PREDICTORS OF WEB ANALYTICS USE

IN COMMERCIAL AND NON-PROFIT

RADIO STATIONS

by

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ABSTRACT

This study examines the work habits and news products produced by commercial and non-profit radio news operations at the local, or affiliate, level. Specifically, the focus is on the perception and utilization of internet audience data that measures stories on a radio station's website. A survey of 332 commercial and non-profit radio newsroom decision-makers discovered how they feel about web audience data and how they act on it. A statistical analysis, informed by a theoretical background including Institutionalism and Resource Dependence Theory was conducted for this study. The predictor variables were the degree of perceived uncertainty, whether the respondent works in a for-profit or non-profit operation, the length of time the participant has worked in journalism, the tendency to search for information in the environment, and the tendency toward mimicry. The dependent variable was degree of use of web analytics. The findings indicate a positive relationship for both mimicry and information search with the primary dependent variable, use of web analytics data in newsroom decision making. Also, respondents with greater experience levels are marginally less receptive to relying on internet audience data for information search and less likely to mimic the practice of using web analytics. The statistical results did not support hypotheses that predicted effects from perceived uncertainty. While statistical support between perceived uncertainty and the use of web data was not found, a reverse relationship in one hypothesis suggests that use of internet audience data may reduce uncertainty rather than increase it.

DEDICATION

This thesis is dedicated to everyone who helped me and patiently guided me through the trials and tribulations of creating this manuscript. In particular, my wife Lucia, close friends, and colleagues in the industry who supported me and stood by me during this process.

LIST OF ABBREVIATIONS AND SYMBOLS

B	Discrete probability distribution for the probability of number of successes in an Independent random trials under the identical conditions
M	Mean: the sum of a set of measurements divided by the number of measurements in the set
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation
s.d.	Standard deviation
<	Less than
=	Equal to

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CHAPTER 1

INTRODUCTION

Both commercial and non-commercial news providers are seeing active growth in the area of web-based news (Pew, 2014, 2015), and one aspect of this growth that is causing some concern among journalists is the possible effects of online audience data. Computer algorithms are able to count how many "clicks" a certain story receives, and newsroom decision makers can see the results instantly, presenting a challenge to traditional methods for news gatekeeping (Anderson, 2011). Just as technology improves the speed and quality of how web news is delivered, the ability to glean even more detailed data on how news is consumed is getting better as well. Web analytics data now enable journalists and managers to discern not only how many people click on a story, but how much the audience "engages" with the news content (Tennenboim, Cohen, 2015). The literature review in Chapter Two will illustrate some recent research on the influence of web metrics in newsroom decision making. But these qualitative and quantitative results focus mostly on newspapers. The study of internet audience analytics and its impact on non-profit journalism is rare. As consumer interest in web-based news content increases, so does this issue for journalists and managers of all types.

Recent data reveal a surge of audiences onto online platforms. A 2015 Pew Research Center study revealed that the Yahoo-ABC digital network attracted about 130 million internet visits during that time, and the U.K. based Daily Mail's web audience during that same month was around 50 million (Pew, 2015). The study showed a dramatic shift in web news consumption away from desktop computers and toward mobile hand-held devices like

smartphones. Report leader Yahoo-ABC's mobile device audience was roughly 30 percent larger than the audience on conventional personal computers. The top 50 news online platform in the Pew study reported a similar trend, with exceptions including MSN News, the BBC, and CNET, where its internet audience sought content on desktop computers (Pew, 2015).

The popularity of internet news would appear to be a positive one for both commercial and non-profit news providers. Money-making journalism organizations generate revenue through advertising, with rates based on the number of people using the service at any given time. The greater the audience, the more money is made. On the non-profit side, NPR's annual income is largely dependent on membership fees paid for by its associate and full-time local member stations, which pay the network programming fees based on the size of their audiences, both on the web and conventional radio broadcasts. Pew reports NPR saw its number of members stations increase by 11% in 2014, at a time when the commercial networks' overall audience fell by 4% (Pew, 2014). However, the commercial network's web audience grew by 35% in 2014, to twenty eight million visitors, with steady increases in 2013 and 2012.

Newer on-line audience metric programs can quantify how many pages visitors read, and which visitors return to the site at later times. Average visits to the social media site Facebook are about 10 minutes in length, while news sites keep audience members for only about three minutes (Mutter, 2012). That makes each news visit a precious commodity to journalism organizations. Evidence from recent studies also indicates that this web data influences decision making on what stories to cover, and the prominence those stories should receive.

Before the popularity of internet news, journalists had the ability to distance themselves from audience feedback, which came mostly in the form of letters or phone calls (Tandoc, 2015). Newsroom managers could incorporate listener comments into their decisions, or ignore them. In

the past, journalists and their editors would brainstorm exclusively among themselves what to cover, fomenting the criticism that news organizations perceived themselves to be the sole judges of "what was news" and what wasn't, and that much of the content was first of value to the reporter, or perhaps his or her colleagues. A famous example of this was an often-quoted statement from veteran NBC television news anchor David Brinkley, who once said the news is "what I say it is" (Vu, 2014). The immediacy of web audience metrics appears to make those attitudes more difficult to sustain or justify. Some newsrooms broadcast the success or failure of stories to generate clicks with what resembles a Wall Street stock ticker, placed in the newsroom for staff reporters to see (Anderson, 2011). Web producers are known for watching the flow of audience, or lack thereof, as they determine which stories to display on their companies' online platforms. One concern that will be illustrated in the literature review is a loss of "gatekeeping" authority among journalists. Studies show crime stories, sports, and entertainment stories typically do well among news web visitors, in contrast to harder news content. Some journalists interviewed by academic researchers complain that they "live and die by clicks," and that if newsgathering were left up to web visitors, nothing but crime stories and sports would receive attention (Macgregor, 2007).

There has been academic study of the perceptions of journalists and newsroom decision makers regarding web metrics, mostly with newspapers and their staff and managers. Little work has been done on non-profit news organizations such as public radio stations, and comparisons between commercial and non-commercial newsrooms on use of internet audience data are rare. This thesis is a study of how news professionals at commercial and non-profit radio outlets perceive and use web audience metrics through the prism of two theories: Resource Dependence Theory and Institutional Theory. These suggest a range of casual factors on decision-making

about journalists use of web audience data, from the pursuit of higher profits due to “inside information” on what appeals to audience members, to the pursuit of legitimacy by publishing stories that appear to have impact and merit, perhaps merely because others are publishing them.

Journalists being influenced by the constraints of routines and by the perceived need to appear legitimate is nothing new. In the mid-1990s, studies were conducted on how television newsrooms were impacted by the trend of using microwave “live” trucks, which enabled reporters to deliver stories “from the scene” of where news was happening. The criticism was that the trucks filled with equipment to do “live” reports confined reporters to a spot where an event happened hours ago, rather than allowing these writers to pursue new information (Tuggle and Huffman, 1999). Managers, who often spent sizable sums of money on the live broadcast equipment, were motivated to make regular use of these assets to make the most of their investment.

The internet, and the influence of web metric data, are the newest technologies in newsrooms, and a study of how commercial and non-commercial journalists and news managers could uncover new knowledge that should be of value, both to scholars and to professional journalists and managers.

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESES

Research on web metrics and news

As has been mentioned, a review of literature connected to web metrics, and its influence on commercial and non-commercial radio newsrooms, indicated little data had been collected on either category of news organizations. There was qualitative and quantitative data on how newspaper journalists and managers respond to internet metrics, how print reporters used analytics in story selection, how web traffic is changing the "gatekeeper" role of professional reporters, and what made audience members select certain stories over others. One theory related to *deviance* as a rationale for what motivates greater web traffic (Lee, 2008). Attraction to deviance suggested an instinctive need to become aware of changes in the environment. One example could be the old adage that "dog bites man" isn't news worthy, but a story about "man bites dog" attracted attention because of its novelty. Crime stories, features with sexual subject matter, or "tell all" material about celebrities appeared to be common fodder for web stories, and studies show these were popular among news web site visitors.

