

Multimedia Effects on Credibility Perceptions of News Sites

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Abstract - Credibility has long been a popular topic for media scholars. Although multimedia is often seen as a credibility-building element in the study and design of HCI, journalism research rarely links multimedia to persuasion. The present study seeks theoretical frameworks across disciplines to examine effects of multimedia use and multimedia content on perceived credibility of news sites. A 3x3 experiment (n = 201) was conducted with multimedia vividness and multimedia congruency serving as two between-subjects factors. Perceptions of credibility were defined as source credibility and media credibility. According to the findings, multimedia influenced both measures of perceived credibility, though this effect was not additive. Meanwhile, congruency neither affected credibility nor moderated multimedia effects. Implications of the study are discussed.

Keywords: Multimedia, Credibility, Vividness, Congruency, Online news.

1. Introduction

While research pertaining to multimedia learning (Mayer, 2005) and multimedia interface design in human-computer interactions (Sutcliffe, 2012) has reached maturity, the study of multimedia journalism remains in its infancy. The majority of existing work is either descriptive (Deuze, 2004; Jacobson, 2012; Karlsson & Clerwall, 2012) or limited to memory and cognitive outcomes (Ogpenhaffen, & d'Haenens, 2011; Pippis, Walter, Endres, & Tabatcher, 2009; Tran, 2012). Few efforts have been made to provide insights into persuasive effects of multimedia news (Kiouisis, 2006; Sundar, 2000; Tran, in press).

Although news products are not created with persuasion as the main purpose, the adoption of multimedia serves to change the user's news experience. In order to get information seekers stick with their online offerings, news sites often employ influence elements (Fogg, Cuellar, & Danielson, 2008) that motivate and induce a feeling of trust in what it reports. Multimedia use in reporting, therefore, is highly relevant to building credibility perceptions, which entail important implications for web-based journalism. According to HCI research, similar to the assessment of human communicators, the attractiveness and professional design of a website, including multimedia enhancements, is often used as a primary indicator of credibility (Fogg, Soohoo, Danielson, Marable, Stanford, & Tauber, 2003).

Sometimes, though, the practice of adding vivid multimedia to news presentation goes beyond design look and into sensational content to engage the audience. Therein lies in an instance of attempting to gain credibility through attention-grabbing multimedia, regardless of possible inaccuracies, which might undermine user confidence in a news site. The present study gauges this outstanding issue through the lens of vividness in mediated environments (Steuer, 1992), vividness effects (Nisbett & Ross, 1980), vividness congruency (Smith & Shaffer, 2000), and online credibility (Chung, Nam, & Stefanone, 2012; Metzger, Flanagin, Eyal, Leus, & McCann, 2003). Specifically, this research explores the links between multimedia vividness, multimedia congruency, and credibility perceptions of news websites.

2. Method

The study involves a 3x3 experiment (post-test only) with multimedia vividness (low, moderate, high) and multimedia congruency (congruent, incongruent-negative, incongruent-positive) serving as two between-subjects factors. A convenience sample of 201 students at a major U.S. university was randomly assigned to different versions of a fictitious news website. Each participant viewed identical news stories

about foreign affairs (Mindanao conflict and African development) with variations in the degree of multimedia enhancements presented and the level of text-multimedia congruency.

2. 1. Independent Variables

Multimedia vividness was manipulated by varying sensory breadth (Steuer, 1992), defined as the number of modalities available in extra-text accompaniments. Three levels of vividness were created: a pull quote for the low condition (text-only); a pull quote and a pictorial display for the moderate condition (text+picture); a pull quote, a pictorial display, and a video clip for the high condition (text+picture+video).

Multimedia congruency was operationalized in terms of the match or mismatch (Smith & Shaffer, 2000) between multimedia enhancements (pull quote, pictures, video) and the overall theme of the news message. While the content of each news text was two-sided and kept constant across all conditions, the content of multimedia elements was presented with three versions: two-sided (congruent), negatively distorted (incongruent-negative), and positively distorted (incongruent-positive).

2. 2. Dependent Variables

Although new conceptualizations of credibility as a multidimensional construct are still evolving (Kohring & Matthes, 2007; Metzger et al., 2003), HCI research in the domain of persuasive technologies simply deals with source credibility and its components (Fogg et al., 2008). Therefore, the present study sought to define credibility more broadly. Participants used a nine-point semantic differential scale to indicate their perceptions of the credibility of the news website. This instrument, which has been developed in traditional journalism research and adopted by the study of perceived credibility in online media environments (Chung et al., 2012; Flanagin & Metzger, 2007; Johnson & Kaye, 2002; Kioussis, 2006), comprised 13 items with pairs of adjectives at endpoints (True/False; Believable/Unbelievable; Probable/Improbable; Realistic/Unrealistic; Right/Wrong; Honest/Dishonest; Sincere/Insincere; Inaccurate/Accurate; Biased/Unbiased; Superficial/Profound; Untrustworthy/Trustworthy; Unreliable/Reliable; Nonexpert/Expert). A factor analysis exploring the underlying dimensions of these items identified two interpretable factors (Metzger et al., 2003). The first factor consisted of eight items measuring source credibility ($\alpha = .93$) and the second factor comprised five items pertaining to media credibility ($\alpha = .83$). The extracted factor scores were used as two measures of credibility perceptions.

