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BELIEVING SCIENCE SATIRE: FACTORS THAT CONTRIBUTE TO MISINTERPRETATION OF "FAKE NEWS"

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Introduction

In 2016, nearly half of all Americans turned to the Internet for information about science and technology (National Science Board, 2018). Though the Internet can provide vast quantities of information, there has recently been increased public concern over the effects of "fake news"—news stories based on misinformation, often with the malicious intent to spread falsities as facts—as evidenced by increasing coverage of the topic in media (for examples, see Birkeland, 2017; Ingram, 2017; Rutenberg, 2017). Science reporting can also be affected by a form of fake news; websites such as *The Onion*, *Clickhole*, and *The Civilian* often post satirical news about science and technology (for examples, see "NASA Launches First Cordless Satellite," 2016, "Relatively large number occurs off coast of Pacific island," 2013, "What In God's Name Is Going On With Planes?," n.d.) that may be mistaken as factual. It is an important distinction that such science satire, though false, is non-malicious and is intended to entertain and encourage critical thought about the topics they cover (Kreuz & Roberts, 1993). Moreover, these stories are often humorous, prompting readers to share the articles. Thus, there is a potential for misinformation to spread if science satire is not recognized as false information.

To counter the spread of fake news, programs such as the News Integrity Initiative (NII), spearheaded by Craigslist founder Craig Newmark, are being developed. The NII seeks to improve audiences' critical reading of the news as its primary method of preventing falsities from having an impact (Ingram, 2017). Though such media literacy skills are important, there is a need to understand how characteristics of news articles may lead readers to mistake fake news for fact. To contribute to this line of research, I examine how satire and authoritative names in a news article influence the extent to which people find news articles credible.

Five factors of media credibility have been established and used to understand audience perceptions of news (Meyer, 1988). However, online news can be shared and disseminated rapidly, and at such speed, consumers may not spend much time engaging with the shared information. Therefore, in addition to article credibility, I measure people's perceptions of an article's "truthiness," which is a concept that originated from Stephen Colbert, former host of *The Colbert Report*. "Truthiness" is defined as "truth that comes from the gut, not books" (Schlossberg, 2014) and is a measure of one's immediate gut reaction to whether something is believable (Newman, Garry, Bernstein, Kantner, & Lindsay, 2012).

In my research project, I first manipulate the presence of satire and posit that satire generally leads people to perceive less credibility in a news article. Formally, I pose the following hypotheses:

H1a: Respondents exposed to a satirical article, relative to those who view a non-satirical news, will perceive the news article as less credible.
H1b: Respondents exposed to a satirical article, relative to those who view a non-satirical news, will perceive less "truthiness" in the news article.

In addition to manipulating satire, I manipulate the credibility of names of scientists identified in the article. Previous research has found that individuals whose names include a middle initial are perceived as more intelligent (van Tilburg & Igou, 2014). Other work demonstrates that more pronounceable names are associated with increased believability of attached claims (Newman et al., 2014). This leads me to posit the following hypotheses:

H2a: Respondents exposed to a low-authority name, relative to those who view a high-authority name, will perceive the news article as less credible.
H2b: Respondents exposed to a low-authority name, relative to those who view a high-authority name, will perceive less "truthiness" in the article.

Method

Study design

This study was conducted through an online experiment-embedded survey using a 2 (satire) × 2 (low-authority name/high-authority name) between-subjects experimental design. My convenience sample was comprised of undergraduate students in communication courses at the University of Utah and the University of Georgia. Respondents were randomly assigned to one of four versions of the article, followed by post-test questions to measure my dependent variables. The satirical versions of the article included hyperbole and humorous metaphors where the non-satirical versions simply stated facts of the scenario. The high-authority name used was "Morgan L. Wagner," while the low-authority name that replaced it was "Sascha Kalbfleischaüser."

Dependent variables

Overall article credibility was measured using Meyer's (1988) five factors, which were each presented on a 7-point semantic differential scale. These five factors are fair/unfair, biased/unbiased, tells entire story/doesn't tell entire story, accurate/inaccurate, and trustworthy/untrustworthy.

I used a single item derived from Newman (2012) to measure *truthiness*. Immediately after viewing the stimulus, respondents were asked to rate how truthful they found the article on a 7-point Likert scale (1 = "completely false," 7 = "completely true"). Respondents were shown a 15-second timer as they responded to this question.

The five factors of article credibility were strongly correlated (Cronbach's $\alpha = .773$) while a *t*-test revealed the successful implementation of the satire condition (-2.649, $p = .009$).