Much attention was paid to the two theories that framed this thesis, Resource Dependence Theory and Institutionalism. Resource Dependence Theory was often identified as focusing on how external resources can influence the behavior of an organization (Davis and Cobb, 2010). This theory fit this study of internet audience data, since the literature has identified audiences as a "resource" or a form of capital. Institutionalism studies how certain organizations, mostly but

not exclusively non-profits, mimic other groups in order to achieve legitimacy (Entman, 2010). Both theories dealt with the reduction of uncertainty in one's environment, such as that encountered by the producers of news content. Both Resource Dependence Theory and Institutionalism will be examined in greater detail shortly.

Anderson and McGregor are often cited as conducting the earliest examinations of internet web metrics and how newsroom decision makers interact with the data.

Anderson (2009) conducted groundbreaking work in studying newspaper online platform and audience metrics and how that data are changing how newsroom managers make story selections. The study focused on the sociological change being fueled by audience data, in a comparison between traditional and non-traditional newsrooms. Anderson conducted 300 hours of interviews with journalists, editors, activists, bloggers, and newsroom managers, along with first-hand observations at the *Philadelphia Daily News* tabloid paper, the *Philadelphia Inquirer* broadsheet, and the website *Philly.com*. The interviews and observations pointed to, in a qualitative fashion, how journalistic decisions were being influenced by quantitative audience analysis like web metrics. His conclusion was that audience opinion, which had been mostly submerged in favor of professional codes, had resurfaced to become a stronger voice in story selection through the presence and influence of web data. Most of Anderson's work on internet audience data is qualitative – while the data are rich, they are not generalizable, suggesting a need for more widespread quantitative studies to better examine the industry-wide impact of internet audience data.

MacGregor (2007) analyzed, qualitatively, how journalism managers from print, broadcast, and the internet perceived emerging web metric technology. Nineteen mid-level to senior journalists, with editorial authority, were questioned in one-hour sessions over 18 months.

Their responses dealt with how much access they had to web audience data, the relationship between the data and their current practices of news production, any dilemmas created by the metrics, and any perceived market pressure felt by reporters. The responses were strong in different directions. The respondents felt the metric data could be useful and objective. However, journalists' emotional reactions to the audience tracking went beyond mistrust to what the writer describes as "outright dismissal" from journalists who refused to give the data too much importance. The answers did, however, point to evolving newsroom values, where web metrics, though alien, were considered something that was "here to stay."

Other researchers built on this work. Karlsson and Clerwell (2013) cited MacGregor (2007) in examining web metrics and how they influenced tabloid, broadsheet, and public service media traditions in Sweden. Ten journalists were interviewed on how they utilized metrics, their perceptions of the data, and specific results in story selections. The respondents said that web metrics did play a role in what stories they chose to pursue, but they insisted that the data weren't the only factor driving their decision. There was a distinct difference between commercial journalists, who reviewed web metrics regularly, and their public service counterparts who read the numbers only occasionally, and who didn't factor the metrics into specific story selections, opting rather to bring the numbers up during meetings for long-term story judgments. This study implies that commercial journalists, responding to uncertainty in their environments, respond differently from non-profit organizations.

Other studies delved deeper into how newsroom professionals are making use of internet data. Tandoc (2015) studied how journalists used web data to make story selections. He included interviews with 206 web editors on how their audience factored into their editorial decisions, based on Field Theory. Bourdieu (1993) describes a "field" as an independent social

universe with its own laws of functioning, its specific internal relationships between different forces, its dominants, and its dominated, among other factors. The results showed that financial instability within the industry prompted editors to use web analytics as a way to monitor internet audiences, but also as a tool to select stories most likely to succeed on the web. The author discussed journalists' attempts to deal with the reality of web metrics as indicators of story popularity, along with the struggle journalists are having in maintaining their perceived integrity and professionalism while writing stories intended to be popular with their audiences.

Zheng, Hsiang, and Kaufhold (2012) studied how to make better use of web traffic, which appeared to be the driving goal among many newsroom managers who relied on internet metrics. Their new model sought to measure web traffic beyond the obvious number of "clicks" a certain story might receive, with a study of visibility on the web site, popularity with the audience, loyalty by attracted repeat visits, and "stickiness" defined as the length of time spent on each page. A content analysis was conducted of the top 179 news and information online platform during June 2008. The web pages included both television news organizations and general interest magazines. The results showed TV news sites did better than weather sites in attracting and keeping web visitors. Weather sites, however, garnered greater loyalty than TV sites, as they had more repeat visits, while magazine sites lagged news in loyalty. The point of the study was to consider audiences as "capital" and therefore as a resource for the organization, consistent with the theoretical approach of this thesis. This characterization is consistent with concerns from the journalistic community that web metrics are becoming more detailed, permitting not only the counting of visits, but as this study proposes, becoming a method for predicting future web traffic and tailoring story selections to follow those forecasts.

Still, other studies examined how the opinions of journalism professionals sometimes differed from the judgment of web users, and how these two groups interact. Welbers, van Atteveldt, Kleinnijenhuis, Ruigrok, and Schaper (2015) sought to compare how professional standards for newspaper journalists meshed with what their web audiences are read online. They conducted a content analysis of five national newspapers in the Netherlands, and examined whether a "trustee model" or a "market model" was being followed. The trustee model was when professionals relied on their own judgment during the decision-making process, while the market model allowed customers to influence what's done in a given organization. The results of their study indicated that many web viewers accessed stories that were already listed as popular with the newspaper's readership. Also, editors interviewed for the study responded they were either unaware of the results of their web metrics as they made news decisions, or unwilling to admit it.

Tenenboim and Cohen (2015) studied what prompted audience member to click on one type of story, while ignoring others. Their study compared the popularity of stories of a sensational or curiosity-arousing nature to subjects like politics which prompted the most online comments. A content analysis was conducted of the Israeli news website *Walla!* Stories by topic were ranked by the number of clicks and the number of comments, and the subjects categorized. Crime stories attracted the most clicks, at 25%, compared to politics at 23%, and military stories at 21%. The most online comments were for political stories at 29%, followed by crime at 24%, and military at 21%. Lee, Lewis, and Powers (2014) studied how audience metrics influenced story placement on a news website, and how that represents a greater gatekeeping role for online users. The paper theorized that higher metric numbers would have a significant overall lagged effect on story selection and placement, long after the numbers had come in. Also, the influence of clicks on story placement would be greater than the effect of story placement on clicks, as was

proposed in the previous article by Tennenboim and Cohen (2015). A content analysis was done of three New York based news online platform representing *The New York Times, New York Post, and New York Daily News*. The results showed a significant overall delay of the effect of higher metric numbers on story placement, and that this was more than the effect of story placement on future clicks. The author concluded that editors were more aware of what their audience was doing than the other way around.

Vu (2014) examined the influence of web metrics through a "hierarchy of influences" model. This model assumes journalists are at some distance from their audiences, and Vu was interested in how the internet may be breaking down the barriers, or shortening this distance, between reporters and their audiences. A survey was conducted of 318 print and online editors to gauge their perceptions and usage of web metrics, and their comfort level in relying on the data. The respondents general agreed that web metrics helped them create content that was more popular with their audiences, and the possibility of greater revenue was positive for them and their organizations. Again, the sample for this study consisted of commercial new organizations, and again we see the lack of data on non-profit newsrooms.

