arrest a fall in trust indicates its value as the starting strategy for

organizations, and in doing so, may lock in this strategy for those organizations that progress from near-miss to paracrisis or crisis events.

In addition to also supporting the associations between the cause of near-miss and attribution of responsibility and between communication strategy and trustworthiness, the structural models identified that trustworthiness had positive associations with organizational trust, industry trust, and acceptance of drones. This pathway reflects the significant transference effect of trustworthiness to organizational and industry trust and acceptance of drones. Future studies of near-miss in established industries could consider if transference operates positively or negatively in reverse (i.e., industry trust influences organizational trust) by drawing on insights on trust transference and crisis contagion (Laufer & Wang, 2018), and use multi-item scales to measure industry trust and technology acceptance.

These findings present implications for organizations that are part of emerging industries. Organizations that are the subject of publicity about near-miss must repair trust at the same time as building a social license to operate. Communication strategies may compromise legitimization efforts, requiring organizations and industry bodies to develop new bases or criteria for constructing the worth and value of the emerging space (Khaira, 2014). It is worth also considering how these strategies may be used by global practitioners who operate within and across different social, financial, political and regulatory systems that may enable or constrain trust, technology applications, and acceptance.

Some limitations to this study offer areas for further investigation. First, while the findings show that an organizational apology is the most effective response to near-miss, it may not be a universal response to trust repair following near-miss in established industries. Future studies could examine trust repair strategies following near-miss in more established industries such as commercial aviation. Second, further studies could investigate the addition of technical responses in addition to social strategies of denials, excuses, and apologies. Third, the findings suggest the important need to study the nexus between risk and crisis events. While existing crisis research suggests the value of a matched strategy approach to crisis communication, the selection of an apology following a near-miss may act as a precedent for the organization and lock them into a similar response during crises.

7. Conclusion

This study provides empirical data to support research that examines conditions that can append crisis communication. By examining near-miss communication and its influence on trust in organizations and industry and technology acceptance, this study contributes a new perspective that may influence the nature of ongoing risk and crisis communication research and practice in global public relations.

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