Independent variables

Because satirical coverage is shown to influence audience perceptions of various institutions (Becker, 2011, 2014), I measured overall attitudes towards general scientists using validated measures from the General Social Survey on a 7-point Likert scale which ranged from "strongly disagree" to "strongly agree." Perceptions of the individual scientists named in the article were also measured using validated measures from Rubin et al. (2009). Three factors of credibility (trustworthiness, competence, and goodwill) were measured using semantic

differential scales. Demographic information, including respondent religiosity and political ideology, was also measured to examine potential influence on the dependent variables. Attitudes towards scientists were separated into two factors: perceived scientists' credibility (Cronbach's $\alpha = .771$) and perceived scientists' sociability (Cronbach's $\alpha = .736$).

Data analysis

All data analysis was conducted using IBM SPSS Statistics. I used ordinary least squares (OLS) multiple regression to predict article credibility and "truthiness." Independent variables were introduced to the model in blocks in order of theorized causality. The blocks were ordered as follows:

(1) Experimental stimulus (*satire manipulation*, *name manipulation*)
(2) Demographic variables (*age*, *race*, *sex*, *year in college*)
(3) Individual characteristics (*religiosity*, *political ideology*, *perception of scientists' credibility*, *perception of scientists' sociability*)

Results and Discussion

My first hypothesis (H1a) proposed that respondents exposed to the satirical news article would perceive it as less credible relative to those exposed to the non-satirical article. I found no support for H1a ($B = -.064$, $SE = .164$, $p = .699$; Table 1). However, I found evidence supporting H1b ($B = -.493$, $SE = .240$, $p = .043$; Table 2) such that respondents who viewed the satirical article perceived less truthiness in the article relative to their counterparts who viewed the non-satirical article.

My second set of hypotheses (H2a and H2b) suggested that exposure to low-authority names would correspond with respondents perceiving the article as more credible and more truthiness, respectively. I found no support for H2a ($B = .053$, $SE = .158$, $p = .739$) or H2b ($B = -.149$, $SE = .232$, $p = .523$).

There are several potential explanations for the lack of support for H1a, H2a, and H2b. First, the lack of significant findings could be due to my convenience sample, i.e., one that is not representative of the adult population of the United States. A representative sample may well yield different results. Second, the credibility manipulation using the scientists' names was relatively weak. Only the name of a single scientist in the article was manipulated and there were only 5 instances of the scientist's name in the stimulus. Third, respondents were only exposed to the stimulus article a single time. Additional exposures would likely have increased the strength of the experimental manipulation. Future research should use these insights to improve studies in this area.

Though the manipulation of names is an intriguing direction for future studies on satire, other factors may yield more promising results. Factors that have been found to influence readers' perceptions of online articles include the length of the article, inclusion of technical jargon, inclusion of photographs, and the method used to access the article (for examples, see Hargittai, Fullerton, Menchen-Trevino, & Thomas, 2010; Hermida, Fletcher, Korell, & Logan, 2012; Sundar, 2008; Thompson, Brown, & Furgason, 1981). These, among others, warrant further investigation as they relate to satire and other forms of fake news.

References

Becker, A. B. (2011). Political Humor as Democratic Relief? The Effects of Exposure to Comedy and Straight News on Trust and Efficacy. *Atlantic Journal of Communication*, *19*(5), 235–250. https://doi.org/10.1080/15456870.2011.622191

Becker, A. B. (2014). Playing With Politics: Online Political Parody, Affinity for Political Humor, Anxiety Reduction, and Implications for Political Efficacy. *Mass Communication and Society*, *17*(3), 424–445. https://doi.org/10.1080/15205436.2014.891134

Birkeland, B. (2017, February 17). When a Politician Says Fake News and a Newspaper Threatens to Sue Back. Retrieved May 26, 2017, from http://www.npr.org/2017/02/17/515760101/when-a-politician-says-fake-news-and-a-newspaper-threatens-to-sue-back

Hargittai, E., Fullerton, L., Menchen-Trevino, E., & Thomas, K. Y. (2010). Trust Online: Young Adults' Evaluation of Web Content. *International Journal of Communication*, *4*(0), 27.

Hermida, A., Fletcher, F., Korell, D., & Logan, D. (2012). Share, Like, Recommend. *Journalism Studies*, *13*(5–6), 815–824. https://doi.org/10.1080/1461670X.2012.664430

Ingram, M. (2017, April 3). Facebook Partners With Craig Newmark to Fund Journalism Trust Project. Retrieved April 27, 2017, from http://fortune.com/2017/04/03/facebook-newmark-trust/

Kreuz, R. J., & Roberts, R. M. (1993). On Satire and Parody: The Importance of Being Ironic. *Metaphor & Symbolic Activity*, *8*(2), 97.

Meyer, P. (1988). Defining and Measuring Credibility Of Newspapers: Developing an Index. *Journalism Quarterly*, *65*(3), 567–588.

