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SANG Y. LEE  
sang.lee@mail.wvu.edu

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## 360 Degree Video Contents as a Tool to Persuade Consumers: From a Disaster Communication Context

•Hongmin Ahn

Dongguk University- Seoul, Korea

•Sang Yeal Lee

West Virginia University, U.S.A om

### Introduction and Hypotheses Development

With 360 degree video cameras (cameras with a 360 degree, omnidirectional field of view) ever more affordable and accessible (Graham, 2016), popular adoptions are continuing to expand. The average digital media viewer may now run across 360 degree 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. Organizations often turn to emerging technologies in efforts to reach, build relationships with, and influence attitudes and behaviors of diverse publics (Wright & Hinson, 2014). 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 public 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 degree video in particular. In fact, to the best of the researchers' knowledge, no found academic research in public relations examines

outcomes of 360 degree video viewing. Thus, the purpose of this research is to empirically investigate the mechanisms driving viewers' attitudinal responses to 360 degree video in a disaster communication context.

According to media richness theory and other related theories in media psychology, we developed the following 4 hypotheses.

- H1. The 360 degree video modality will be more effective than the traditional video modality at generating positive attitudes toward the disaster video content.
- H2. The 360 degree video modality will be more effective than the traditional video modality in generating a sense of spatial presence.
- H3. A sense of spatial presence will mediate the positive relationship between the 360 degree video modality and attitudes toward the disaster video content.
- H4. The mediation effect of the 360 degree (vs. flat) video on attitudes toward the disaster video content through a sense of spatial presence will be dependent on previous experience of a flood event similar to the one featured in the video content. Specifically, the mediation effect will be significant only for those with no prior similar disaster experience.

## Methods

To investigate the hypotheses, an IRB-approved lab experiment was conducted to test whether the mediation effects of modality (traditional video vs. 360 degree video) on attitudes toward the video content through spatial presence vary as a function of prior similar disaster experience. A convenience sample of university students in a large U.S. state university ( $N = 41$ ) was recruited to participate. Video stimuli were professionally created using 360 degree camera technology after a real-world catastrophic flooding disaster, enhancing external validity of the study.

## Results and Conclusions

Controlling for previous HMD use to account for variance in familiarity or unfamiliarity, an analysis of covariance (ANCOVA) showed that participants in the 360 degree video content condition ( $M = 6.35$ ,  $SD = .82$ ) were marginally significantly more likely to have a favorable attitudes toward the content than were participants in the flat video content condition ( $M = 5.71$ ,  $SD = 1.28$ ),  $F(1,38) = 3.91$ ,  $p = .06$ . Hypothesis 1, thus, was supported. An ANCOVA analysis showed that participants in the 360 degree

content condition ( $M = 6.01$ ,  $SD = 1.07$ ) were significantly more likely to feel a sense of being transported to the mediated environment (i.e., spatial presence) than were participants in the flat video content condition ( $M = 5.07$ ,  $SD = 1.58$ ),  $F(1, 38) = 4.33$ ,  $p = .04$ . Therefore, hypothesis 2 was supported.

The PROCESS macro (Hayes, 2013) was employed to investigate hypotheses 3 that a sense of spatial presence mediates the positive relationship between modality type and attitudes toward the content. Model 4 in the PROCESS macro with 10,000 bootstrap showed that the 360 degree video modality (vs. the flat video modality) indirectly influenced a favorable attitude toward the content through a sense of spatial presence (95% CI = [.0487, 1.1395]). Thus, H3 was supported.

To probe whether the indirect effect of modality type on attitudes toward the content through a sense of spatial presence at a specific value of the prior experience of a flood event similar to the one featured in the video content is statistically different from zero, Model 7 in the PROCESS macro with 10,000 bootstrap resamples was used. Results indicate that the 95% bootstrapped confidence bands for the conditional indirect effect of modality type on attitudes through a sense of spatial presence did not include zero only when the experience of a flood event was absent (95% CI = [.2971, 1.6536]). The index of moderated mediation was also significant, index =  $-1.2485$ ,  $SE = .6727$ , 95% CI =  $[-2.6958, -.0940]$ . The result suggested that the indirect effect of modality type on attitudes toward the content through a sense of spatial presence was statistically significant only when participants did not have previous experience of a flood event. Among those who experienced a flood event previously, there was no statistically significant indirect effect of modality types on attitudes toward the contents through a sense of spatial presence. Therefore, H4 was supported.

## Discussion

This work tested and supported predictions that 360 degree video would be more effective than would flat video in generating a stronger sense of spatial presence and more positive attitudes toward the content. Data supported the hypothesized moderated mediation model, showing conditional indirect effects of modality on attitudes toward the content via a greater sense of spatial presence for participants who lacked prior similar disaster experience (flooding). It is perhaps the first to examine effects of 360 degree video in crisis public relations, attempting to ensure that science continues to catch up with industry realities (Carufel, 2017; Graham, 2016). It also addresses appeals for more community-oriented approaches to the study and implementation of crisis communication beyond the traditional organizational reputation and image concerns (Avery et al., 2010; Heath, 2010; Liu & Fraustino, 2014)

by investigating flooding visuals from a real-world struggling community and their effects on publics' attitudes.

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