Hacked: A Qualitative Analysis of Media Coverage of the Sony Breach

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Abstract
With the increase of cyber-attacks, online news media has focused on reporting the immediate consequences after each attack to its audience. While the attention may be on one particular hacking event, media sources tend to analyze and discuss events differently. Focusing on one of the most recent data breaches, the Sony hack, this research describes he findings on the portrayal of the Sony hack by three different online news sources during the first ten days following the breach. A qualitative analysis of data shows that each source discussed the hack in a way that appeals to its respective target audience. This research demonstrates that news sources report on the same subject differently in order to adhere to the interest ad expectations of their respective audiences.
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1   Introduction

When a hack, the cyber infiltration of sensitive data, occurs, it is often reported by the media to brief readers on the incident and its immediate effects. News sources may often have the same original sources but document and describe information and key events in different ways.

One of the most notable hacks of the 21st century was the attack on Sony, related to the company's production of the film 'The Interview'.

On November 24, 2014, there was a costly hack in Sony's infrastructure that shut down servers and exposed personal data about Sony's employees. According to the Wall Street Journal, person data including Social Security numbers, salary information, home addresses, and corporate emails, among many other pieces of data, were leaked on the Internet, exposing over 47,00 former and current Sony employees.

In our investigation we collected and analyzed media coverage in the first ten days after the attack. We drew upon qualitative research methods such as content and discourse analysis to explore how online news sources frame their coverage and discussion of events to target a particular audience. Our analysis suggests that online news sources do, indeed, document information differently, based on their target audience.

This research is a broad significance to a variety of fields such as information science, communications, law, policy, and sociology. Through grappling with public understandings of hacks, this research contributes to larger, ongoing conversations in the humanities and social sciences to information, and the effects of news media infrastructure.

2   Methods

We identified Sandor Vegh's "The media's portrayal of hacking, hackers, and hacktivism before and after September 11th" as the main inspiration for the methods chosen for this study. Vegh discussed and analyzed media's portrayal and discussion of a major news story, the September 11th terrorist attacks.

For the purpose of this research, a qualitative analysis was performed on a collection of articles from three online news outlets: the Wall Street Journal, the Washington Post, and the New York Times. These three sources were selected because they are nationally distributed in the United States and had widespread coverage of the Sony hack. News stories from each source were analyzed to determine how each source discussed the hack. These news stories covered the first ten days after the hack in order to limit the large volume of results accumulated from our search. Keywords used during the collection included variations of "Sony" and "security breach" or "hack".

An open qualitative analysis was conducted to find patterns in each of the articles. A sentence-level analysis was performed on a sample of the articles, which produced several thematic patterns.

Each thematic pattern was expanded into detailed thematic codes, which were used to code the remaining articles. These combinations of codes were placed into a table know as a codebook (**see figure 1 for sample**). Data memos, based on each thematic pattern, were created to analyze and discuss patterns and how each news source described the hacking event using the categories of the codebook.

Thematic Pattern	Detailed Code
reaction:	sony management
reaction:	sony employees
security:	measures in place before hack
security:	vulnerabilities
damages:	to sony
damages:	to individuals
responsibility:	sony
responsibility:	unknown hackers
motivation:	for hack
motivation:	to find hackers
comparison:	other hacks
comparison:	political events

Figure 1. Codebook Excerpt

3   Findings

The analysis of the open coding and data memos shows that the content used by each of the three featured news sources to describe the Sony hack varied based in their target audiences. It has been shown that news sources have different target audiences ("In changing news", 2012). The media sources used in this study, the New York Times, Washington Post, and Wall Street Journal, are all nationally distributed and cover many of the same stories. However, all three sources maintain different target audiences. In a 2012 study on media sources and target audiences, the Pew Research Center concluded that the New York Times tend to be written for high-income persons and liberals. The Washington Post identifies through its advertising arm, Washington Post Ads, that its content targets business officials and leaders in government and politics. The Wall Street Journal, according to its multimedia sales employees, targets business decision makers, those who "set trends and make an impact" ("Wall Street", n.d.), in the online market. Each news source discussed instances of each thematic pattern, some focusing on certain patterns more than others.

3.1   New York Times

Of the three online news sources selected, the source with the least amount of coverage during the first ten days following the hack was the New York Time with 2 articles related to the Sony hack. Both articles placed a large emphasis on Sony as a company, as 28% of the detailed codes from these articles focused on damaged Sony sustained as a business. Of the detailed codes focusing on damages to Sony, 44% mentioned Sony's liberal-leaning executives, directly.

3.2   Washington Post

The Washington Post placed a similar focus on Sony, as a company, and the range of individuals affected. With 7 articles published in the first ten days following the hack, 17% of the detailed codes followed patterns of speculation regarding who may have been responsible. 89% of those codes mentioned North Korea. 19% of detailed codes focuses on reactions from people with no direct connection to Sony, many being experts in the field of cyber security.

3.3   Wall Street Journal

The Wall Street Journal published 10 articles in relation to the hack, the largest of the three sources. 23% of detailed codes related to damages sustained by current and former employees of Sony, revealing

the types of personal information lost in the hack including social security numbers and dates of birth. 13% of detailed codes were connected with discussions regarding reactions from different groups of people, including Sony management.

4   Discussion

Analyzing the tone and word choice of these online news sources has shown that although the news media may cover many of the same stories, they do so in ways that appeal to their respective audiences. Many Sony executives are known across the media as liberals, as discussed in several articles following leaks of their Sony emails (Engel, 2014; Howell, 2014). The New York Times was able to appeal to its target audience, high-income liberals, by focusing most of its coverage on the damages incurred by Sony and its leadership. The Washington Post was able to appeal to business officials and leaders in the government by discussing who was responsible for the attack and government's role in the aftermath. The Wall Street Journal focused its coverage on speculations of who may be responsible and reactions from people with no direct connection to Sony, such as Russian cyber security company Kaspersky Lab ZAO and cyber security experts at FireEye. By concentrating its coverage on reactions from business and industry experts, the Wall Street Journal provided its audience with analysis framed around decision-making at the business level.

There are still lingering effects in the aftermath of the Sony hack. Responsibility for the hack has shifted from North Korea as the attacker to Sony, who failed to protect its data, despite receiving multiple threats/warnings from anonymous persons.

In addition to the shift in blame, Sony is facing multiple lawsuits from employees, as the risk of identity theft remains a concern. After nearly seven months, data stolen during the original hack is still being released (Baldwin, 2015). Furthermore, the United States imposed new sanctions on North Korea following the hack, based on the country's suspected involvement, making this event a political concern.

Despite more recent hacks, the Sony hack is still the focus by media as it relates to business, security, social and political interests.

5   Conclusion and Future Findings

This study demonstrates that media coverage and analysis of significant national events often varies by media outlet and its associated target audience. These findings can be expanded upon in future research. An additional qualitative study can be made with in-depth interviews of news media professionals and consumers of different news sources to gain personal opinions on the Sony hack. The qualitative study can be complemented with a textual analysis using Term Frequency-Inverse Document Frequency (TF-IDF), a two-part algorithm that measures how often a term occurs in a document and how important that word is compared to others in the same document. Additionally, this study could be replicated using the same or different media sources to analyze alternative news events.

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