NASA Launches First Cordless Satellite. (2016, July 29). Retrieved June 10, 2017, from http://www.theonion.com/article/nasa-launches-first-cordless-satellite-53387

Newman, E. J., Garry, M., Bernstein, D. M., Kantner, J., & Lindsay, D. S. (2012). Nonprobative photographs (or words) inflate truthiness. *Psychonomic Bulletin & Review*, *19*(5), 969–974. https://doi.org/10.3758/s13423-012-0292-0

Newman, E. J., Sanson, M., Miller, E. K., Quigley-McBride, A., Foster, J. L., Bernstein, D. M., & Garry, M. (2014). People with Easier to Pronounce Names Promote Truthiness of Claims. *PLOS ONE*, *9*(2), e88671. https://doi.org/10.1371/journal.pone.0088671

Relatively large number occurs off coast of Pacific island. (2013, May 24). Retrieved June 10, 2017, from http://www.thecivilian.co.nz/relatively-large-number-occurs-off-coast-of-pacific-island/

Rubin, R. B., Rubin, A. M., Graham, E. E., Perse, E. M., & Seibold, D. R. (2009). *Communication Research Measures II* (First Edition). 270 Madison Ave, New York, NY 10016: Routledge.

Rutenberg, J. (2017, May 24). Sean Hannity, a Murder and Why Fake News Endures. *The New York Times*. Retrieved from https://www.nytimes.com/2017/05/24/business/media/seth-rich-fox-news-sean-hannity.html

Schlossberg, M. (2014, December 18). One Of The Best Moments On "Colbert Report" Was When He Coined "Truthiness" In 2005. Retrieved May 12, 2018, from http://www.businessinsider.com/the-colbert-report-truthiness-clip-2014-12

the MAIN Model: A Heuristic Approach to... Credibility. (n.d.). Retrieved from https://pdfs.semanticscholar.org/de80/aa094f380342a632eadb0ee8d4221e8920ba.pdf

Thompson, P. A., Brown, R. D., & Furgason, J. (1981). Jargon and Data Do Make a Difference:: The Impact of Report Styles on Lay and Professional Evaluation Audiences. *Evaluation Review*, *5*(2), 269–279. https://doi.org/10.1177/0193841X8100500208

van Tilburg, W. A. P., & Igou, E. R. (2014). The impact of middle names: Middle name initials enhance evaluations of intellectual performance. *European Journal of Social Psychology*, *44*(4), 400–411. https://doi.org/10.1002/ejsp.2026

What In God's Name Is Going On With Planes? (n.d.). Retrieved June 10, 2017, from http://www.clickhole.com/video/what-gods-name-going-planes-5703

Tables and Figures

Table 1. Unstandardized regression coefficients, standard errors, and *p*-values from ordinary least squares regression model predicting *perceived article credibility* (*N* = 122).

	Zero-order	Sig.	B (SE)	Sig.
Block 1: Experimental manipulations				
Satire (Satirical vs. non-satirical)	-.024	.395	-.064 (.164)	.699
Name (Credible vs. non-credible)	.001	.497	.053 (.158)	.739
Incremental R^2 (%)	—	—	*.01*	*.964*
Block 2: Demographics				
Age	.038	.341	-.101 (.076)	.188
Sex	-.259	.002	-.496 (.171)	.004
Race (White = 1)	.017	.425	-.022 (.228)	.922
Year in college	.098	.140	.172 (.116)	.141
Incremental R^2 (%)	—	—	*8.1*	*.044*
Block 3: Individual characteristics				
Religiosity	-.265	.002	-.104 (.045)	.022
Political ideology (conservative = high)	-.120	.093	-.038 (.063)	.549
Perceived credibility of scientists	-.068	.228	-.076 (.088)	.390
Perceived sociability of scientists	-.279	.001	-.267 (.074)	≤ .001
Incremental R^2 (%)	—	—	*15.8*	*≤.001*
Total R^2 (%)	—	—	*23.9*	

Table 2. Unstandardized regression coefficients, standard errors, and *p*-values from ordinary least squares regression model predicting *perceived article truthiness* (*N* = 122).

	Zero-order	Sig.	B (SE)	Sig.
Block 1: Experimental manipulations				
Satire (Satirical vs. Non-satirical)	-.155	.044	-.493 (.240)	.043
Name (Credible vs. Non-credible)	-.100	.137	-.149 (.232)	.523
Incremental R^2 (%)	—	—	*3.0*	*.162*
Block 2: Demographics				
Age	.071	.219	.027 (.112)	.811
Sex	-.149	.051	-.460 (.250)	.069
Race (White vs. Non-White)	-.107	.120	-.200 (.334)	.551
Year in college	.001	.495	-.105 (.170)	.539
Incremental R^2 (%)	—	—	*4.2*	*.275*
Block 3: Individual characteristics				
Religiosity	-.116	.101	-.038 (.066)	.569
Political ideology (conservative = high)	-.143	.058	-.146 (.093)	.119
Perceived credibility of scientists	-.092	.156	-.097 (.129)	.455
Perceived sociability of scientists	-.245	.003	-.287 (.108)	.009
Incremental R^2 (%)	—	—	*9.2*	*.019*
Total R^2 (%)	—	—	*16.5*	