Boczkowski and Mitchelstein (2010) built on earlier articles that compared what stories editors preferred to data from web audience metrics. The authors conducted a comparison between editors at the top two news sites in Argentina and the number of web clicks each story received from the site's audience. Perhaps the most striking result was that interest in political or "public affairs" stories remained constant among editors, while it fluctuated among audience members. During periods of heightened political activity, news consumers' interest in public affairs stories increased. During times of normal political activity, stories about entertainment and sports attracted more interest. The results point to a concern over eroding power among

journalists to “set the news agenda,” in favor of allowing public opinion to play the gatekeeping role on what stories are covered and which are ignored (Tandoc, 2014; Vu 2014).

a. Theoretical frameworks

Next we examine the two theories that serve as the framework for this study: Resource Dependence Theory and Institutional Theory. Both theoretical frameworks help explain the role that uncertainty reduction plays in media production processes. Resource dependence theory as defined by Davis and Cobb (2009), shows that external forces can influence the behavior of organizations - specifically how resources providers outside a given organization can change how that organization acts. The reduction of uncertainty is a key concept in the theory, as organizations seek a predictable inflow of raw material and capital, and this need helps explain certain organizational behaviors, such as mergers.

A straightforward example from the car industry can help illustrate the theory. Just as web audience data can be a “resource” that influences decision making among newsroom managers, something as mundane as the manufacture of automobile seats could influence a car company such as Mercedes Benz. The German automaker operates its North American production line in Tuscaloosa, Alabama. The arrival of Mercedes in west central Alabama prompted the establishment of smaller nearby companies which supply parts that Mercedes uses to build its cars on a daily basis. This includes the Lear Company, which operates two plants in Alabama, one of which builds car seats for Mercedes Benz and another in Montgomery which does the same job for the Korean car maker Hyundai. If Lear’s Mercedes-related plant were to fail, it would still be able to generate revenue through its Hyundai-related factory. However, Mercedes would find its business complicated by the need to find another seat supplier, possibly

from elsewhere around the country, which could drive up production costs. According to Resource Dependence Theory, the act of creating resources that Mercedes is dependent upon gives the smaller factories a level of control over the larger company, which depends on resources such as car seats or other components to build automobiles and generate revenue. Mercedes' dependency on car seats to maintain its production schedule could influence the organization to make changes to its management structure. Some organizations are even known to invite creators of resources they need into the larger company's power structure to mitigate the outside forces of Resource Dependence Theory (Simmons 2012).

Similarly, it can be argued that a web audience is a resource upon which a news organization, either commercial or non-commercial, would be dependent and therefore susceptible to the effects of Resource Dependence Theory. For-profit journalists might seek to reduce uncertainty in their environment by learning more about their web audience and how to capitalize on that knowledge. However, non-profits are also dependent on knowledge of what their web visitors will want and how they will respond, in order to generate a consistent stream of income themselves or through their member stations.

The second model, institutional theory, explains the process through which organizations create structures, schemes, rules, norms, and routines, which become established guidelines, and can foster mimicry, among other outcomes. DiMaggio and Powell (1983) defined this mimicry as "mimetic isomorphism," which is the tendency of one group to be feel compelled to mimic another, especially when the original organization's business plan is undefined. It should be noted that mimicry is but one form of isomorphism. There is also "coercive isomorphism," where an organization of individual feels compelled to follow the actions of another group (e.g., government, a corporate owner, etc.) to achieve a level of legitimacy. And also, there is

“normative isomorphism,” which is most often associated with professionalism, where individuals work to define their roles by comparing themselves to fellow professionals and the norms of the profession. However, mimetic isomorphism will receive the focus in this study.

The authors go further, in their discussion of mimicry, or isomorphism, through which organizations work to imitate similar businesses to achieve greater legitimacy and status. The concept is especially appropriate for studies of non-profit organizations (DiMaggio and Powell, 1983; Orr and Scott, 2008; Fernandez-Alles and Valle Cabrera, 2006; Frumkin and Galaskiewicz, 2004; Stensaker and Norgard, 2001.) Non-commercial news operations cannot point to profit level as a clear, overt measure for how well they are doing in the industry. However, by copying things such as like the kinds of stories, news programs, talk shows, public outreach, and other functions of their colleagues, they can seek to reduce uncertainty in their environments through appearing to “do the right things.” Just as Resource Dependence Theory might not be limited to for-profit journalists, it can be argued that institutionalism applies to commercial newsrooms as well (Lowrey, 2011). For example, news operations were criticized during the Iraq war for following the “herd mentality,” possibly through institutionalism, of other newsrooms in utilizing graphic images of torture and other abuses of Muslim detainees at the hands of U.S. servicemen and women at Abu Ghraib prison, while ignoring the deaths of nearby civilians (Entman, 2006).

b. Resource dependence theory

Resource Dependence Theory, as it pertains to media companies, focuses mostly on resource influence on top management, which will be detailed below. A search of relevant academic work linking Resource Dependence Theory with web metrics as the resource exerting influence, shows sparse linkage. However, this does not preclude audience metrics as a resource

that could impact newsroom decision making. Related research (Zheng, Hsiang, and Kaufhold, 2012,) for example, does refer to media audiences as “capital.”

There is also one notable exception in a 1988 study that assessed the role of technological complexity in resource dependent relationships. Hart and Rice (1988) focused on two systems for transmitting data to news consumers, “videotext” and “teletext,” used in the United States between 1979 and 1984. The first electronic publishing system, videotex, was an interactive system that sent information to and from computer screens, and teletext was a “one-way” content delivery technology to computers without interaction. The authors sought to examine the interdependence between providers of videotex and teletext and the corporations that needed the technology and how those “resources” impacted the management of companies purchasing and utilizing the service. Hart and Rice specifically mention Resource Dependence Theory as a way to characterize the effects of emerging tools, such as web metrics, that are available to current news organizations. News outlets have to maintain access to critical resources needed to accomplish their goals. This study examined whether the greater technological complexity of videotex would prompt the forming of more permanent relationships to maintain the resource, compared to teletext. Also, as markets for this technology grow, cross-industry corporate relationships would also increase. The data, from the American Newspaper Publishers Association, demonstrated growth in corporate relationships providing videotex between 1979 and 1983, with a falloff in relationships in 1984 as use of the system tapered off. As hypothesized, growth in relationships between companies using the less complex teletext system was smaller. The authors contend that charting the growth of Resource Dependence Theory influence of videotext and teletext would be similar to other emerging technologies, and would show patterns of resource dependence.

Simmons (2012) focused on media boards of directors and how these panels use their membership to gain access to resources as a result of Resource Dependence Theory. Her supposition is that corporations in a changing media landscape enter into greater partnerships to keep up with changing and increasingly complex technologies, distribution methods, and business models, and this will continue to happen into the twenty-first century. The author asserts that including board members from companies that supply needed resources allows the company purchasing those resources to better monitor or control the supplier of those resources, and to gain legitimacy in the process. The two hypotheses that pertain to technology as a "resource" contend that as the internet becomes more prevalent, and companies become more dependent on that information and content from that resource, the ratios of new media directors and media directors on these boards will increase. Both internet related hypotheses were supported with more media and new media board members selected.

Li and Foster (2012) used Resource Dependence Theory as a framework to examine changing media corporate structure in China during the encroachment of transnational corporations into Chinese broadcasting during the 1990s, and China's entry into the World Trade Organization in 2001, which the authors contend further diluted state control of television content in China. Their study was qualitative and focused on Chongqing Broadcasting Group in Southwest China as an example of provincial-level media. The authors studied government documents, academic publications, official industry statistics, and organizational documents. The resource dependence theory framework suggested governmental oversight, transnational ownership, and advertising revenue as the resources which could influence Chongquin. Their research demonstrates that marketization has undermined state control of content on the station.

However, the scale of political reform in China has not caught up with changing market influences.

c. Institutional theory

Scholars have used Institutional Theory as an alternate way to explain the impact of uncertainty in the organizational environment. Asp (2014) sought to examine the emergence of independent media institutions, and the adaptation of society to a changing media environment, which could be relevant to how institutionalism plays into web metric data. Asp contends that the environmental uncertainty created by evolving technologies, such as web audience data, encourages institutionalism, which reduces uncertainty by providing a conventional, widely agreed-upon structure to everyday life. Asp concludes that news media logic is a kind of institution that reduces uncertainty and enables the efficient production of news suitable for an audience.