2. 3. Control Variables

Participants were also screened for issue familiarity, foreign travel, Internet use, age, gender, and race. These variables were included to validate significant findings, controlling for possible confounds.

3. Results

3. 1. Manipulation Check

Participants reported that perceived vividness, measured by two validated items (Fortin & Dholakia, 2005; Smith & Shaffer, 2000) ($r = .58, p < .010$), increased with greater modality use in multimedia. An ANOVA and Tukey's HSD post-hoc test yielded significant results, $F(2, 198) = 51.90, p < .001; \eta^2 = .34$, indicating successful vividness manipulations (text-only: $M = 2.91, SD = 1.56$; text+picture: $M = 4.38, SD = 1.70$; text+picture+video: $M = 5.56, SD = 1.22$). Multimedia congruency manipulations proved to be effective as well. A pretest involving 20 participants showed that relative to the two-sided nature of each news text, congruent multimedia accompaniments were rated as most balanced, incongruent-negative multimedia as overly negative, and incongruent-positive multimedia as overly positive. All ANOVAs and pairwise comparisons were significant at the .01 level.

3. 2. Main Effects of Multimedia Vividness

One-way ANOVA was performed to gauge the influence of multimedia vividness on source credibility. Significant differences existed among the groups, $F(2, 188) = 3.81, p < .001, \eta^2 = .04$.

According to Tukey's HSD post-hoc test, the source credibility score in the low vividness condition ($M = -.27$) was significantly lower ($p < .050$) than that of the high vividness condition ($M = .17$). Meanwhile, differences were not found between the moderate vividness group ($M = .09$) and the other two ($p > .050$). Thus, the main effect of vividness on source credibility was partially observed. A similar ANOVA with media credibility being the dependent variable also yielded significant results, $F(2, 188) = 4.32, p < .010, \eta^2 = .05$. Pairwise comparisons showed observable differences between the low vividness group ($M = -.30$) and the moderate vividness ($M = .18$) and high vividness ($M = .12$) groups ($p < .050$). No significant differences were detected between the moderate and high vividness conditions ($p = .926$). As such, the impact of vividness was partially found in perceptions of media credibility.

Additional ANCOVAs further confirmed the effects of multimedia vividness on both measures of credibility, controlling for issue familiarity, foreign travel, Internet use, age, gender, and race. Overall, the findings partially supported the vividness effects hypothesis (Nisbett & Ross, 1980).

3. 2. Interaction Effects of Multimedia Vividness and Congruency

Two-way ANOVAs were conducted to assess how different levels of multimedia vividness (low, moderate, high) and congruency (congruent, incongruent-negative, incongruent-positive) would affect each dimension of credibility perceptions (source and media credibility). It was predicted that apart from a main effect of vividness, there would be a main effect of congruency, and a significant interaction between vividness and congruency. According to the results, vividness had a significant impact on source credibility, $F(2, 182) = 3.84, p < .050, \eta^2 = .04$; whereas neither congruency, $F(2, 182) = .02, p > .050$, nor vividness-congruency interaction, $F(4, 182) = 1.03, p > .050$, exerted influence on this variable. Similarly, vividness affected media credibility, $F(2, 182) = 4.90, p > .010, \eta^2 = .05$, while both congruency, $F(2, 182) = .07, p > .050$, and vividness-congruency interaction, $F(4, 182) = .96, p > .050$, did not yield an impact.

In order to verify the findings, additional ANCOVAs were conducted. In the presence of third variables (i.e., issue familiarity, foreign travel, Internet use, age, gender, race), the pattern of significant effects and null effects remained consistent. The data reported here did not support the hypotheses pertaining to the role of congruency/incongruency (Russell, 2002) and vividness congruency (Smith & Shaffer, 2000) in persuasion processes.

4. Discussion and Conclusions

This research demonstrates that greater vividness in multimedia enhanced perceived source credibility and media credibility of a news site, lending credence to the argument that the characteristics of media could change audience response (Reese & Nass, 2002). Although users rated vivid multimedia news platforms as more credible than a non-vivid one, there is a ceiling effect by which the use of highly vivid multimedia versus moderately vivid multimedia did not lead to different credibility perceptions. Perhaps, video additions to online news presentation were seen as redundant and less than standard as compared to the fidelity of video delivered via television screens.

The nonexistence of a main effect of multimedia congruency and an interaction effect of vividness and congruency is noteworthy. Perceptions of source credibility and media credibility did not vary as a function of multimedia-text congruency or the lack thereof. The extent to which vivid enhancements are congruent with the theme of the news message did not moderate multimedia effects on perceived credibility. News users appeared to be oblivious to distortions in multimedia content, merely using multimedia vividness as a shortcut in forming credibility perceptions of online news platforms. This finding informs designers and producers in digital newsrooms about the pitfalls of using multimedia to engage the audience and compromising journalistic integrity in presenting truthful and accurate information. HCI professionals should always consider possible ethical issues when developing and applying persuasive technologies (Fogg et al., 2008). Future research could further examine actual credibility vs. perceived credibility of multimedia news sites and extend to blogs and mobile news apps.

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