Effects of 360° video on attitudes toward disaster communication: Mediating and moderating roles of spatial presence and prior disaster media involvement☆

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ABSTRACT

Visual media technologies such as 360° video, augmented reality, and virtual reality are on the rise for immersive storytelling in a variety of public relations contexts. Yet there is a profound lack of scholarly research in public relations, crisis communication, and disaster communication to explore the effects of content displayed using these delivery formats on publics' responses. To begin addressing the knowledge gap, this work reports results from a laboratory experiment investigating effects of media modality (traditional unidirectional video content vs. 360° omni-directional video content) on attitudes toward the disaster communication content. Results demonstrate that 360° video featuring the aftermath of a natural disaster yields enhanced attitudes toward the helpful impact of the content. Importantly, mediation analyses show that (1) a sense of spatial presence underlies these effects, and (2) the mediating effects of spatial presence are attenuated by involvement with similar disaster media coverage (indirect experience).

1. Introduction

Immersive visuals such as 360° video, virtual reality, and augmented reality have been increasingly created, sought, and consumed in the past few years. A *USA Today* article proclaimed that "360 video is the next big thing in tech" (Graham, 2016, para. 1), and the popular industry resource *Bulldog Reporter* recently boasted the headline "PR's VR Future: Virtual, Augmented Reality-Fueled Immersive Ad Technologies Are More Engaging" (Carufel, 2017).

With 360° video cameras (i.e., cameras with a 360°, omnidirectional field of view) becoming ever more affordable and accessible (Graham, 2016), popular adoptions are continuing to expand. The average digital media viewer may now run across 360° video during regular online browsing, such as in articles on the *New York Times* 360 video news channel, or in various promotional campaigns from brands such as Mercedes-Benz and Philips on YouTube. The nation's most popular social media site, Facebook (Pew Research Center, 2016), also supports 360° video capabilities. For those wanting to bring the technology to their living rooms, the social microblogging platform Twitter was first to add live 360° video capabilities within an Apple TV application (Perez, 2017b).

And now ordinary consumers can gain immersive video experiences via inexpensive, portable, and widely available smartphone-compatible headsets.

Organizations often turn to emerging technologies in efforts to reach, build relationships with, and influence attitudes and behaviors of diverse publics (Wright & Hinson, 2014). The budding link between public relations and immersive visual technologies seems fitting. For example, in 2017, Google's corporate social responsibility arm partnered with the United Nations to answer Google users' most searched questions about the Syrian refugee crisis. Instead of using a traditional fact sheet or FAQ website page, the organizations took a different approach: merging United Nations High Commissioner for Refugees data with stories using 360° visual content, among other visual features, to draw viewers in (Perez, 2017a). Such connections between public relations and immersive video technologies may be a continuation of the evolving public relations and digital/social media realm in general. Research determining best practices in social-mediated public relations based on case studies of four award-winning social media campaigns found that they "employ digital storytelling techniques that are both immersive and emotive" (Allagui & Breslow, 2016, p. 20). Indeed, a hallmark of technologies such as 360° video is the potential for immersive, emotive digital storytelling.

Yet, academic research often lags behind the industry to provide explanations and predictions regarding the roles that emerging modalities or delivery features play in publics' responses to public relations content. This is the case for the intersection of crisis/disaster pubic relations and visuals generally, as researchers in this realm have noted (e.g., Coombs & Holladay, 2011; Guidry, Messner, Jin, & Medina-Messner, 2015), as well as for 360° video in particular. In fact, to the best of the researchers' knowledge, no found academic research in public relations examines outcomes of 360° video viewing.

Thus, the purpose of this research is to empirically investigate the mechanisms driving viewers' attitudes toward 360° video content in a disaster communication context. More specifically, though a laboratory experiment, this study explores (1) the effects of modality (traditional unidirectional video content vs. 360° omnidirectional video content) on attitudes toward the content featuring the aftermath of a natural disaster (i.e., flooding) as credibly helpful/impactful; (2) the mediating effects of spatial presence on the effects of modality on attitude formation; and (3) the moderating effects of previous mediated experience of a similar disaster on the underlying mechanism. As will be built upon below, providing a richer picture of how and why viewers react to visual content via different display modalities can help scholars build a chain of evidence to support recent theory building in crisis communication and help practitioners make informed communication decisions, particularly about choosing effective media forms that create audience-oriented helpful impact in this ever-changing media landscape.

2. Literature review

2.1. Crisis and disaster communication

Public relations scholarship has dominated the effort to advance knowledge about crisis communication during the past decade (Avery, Lariscy, Kim, & Hocke, 2010; Sommerfeldt, Paquette, Janoske, & Ma, 2013; Toth, 2010). Given that crises and disasters are negative, urgent, often dangerous, and prompt uncertainty (Coombs, 2015; Palenchar, 2010; Sellnow & Seeger, 2013), they can violate organization-public relationships, tarnish organizational reputation, and cause widespread human and material damages. However, as Coombs (2015) defined, a crisis "is the perception of an unpredictable event that threatens important expectancies of stakeholders… and can seriously impact an organization's performance and generate negative outcomes" (Coombs, 2015, p. 3). This oft-cited definition clearly takes an organizational perspective, noting that a crisis event is happening when stakeholders perceive that the organization has not lived up to expectations of some important type, causing negative results for the organization.

Indeed, organizational image has often been a primary concern in crisis public relations, emphasizing keeping the business afloat in the face of an organizational crisis. In response, several scholars recently have critiqued such streams of scholarship for an apparent organizational bias and called for more multivocal approaches to the study and implementation of crisis communication (e.g., Avery et al., 2010; Heath, 2010; Liu & Fraustino, 2014). Such approaches—which consider myriad thoughts, feelings, wants, and needs of various individuals and groups rather than from the dominant focal point of an organization experiencing an adverse event that could impact reputation—can allow for a more holistic understanding of crisis communication antecedents and outcomes.

One such arena for the possible advancement of knowledge is in disaster communication, historically less focused on in public relations, especially from publics-centered standpoints (Liu & Fraustino, 2014). Organizational crises can be understood as organization-based catastrophic events (or perceptions of such events), whereas disasters can be considered community-based catastrophic events. That is, disasters may be considered community-centric, such as when natural (e.g., floods) or person-made (e.g., bombings) events overcome a community's ability to adequately protect, respond, or recover. Coombs (2015) explained that "disasters are events that are sudden, seriously disrupt routines of systems, require new courses of action to cope with the disruption, and pose a danger to values and social goals" (p. 3). Disaster *communication*, then, should take into consideration social goals and the collection of thoughts, feelings, beliefs, wants, and needs of an array of publics (Fraustino & Liu, 2017).

Risk and crisis scholars in public relations have begun to exert more concerted effort in researching disaster communication. Such interdisciplinary work has ranged from exploring how disasters merge with organizational crises to produce traditional organization-centric outcomes (Utz, Schultz, & Glocka, 2013); to how organizations address health epidemics using social media (Guidry, Jin, Orr, Messner, & Meganck, 2017); to the skills, training, and resource preparedness for media relations responding to nuclear disasters (Perko et al., 2016); to the effects that disaster information sources and channels have on behavioral intentions in response to terrorist attacks (Liu et al., 2016). Honing in on disaster communication to examine the thoughts, feelings, attitudes, and/or actions of various publics surrounding community-based catastrophic events can help (a) widen the contexts in which crises are discussed in public relations scholarship and (b) extend traditional crisis outcomes beyond organizational reputation and similar organization-centric concerns.