Lowrey (2011) examined institutionalism as a way to help explain how newsrooms struggle to innovate in the face of environmental uncertainty, how news providers partner with other media, pointing incidentally to resource dependence theory, which may discourage innovation. The study looks at whether “strong ties” or “weak ties” lead to stronger improvement in media management or product. A content analysis of 317 U.S. newspapers was conducted and a survey sent out. Statistics from survey respondents showed connectivity with readers as an influence with the adoption of new ideas, and that reader input had a strong impact on decisions about innovation. Further, mimetic isomorphism with other papers via “strong ties” was perceived as having “a good deal” of impact on decisions about story selection – i.e., findings indicate papers mimicked one another. A separate issue was whether isomorphism plays a role in innovation, and if uncertainty prompts newsrooms to take an audience-oriented “weak tie”

approach to innovation. The results show new hires bringing new ideas prompted change, while mimetic isomorphism exerted less influence on innovation.

Lowrey and Woo (2010) compared the tendency of newspapers to monitor audiences and its business side, through "tight coupling," during times of uncertainty, to whether these managers following institutionalism and mimicked other organizations to buffer themselves from the market ("loose coupling"). The study examined "tight or loose coupling" with audiences, as well as with the internal marketing divisions of their newspapers. The study also examined the possible impact of organizational size and degree of environmental uncertainty on managers' decision-making. 317 U.S. newspapers made up the sample for a content analysis, and a survey was also conducted. Responding managers said they did discuss web metrics fairly often during news meetings, and that "tight coupling" was less likely with newspaper marketing departments than with audience members. There was also weak-to-moderate evidence of isomorphism among newspapers. In conclusion, editors said they actively reviewed audience preferences, but they reported that these data did not strongly influence news decisions – evidence of loose rather than tight coupling with the newspapers' markets and audiences.

Lowrey and Erzikova (2010) used an institutional framework to examine newspaper behavior following the fall of the Soviet Union, to see if journalists attempted to achieve greater legitimacy by conforming to their environment and pursued conformity rather than efficiency. Russian newspapers appear to operate in an environment where they need to gain public legitimacy, while at the same time being dependent on political and economic elites. The study looked at whether this clientelist media-state environment exists in Russia, and to what degree these newspapers pursued "loose coupling" to maintain legitimacy (an institutional orientation) while being dependent on elitist powerbrokers. Newspapers made up the sample, and

observational and interview data were collected. Among the responses was the tendency of "loose coupling," whereby a newspaper would write stories to depict itself as an "angry independent paper," with little of the copy pertaining to critical issues. Newspaper managers also indicated they would try to achieve legitimacy by artificially increasing the thickness of their daily editions, or increasing the number of stories they published. In conclusion, the relationship between newspapers and "client" political or economic powerbrokers was present, but editors sought to free themselves from the arrangement.

There is literature that points to how non-profit organizations, in particular, respond to institutional pressure. This can come in the form of mimicry, or the three types of isomorphism, mimetic, coercive, and normative.

Frumkin and Galaskiewicz (2004) observe how governmental oversight, regulation, and accreditation of non-profit groups is prompting nonprofits to behave with greater degrees of homogeneity. Also, they examine how, through new institutionalism, non-commercial organizations are applying greater emphasis on the legitimacy often achieved through institutional isomorphism. These groups, the authors note, use political pressure among non-profits as a motivating factor for the diffusion of interorganizational rituals and roles.

Stensaker and Norgard (2001) studied higher education in Norway, and how institutionalism prompted efforts to adopt structures and management systems in order to achieve legitimacy and survival. Their qualitative study focused on the effort by one university, over a thirty-year period beginning in 1999, to generate innovation on the one hand, while still being part of a highly interconnected and standardized system.

Just as Resource Dependence Theory can apply to non-profit news organizations as well as their commercial counterparts, institutionalism can influence for-profit news managers in

addition to their non-profit colleagues. Entman (2006) examined institutionalism among news sources covering the Iraq war, and whether isomorphism creates legitimacy at the expense of through coverage. The author observed how numerous news organizations published or broadcast graphic images of prisoners being abused by U.S. servicemen and Abu Ghraib prison, despite opposition from the U.S. government, while largely ignoring the killing of Iraqi civilians in Fallujah weeks before. The author sought to measure isomorphism, or homogeneity as he called it, among news organizations. His supposition was that journalists, through institutionalism and a need for perceived legitimacy, will band together as an interpretive community to broadcast a story opposed by the U.S. government. Entman concludes that further study of institutionalism and how it interplays with foreign policy can better define the media's role in democratic politics.

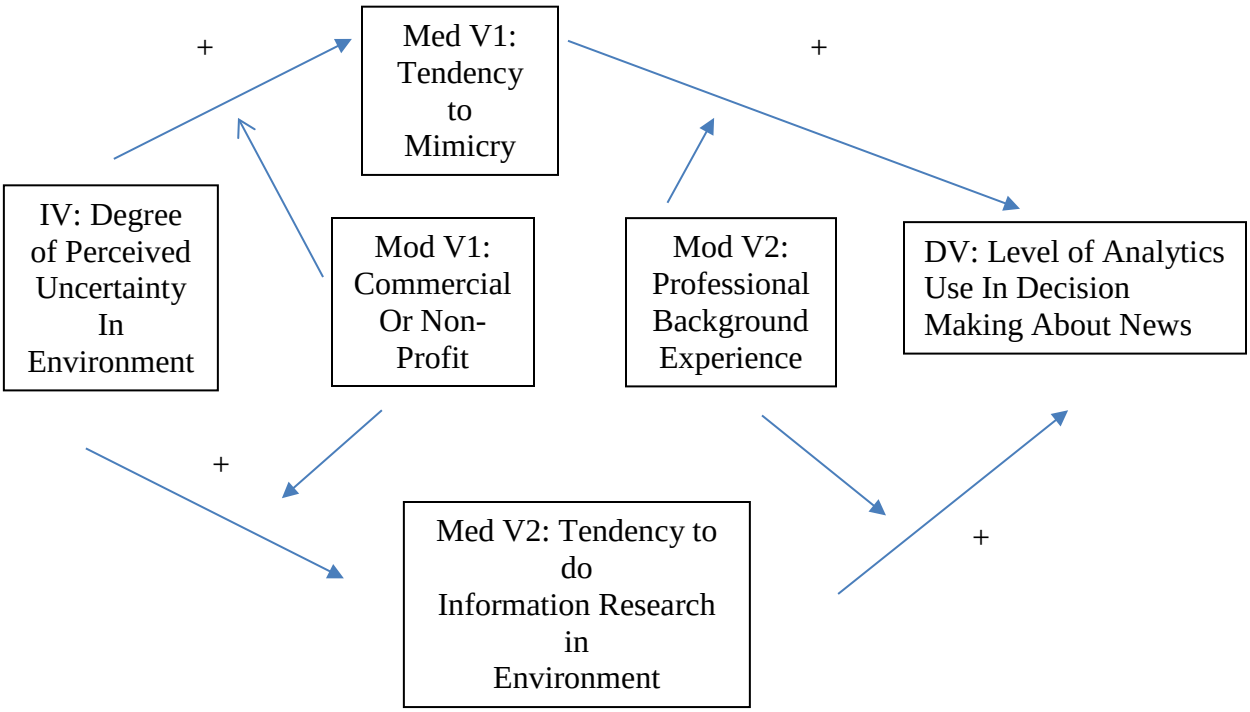
Conceptual model and hypotheses

To summarize what has been discussed to this point, this thesis is a study of perceptions and usage of internet-audience metric-tracking data by commercial newsroom decision makers and their non-profit counterparts, utilizing a model informed by Resource Dependence Theory and Institutional Theory. It would be easy to say for-profit organizations focus on making money and public radio stations stereotypically pursue high-minded content and a need for prestige and legitimacy. Public radio stations are less directly dependent on the whims of the market, so this assessment has a logic to it – and it is predicted in this study that non-profits will respond more to institutional pressures, while commercial stations will respond more to a need for high certainty about inflow of resources on which they depend. However, it is also proposed that both types of news organizations should respond to external pressures to a degree. News decision makers, both commercial and non-commercial, face losing audience and advertising revenue to

competitors unless they make the “right decisions” in selecting successful stories. Each type of news organization, it can be argued, could respond by learning more about their environment, studying their environment. Likewise, it is proposed that both types of stations will be somewhat “isomorphic” with their relevant environments. For example, each type is likely to engage in “mimetic isomorphism,” the tendency of one group to mimic another, especially when the original organization’s business plan is not well defined.

The model depicted on the next page (Figure 1), will include “degree of perceived uncertainty in the environment” as the primary independent variable, marked as “IV” in the model. The “tendency to mimicry” and the “tendency to do research in the environment” are mediating variables, marked “Med V1 and V2.” Whether the respondents work in a commercial or non-profit news operation will be the first moderating variable, identified as “Mod V1.” Their “professional background experience” is marked as the second moderating variable, listed as “Mod V2.” Finally, “levels of analytics use in newsroom decision making” is the dependent variable, as “DV.” The plus signs, “+,” indicate an expected positive influence on results.

Figure 1: Conceptual model for predicting analytics use in newsrooms



First, two purely descriptive research questions are posed. These ask about for-profit and non-profit journalists' evolving use of, perception of, and dependency on web metrics. It can be argued that since metrics systems have already become more widespread due to improvements – e.g., data on time spent reading, return viewership, and how the audience is "engaged" with the content - that more specific data is now available. As has been hypothesized in the literature review (Simmons, 2012), this is creating more resource dependency by journalists and managers on web metrics.

RQ1: How much do commercial and non-commercial newsrooms rely on internet audience metric data, and does this differ between the two?

RQ2: For what purposes do newsroom staffers use this web metric data?

Literature has shown that financial competition and economic uncertainty for a newspaper correlate with a modestly increased tendency to mimic other papers. This effect can be even more pronounced when the paper is publicly owned (Lowrey and Woo, 2010). These newsrooms, through institutionalism, tend to seek to mimic similar organizations to achieve greater legitimacy by doing the things and providing the content perceived as coming from quality news organizations (Lowrey and Erzikova, 2010). This is especially likely when information from the environment that otherwise could be used to inform decision-making is uncertain and hard to predict. This prompts the first hypothesis.

H1: The greater degree of perceived uncertainty, the greater the tendency toward mimicry.

Previous research indicates that for-profit news organizations have heightened awareness of their environments, which is meant to lead to greater profitability compared to non-profit newsrooms (Karllson and Clerwell, 2013). Organizations that respond to external pressures through Resource Dependence Theory – and this includes both commercial and non-commercial organizations - may do so by reaching out in some way to gain a firmer, more predictable

understanding of the environment. As previous literature shows, organizations may do this by meshing with operational processes of other organizations (like including board members from other companies), or they may merely seek other ways to increase reliability of incoming information. They do this in an effort to control the availability or influence of those resources (Simmons, 2012) leading to the second hypothesis. Literature (Hart, Rice, and Simmons, 1988; Li and Foster, 2012) also suggests that news environments (changing markets, media uses, technologies) are becoming more complex, making reduction of uncertainty even more critical, and that online connectivity and online technology is contributing to this complexity.

H2: The greater the degree of perceived uncertainty, the greater the tendency toward information search in the environment.

Institutional Theory suggests that organizations will tend to copy the practices of others news outlets in times of uncertainty. The use of analytics in decision making has become more prevalent. It can be argued that news organizations not following metrics will start following them because of the likely phenomenon of mimetic isomorphism – i.e., they may risk appearing professionally or publicly negligent by not conforming to this increasingly widespread practice. This leads to the third hypothesis.

H3: The greater the degree of mimicry, the higher the level of analytics use in newsroom decision making.

The earliest studies of the influence of web metrics (MacGregor, 2007) and (Anderson, 2009 and 2011) focused on newspapers, broadcasters, and internet sites. The respondents to each author's surveys and interviews indicated that knowing more about what their audience wants leads to greater audience popularity, a stronger position in the market and greater job security. News organizations that feel the need to learn from their environments to reduce uncertainty and sustain their viability will be more likely to attend to audience analytics.

H4: The greater the tendency toward information searches about the environment, the higher the level of analytics use in newsroom decision making.

The tendency toward mimicry typically involves organizations that seek legitimacy at least as much as financial gain. For-profit organizations have indicated additional pressure to respond to market forces (MacGregor, 2007). News outlets that buffer themselves from market sources also tend to follow mimetic isomorphism, or mimicry, and this is most typical among non-profits, which also have a need to maintain ties to other institutions like government agencies, and not just to markets (Lowrey and Woo, 2010; Lowrey, 2005). This rationale supports the next hypothesis.

H5: The relationship between perceived uncertainty and the tendency to mimic will be stronger for non-profit newsrooms than for commercial stations.

Research shows that commercial news editors have reacted favorably to web metrics as a way to gauge the success or failure of content, both with readers and as a source of income

(Tandoc, 2015). Increasing media competition and environmental uncertainty appears to be fueling the need for greater knowledge of audience activity to overcome anxiety on the part of for-profit newsroom decision makers, to a greater degree than non-profits, leading to the next hypothesis.

H6: The relationship between perceived uncertainty and tendency toward information search in the environment will be stronger for commercial stations than for public stations.

Finally, the growing reliance on web metrics and its influence in future story selection is relevant to the evolving role of gatekeeping between the audience and journalists. Specifically, it is relevant to the question of who exercises the most power in setting the agenda on what stories are covered. A number of studies have examined the use of web metric data that tracks the number of clicks a story earns, indicating greater popularity, and possibly giving public opinion greater sway in future content selection (Vu, 2014; Lowrey, 2001; Anderson, 2011; MacGregor, 2007). Since metric data began being used early in the twenty first century, journalists who were in the business before that time would have held greater power as gatekeepers, and presumably would have been more heavily socialized to traditional top-down methods of decision-making. With more years of experience, they are also likely to be more comfortable making gatekeeping decisions that are internal, relying less on information or confirmation from the environment. Based on that assumption, managers with strong professional backgrounds should be less heavily influenced by tendencies to mimic other papers or to search for market information in the environment. They would more likely rely on their own professionally gained knowledge and skills. Thus, the final two hypotheses are proposed:

H7: The stronger the professional background of the news manager, the weaker the relationship between tendency to mimic and the level of analytics use in news decision making.

H8: The stronger the professional background of the news manager, the weaker the relationship between tendency toward information search in the environment and level of analytic use in news decision-making.

Finally, a higher level of uncertainty about the environment should predict a higher level of analytics use, given that managers may learn from the environment through analytics data.

H9: The greater the degree of perceived uncertainty, the higher the level of analytics use in newsroom decision-making.

CHAPTER 3

METHODS

To test hypotheses, a survey of commercial and non-commercial newsrooms was conducted. Respondents were decision-makers about news content, including general managers, program managers, news directors, and producers who are empowered to assign stories to other journalists. In so doing, they are responsible for story selection. On average, each station has three to four individuals working in these positions. For example, a typical station may have a general manager, a station manager, a news director, an assistant news director, and an editor—some have more, and others have fewer. In the years before internet web metrics, news professionals held the power of gatekeeper, only to have that authority seemingly erode as audience data gave what is a perceived as a more credible picture of what web visitors want to read (Welbers, van Atteveldt, Kleinnijenhuis, Ruigrok, and Schaper 2015). That shift toward the influence of the general public and financial interests, and away from professional journalistic judgment and the long-honed perceptions of newsroom managers, is one of the issues measured in this study.

A survey is a helpful tool for collecting quantitative statistical data on perceptions, as opposed to the qualitative data through individual interviews favored in early studies of web metrics and journalism (e.g., Anderson, 2011; MacGregor, 2007) The results are also more generalizable and replicable. The survey employed Likert scale questions, each offered a scale of possible responses that were statistically assessed against other factors like years of experience,

and other moderating variables. Information was also gathered from existing data sources on commercial vs. non-commercial status, and geographic location for each station.

Sample

The sample for this study was composed of radio station newsroom decision-makers in positions of management, for whom email addresses and phone numbers were available. The list of those invited to participate included for-profit and non-profit professionals – specifically, general managers, station managers, program directors, news directors, assistant news directors, editors, and producers.

Managers' email addresses on the non-profit side were assembled from a number of sources, including the membership lists of two professional organizations, the Radio-Television Digital News Association, and Public Radio News Directors, Incorporated. These addresses were supplemented by a search of NPR.org for individual stations that offered e-mail addresses of news directors, assistant news directors, and senior producers. This additional search was needed because there are roughly 1,000 non-commercial NPR member stations, as opposed to over 15,000 commercial radio stations in the U.S.

On the for-profit side, in addition to stations found in RTDNA listings, addresses were gathered from the website radio-locator.com, as well as from the 2015 edition of the Broadcasting & News Yearbook, which contains a comprehensive list of radio stations and managers.

Many of the approximately 15,000 commercial stations and some of the 1,000 public stations do not produce news. Also, not all news-producing stations make contact information publicly available. As a result, the final sample frame was substantially smaller, including 478 managers' email addresses from non-profit stations and 980 addresses from commercial stations

that work for news-producing stations and that have publicly available contact information. Once this list of 1,458 managers' addresses was assembled, and approval obtained from the Institutional Review Board at the University of Alabama, Qualtrics surveys were emailed to the managers. Data were collected at the individual level rather than the organizational level, so multiple responses from the same outlet was acceptable. Three email reminders were sent to non-respondents, and if necessary to obtain a higher response rate, respondents were contacted through phone calls.

Ultimately, 392 total surveys were collected. However, a small number were unfinished and were deleted, leaving 332 finished questionnaires, with 173 non-commercial station respondents and 159 commercial station respondents, collected between September and December 2016. The response rate was 36.10% from managers at public stations and 16.22% from managers at commercial stations. A smaller response from for-profit stations was anticipated due to the difficulty in obtaining accurate contact information from commercial stations, which explains why a larger sample of prospective for-profit names was sought.

59.10% of the respondents identified themselves as news directors and 11.90% as program directors. 11.03% selected the choice of "other," and listed positions including senior digital editor, executive producer, public service director, and managing editor, among others. Of the remainder, 9.00% identified themselves as general managers, 3.90% as assistant news directors, 3.00% as producers, and 1.80% as editors.

Survey measures

Survey questions that measure variables in the hypotheses are listed below (questions for the two RQs are still to come). These questions were derived from previous studies.

Independent variables

DeSarbo, DiBenedetto, Song, and Sinha (2005) provided a questionnaire for the independent variable "degree of perceived uncertainty in environment," a revision of the often used Miles and Snow scale, created in 1978. Other scholars (Buchko, 1994; Harrison and Kelly, 2010) have used a similar scale, which identified various characteristics of the organizational environment and assesses level of predictability or uncertainty. These measures were summed to create the final variable index Perceived Uncertainty (*M*=19.35, *s.d.*=5.71).

Q Below are factors in the news organization's environment. Please rate items below on how easy or hard they are to predict. 1 = very easy to predict, 10 = very difficult to predict.

"How favorable the response of our audience to a certain news story."	1	2	3	4	5	6	7	8	9	10
"How web technology in our industry is changing."	1	2	3	4	5	6	7	8	9	10
"What our competitors will do online."	1	2	3	4	5	6	7	8	9	10
"The cooperation of our news sources."	1	2	3	4	5	6	7	8	9	10

Information Search in the Environment

A study by Dyer and Ross (2008) was the model for five questions regarding the variable "tendency to do information research in environment." These questions were adapted so as to be relevant to decision-making in news outlets. These measures were summed to create an index for the variable Information Search (*M*=18.22, *s.d.*=3.36).

Q Rate this statement

"I assess how effective my practices are at my station."

1. Constantly
2. Often
3 Occasionally
4. Rarely
5. Never

Q Rate this statement

"I review reports on effectiveness of practices within the news industry."

1. Constantly
2. Often
3 Occasionally
4. Rarely
5. Never

Q Rate this statement

"I study the tastes and demands of my news audience."

1. Constantly
2. Often
3 Occasionally
4. Rarely
5. Never

Tendency to Mimic (mimetic isomorphism)

DeSarbo, DiBenedetto, Song, and Sinha (2005) also informed the measure for "tendency to mimicry." The proposed measure of isomorphism was based on measuring several web-based

practices such as podcasting, blogging, and posting photos with web stories. The researcher's long experience in radio news informed these choices. Data were gathered and statistics gleaned to compare how much each station utilized these practices compared to the sample as a whole. This was used to provide a measure that indicates mimicry.

More specifically, tendency toward mimetic isomorphism was measured by assessing the difference between (a) the amount of emphasis a station manager places on five specific practices that are emerging and gaining popularity across the radio field, and (b) the average amount of emphasis from all news managers across the entire sample. The difference between (a) the emphasis score that a particular manager gives a particular practice (say for example, "6" for podcasting on a scale of 1-10) and (b) the average score for emphasis on podcasting across the entire sample (say for example, 7.2) was calculated for each of the five practices (1.2 for podcasting, based on those sample scores). Then, these differences were averaged across all five practices. The greater the score, the greater the overall difference between the station and the whole sample, which indicated a low tendency toward mimetic isomorphism by that manager. The lower the score, the less overall difference between the station and the whole sample, indicated a stronger tendency toward mimetic isomorphism by that manager (M= 2.41, $s.d.$=.799). Because similarity does not necessarily prove mimicry, a question asking about attending to practices of other news organizations was asked, as a way to help validate likelihood of mimicry.

Q "Below are practices being adopted by some news organizations. Rate items below on how much emphasis or how little emphasis your station applies to each. 1= great emphasis, 10=very little emphasis."

Podcasting	1	2	3	4	5	6	7	8	9	10
Blogging	1	2	3	4	5	6	7	8	9	10
Posting news stories with transcripts	1	2	3	4	5	6	7	8	9	10
Having reporters take pictures or videos for their web stories	1	2	3	4	5	6	7	8	9	10
Responding with audience through social media.	1	2	3	4	5	6	7	8	9	10
Posting to social media	1	2	3	4	5	6	7	8	9	10

Qs My corporation requires our participation in (each) of the above mentioned practices.

1. Yes
2. No
3. Don’t know

Q I pay attention to the practices of other news organizations in my market…

1. Constantly
2. Often
3. Occasionally
4. Rarely
5. Never

Dependent variable

Vu's 2014 study of news analytics provides the six questions measuring the dependent variable "levels of analytics use in decision making about news." These measures were summed to create a final variable index Analytics Use (*M*=13.80, *s.d.*=4.36).

Q Rate this statement

How likely are you to change the placement of a news story on your website based on the popularity of a story with your website audience?

1.Very Likely
2. Likely
3. Neutral
4. Somewhat Likely
5. Not Likely

Q Rate this statement

How likely are you to run stories on your website similar to stories that draw high response among web visitors?

1.Very Likely
2. Likely
3. Neutral
4. Somewhat Likely
5. Not Likely

Q Rate this statement

How likely are you to run follow-up stories on your website based on the popularity of a story with your website audience?

1.Very Likely
2. Likely
3. Neutral
4. Somewhat Likely
5. Not Likely

Q Rate this statement

How likely are you to run additional materials (pictures, videos, etc.) for stories on your website that draw high response among visitors?

1.Very Likely
2. Likely
3. Neutral
4. Somewhat Likely
5. Not Likely

Q Rate this statement

How likely are you to run editorials on your website related to stories that draw high response among site visitors?

1.Very Likely
2. Likely
3. Neutral
4. Somewhat Likely
5. Not Likely

Additional questions measured nature (public vs. commercial) and size of newsroom (number of employees in newsroom), and analytics program used.

CHAPTER 4

FINDINGS

RQ1 asked how much commercial and non-commercial newsroom decision-makers rely on internet audience data, and how this differed between the two. A cross-tabulation was conducted on data from a question that defines internet audience data and asks whether the respondent uses that kind of data (1=Yes, 0=No). 58.9% of the commercial participants indicated they used internet audience data, while 86.5% of non-commercial journalists said they did. This was counter to expectations, as it was expected the more profit-driven commercial journalists would be more likely to pursue audience data. It may be that since non-commercial radio stations derive an estimated half of their revenue directly from listener contributions, they are more motivated to know what their audience is thinking, compared to commercial reporters whose income comes from advertisements. This will be discussed more in the concluding chapter. Respondents were also asked which analytics programs they use, assuming they use analytics. Regarding the use of Google Analytics, 55.5% of those surveyed said "yes". Facebook Insight prompted 54.0% "yes". Twitter analytics 50.9%. NPR's Core Publisher 41.4%. Hootsuite 13.4%. Responses of "other" were ranked at 11.8%. Sprout 0.80% "yes". Spread Fast 0.30%.

RQ2 asked for what purposes newsroom staffers use web audience data. Frequency analyses were conducted for five survey measures that assessed the likelihood of a respondent taking action related to web content (see Appendix 1, Survey Questionnaire). Responses of "very likely" and "likely" were combined to determine the most prevalent action related to web data. 73.6% responded that they were likely or very likely to run additional materials due to online

popularity of a web story, and 62.0% were likely or very likely to run a follow-up web story due to popularity with the audience. 61.6% of the respondents said that, in response to analysis of web traffic data, they are “likely” or “very likely” to run web stories that are similar to stories popular with their online audience. 45.9% would change the placement of a web story based on the popularity of a story with online readers, and 14.8% would run web editorials based on strong audience response.

H1 predicted the greater degree of perceived uncertainty, the greater the tendency toward mimicry. To test this hypothesis, four survey measures that addressed degree of uncertainty in the news environment were summed. Tendency to mimic was calculated as described in the Methods section. A bivariate correlation analysis of these two variables shows only a weak and statistically non-significant correlation between perceived uncertainty and mimicry (Table 1). The data do not support H1.

Table 1: Bivariate Correlation for Main Outcome Variable and Independent Variables

Measure	1	2	3	4
1. Analytics Use	1.00			
2. Perceived Uncertainty	-.25** (H9)	1.00		
3. Information Search	.24** (H4)	-.19** (H2)	1.00	
4. Mimicry	-.26** (H3)	.09 (H1)	-.16**	1.00

**p<.01, *p<.05

H2 proposed that the greater the degree of perceived uncertainty, the greater would be the tendency toward information search. A bivariate correlation analysis was conducted here as well

(Table 1), between level of perceived uncertainty and degree of information search. The bivariate correlation analysis here showed an inverse result, r (336) = -.19, $p < .01$. The data do not support the hypothesis, although there is a significant (if relatively weak) correlation. It could be argued that greater levels of information search among the respondents prompts less perceived uncertainty in the results. Possible explanations will be discussed further in the Conclusions section. Still, H2 is not supported.

H3 proposed that the greater degree of mimicry, the higher the level of analytics use in newsroom decision making. A bivariate correlation analysis was conducted, followed by a multiple regression analysis. The correlation analysis shows a significant relationship, r (336) = -26, $p < .01$.

A multiple regression analysis was also conducted to assess this relationship (Table 2). Predictors were entered hierarchically, in blocks: (1) Mimicry, level of perceived uncertainty, and likelihood of information search, (2) The variables in block 1 plus the organizational-level variable size of the radio station (number of staffers), and (3) the variables from blocks 1 and 2 plus three individual-level variables: managers' years in the profession, manager's age, and manager's level of schooling. The *R-Square* of the regression model is .20, which suggests the regression model as a whole is only moderately explanatory. Other predictors are likely going unmeasured. Regression results shows a relationship between mimicry and analytics use (B = -.19, $p < .01$). Both of these statistically significant results support the hypothesis. The negative sign in these two results is explained by the fact that a lower number indicates a greater chance of mimicry. As explained in Methods, this is because the measure of mimicry in this study is based on measuring the "mean" of the entire sample (all stations) for questions about adoption of new features. Then, each respondent's score on these questions is compared to the "mean" of the

sample as a whole which indicates the dominant trend for all stations, nationally. When respondents' scores are close to the "mean" (and therefore the number, or difference, is small) it indicates a greater likelihood of mimicry.

In addition, frequency analyses were conducted for two questions that ask managers how frequently they pay attention to the practices of other news organizations in their markets, and how frequently they pay attention to news practices in the radio news field. 76.2% of respondents said they at least rarely pay attention to other organizations, and 79.8% said they at least rarely keep up with trends in the radio news field.

Any analysis involving mimicry could be more complete by specifying the difference between coercive isomorphism and the other two varieties, (DiMaggio and Powell, 1983), mimetic isomorphism and normative isomorphism. Normative isomorphism is the result of professional values, while mimetic isomorphism comes about through perceived uncertainty. Coercive isomorphism is the product of pressure, either managerial, regulatory, or political. Questions asked respondents if their supervisors require that they pursue each feature on a list of web related features, such as posting to social media or blogging. The objective was to see if interest in various types of web content occurred spontaneously among the 332 respondents, or was required. 62.6% of respondents said station management requires the news staff to post on social media. 60.1% were told to take photos or video for their web stories. 52.9% were required to post transcripts of their audio stories online. 41.1% had to interact with their audience through social media. 17.5% were told to produce podcasts. Finally, 10.2% were under managerial instruction to produce blogs. It appears that coercive isomorphism – i.e., adoption required by managers – is important in explaining adoption of at least some of these features.

Another interesting result was in a cross tabulation between non-profit manager and their for-profit counterparts when it comes to requiring staff to perform certain actions on the web. Non-profit management was more likely to pressure newsrooms than for-profit management. This will be discussed in the conclusion.

H4 predicts that the greater the tendency toward information searches about the environment, the higher the level of analytics use. A bivariate correlation analysis was conducted (Table 1), followed by a multiple regression analysis for a more robust examination of the relationship of the variables, controlling for manager's age, years in the profession and level of education, as well as size of the news outlet (Table 2). The correlation analysis revealed a positive, moderately strong, and statistically significant correlation between information searches and the analytics use, r (336) = .24, $p < .01$. The regression analysis showed a weaker, but still statistically significant relationship between the tendency toward information searches and higher analytics use, after accounting for control variables ($B = .14$, $p < .05$). The data support H4.

Table 2: Summary of multiple regression analysis for variables predicting web analytics use

Variable	B	Standard Error	Beta
Constant	22.196	4.046	
Perceived Uncertainty	-.26	.074	-.19** (H9)
Level of Info Search	.32	.13	.14* (H4)
Mimicry	-1.88	.53	-.19** (H3)
Size of Radio Station	.12	.03	.22**
Manager's Age	-.01	.00	-.07
Years in the Profession	-.04	.03	-.06
Level of Schooling	-.29	.54	-.30
R^2		.20	
Adj R^2		.18	

**p<.01; *p<.05

H5 proposed that the relationship between perceived uncertainty and the tendency to mimic will be stronger for non-profit newsrooms than for commercial ones. Bivariate correlation analyses were conducted for both the non-profit respondents and for the commercial respondents, and these correlations were compared. The analysis indicated non-significant

correlations for both sets of stations (and the difference was also relatively small). H5 was not supported (Tables 3 and 4).

H6 proposed the relationship between perceived uncertainty and the tendency toward information search in the environment would be stronger for commercial stations than non-profits. A similar pair of bivariate correlation analyses were conducted, one for each of the two station subsamples. The correlation data analysis for the commercial respondents showed a moderate but negative relationship, r (159) = -.23, $p < .01$. For the non-profit respondents, the relationship was not significant. Therefore, correlations between commercial and public stations cannot be compared. H6 is not supported (Table 3 and 4).

Table 3: Bivariate Correlation for Main Outcome Variable and Independent Variables for Commercial Stations

Measure	1	2	3	4
1. Analytics Use	1.00			
2. Perceived Uncertainty	-.24**	1.00		
3. Information Search	.30**	-.23** (H6)	1.00	
4. Mimicry	-.32**	.14 (H5)	-.19*	1.00

**p<.01; *p<.05

Table 4: Bivariate Correlation for Main Outcome Variable and Independent Variables for Non-Profit Stations

Measure	1	2	3	4
1. Analytics Use	1.00			
2. Perceived Uncertainty	-.28**	1.00		
3. Information Search	.20**	-.12 (H6)	1.00	
4. Mimicry	-.04	.03 (H5)	-.20**	1.00

**p<.01; *p<.05

H7 predicted the stronger the professional background of the news manager, the weaker the relationship between the tendency to mimic and the level of analytics use. Bivariate correlation analyses were conducted on a sample that split at the median for the age variable. The first group contained 181 respondents with experience ranging from less than a year to 25 years, and the second group of 148 respondents having experience of 26 years or higher. Again, since this hypothesis deals with mimicry, the smaller the number, the stronger indication of the tendency to mimic. The correlation analysis for the more experienced managers indicates moderate and significant correlation, r (164) = -.22, p < .01 (Table 5). The correlation analysis for the less experienced group was slightly weaker but still significant, r (162) = -.26, p < .01. The data moderately supports H7. (Table 6).

Table 5: Bivariate Correlation for Main Outcome Variable and Independent Variables for More Experienced Managers

Measure	1	2	3	4
1. Analytics Use	1.00			
2. Perceived Uncertainty	-.11	1.00		
3. Information Search	.19* (H8)	-.15	1.00	
4. Mimicry	-.22** (H7)	.03	-.13	1.00

**p<.01; *<.05

Table 6: Bivariate Correlation for Main Outcome Variable and Independent Variables for Less Experienced Managers

Measure	1	2	3	4
1. Analytics Use	1.00			
2. Perceived Uncertainty	-.33**	1.00		
3. Information Search	.29** (H8)	-.23**	1.00	
4. Mimicry	-.26** (H7)	.08	-.20**	1.00

**p<.01; *<.05

H8 proposed that the stronger the professional background of the news manager, the weaker the relationship between information search in the environment and the level of analytics

use. Again, bivariate correlation analyses of more experienced and less experienced managers, as in H7, were conducted. The analysis for the more experienced managers showed a weaker relationship between information search and analysis use, r (164) = .19, $p < .05$. The correlation analysis for the less experienced managers was stronger r (162) = .29, $p < .01$. The data supports H8 (Table 6).

H9 predicts the greater perceived uncertainty, the greater use of web analytics. A bivariate correlation analysis was conducted (Table 1), followed by a multiple regression analysis (Table 2) to determine the relationship between web analytics and the independent variables in the study. The correlation analysis shows an inverse relationship between perceived uncertainty and analytics use, r (336) = -.25, $p < .01$. The multiple regression result showed a similar negative relationship between uncertainty and analytics use, (B = -.19, $p < .01$). While results are statistically significant, the direction of the correlation is opposite to expectations. One possibility of this negative, or inverse, relationship could be that web analytics use reduces perceived uncertainty, rather than initial uncertainty driving analytics use. Regardless, H9 is not supported.

CHAPTER 5

CONCLUSIONS

The cross-tabulated responses about the 332 station managers' general use of analytics support the assertion that radio newsroom managers use web audience analytics, directly or indirectly, in daily editorial decision making. 86.5% of non-profit respondents said they use analytics, as opposed to 58.9% of their commercial counterparts. Also, according to results from tests of H5 and H6, perceived likelihood of seeking information and tendency to mimic other stations was no more likely to lead public radio stations' managers to use web analytics than commercial station managers. These findings do not support the expectation that for-profit news operation are more highly attuned to analytics, which provide specific information on what website visitors are doing.

The fact that most non-profit managers use analytics could have to do with managers' perceptions of the level of "engagement" or the length of time visitors stay. In January 2015, for-profit news organizations including CNN, LA Times, and the Chicago Times, showed average viewer visits lasting two and a half to three and half minutes (Pew, 2015). A similar study (Graves, 2014) asserts that the website of the television non-profit outlet PBS was three minutes. However, the same report states that web viewers that remained on the PBS website for thirteen and a half minutes were among the most generous donors to this non-profit. Assuming this benefit translates to non-profit radio outlets like NPR and its local affiliate stations, then engaging the audience for longer periods of time, enabled by greater knowledge of viewer preference through analytics, would seem logical to NPR station managers. This is speculation,

but if listeners' time on the site is more substantial and meaningful, then revenue gained this way could outweigh the benefits of merely generating extra "eyeballs" for commercial radio web content. This could help explain the lower response among for-profit respondents. However, the fact that most NPR stories run longer, some going five minutes or more, would likely also be a factor.

As to the likelihood of their taking action based on audience response to online content, 73.6% said they were "very likely" and "likely" to run additional materials related to highly viewed content. 62.0% stated they would run follow-up stories on similarly popular material. 45.9% would change the placement of a story based on a higher analytics response. Only 14.8% would run editorials based on a popular web story. It's interesting to note how the highest rated action, running additional materials, requires the least investment of labor in a newsroom. This includes merely linking to existing graphs, maps, photos, and other content produced by in-house digital content personnel, and doesn't involve the more expensive alternative of utilizing journalistic staffing. The next most popular response would mean producing a new story, and the least popular answer means writing an editorial. The overall lack of profitability of news websites compared to conventional broadcasting could be the reason for hesitancy for spending resources on content. Traditional, or terrestrial, broadcasting remains the bigger money maker (Mutter, 2014) for news stations while managers struggle to monetize their web content through advertising, non-profit underwriting, or subscriptions.

Results from the statistical analysis for H7 supported expectations that managers are more likely to rely on their own experience in journalism than on internet audience data. H7 predicted the stronger the professional background of the respondent, the weaker the relationship between mimicry and analytics use. H8 proposed that more experienced managers would be less

likely to use analytics data to find information. Results provide support for these hypotheses. It could be argued that more experienced managers, who are likely less familiar with internet-related data like web audience metrics and more comfortable using their professional news judgment, are less likely to use analytics to aid decisions. Future hiring trends could show a lessening of this result, since younger managers, who grew up in the world of the internet, would likely be more comfortable with the technology as they age and assume greater managerial responsibility. However, this outcome is not certain. It may be that younger managers will become increasingly comfortable relying on their own innate news judgment as they gain years in the profession.

Overall, the statistical data from tests of H3 and H4 support the idea that web analytics is likely among newsroom decision-makers, given the significant relationship between analytics use and both likelihood of information search and mimicry. This is more evidence that the growing popularity of web audience data is challenging the traditional "gatekeeping" role, where journalists held the power on deciding which stories to pursue and which to ignore. News professionals seeking information about uncertain environments seem to be ceding some control to findings from internet analytics (Tandoc, 2014). Also, newsroom decision-makers may be resorting to web audience metrics to stay ahead of the trend and make the best story choices possible by studying what content is the most popular with their audience – and also by being aware of the trend of analytics use among peer news outlets, as the relationship with mimicry suggests.

Implications for Theories

The data supported some portions of the theoretical model for this study, while other parts were not supported. Institutionalism and Resource Dependence Theory were the primary

theories which framed the model. Institutionalism was used by organization scholars early on to explain the tendency of governmental organizations to mimic each other in order to achieve legitimacy. In the absence of a profit margin, mimicry provides a way for non-profits to justify adoption of new practices and forms. Later studies applied this theory to non-governmental organizations to achieve the same goal (DiMaggio and Powell, 1983; Orr and Scott, 2008; Fernandez-Alles and Valle Cabrera, 2006; Frumkin and Galaskiewicz, 2004; Stensaker and Norgard, 2001). This study applies institutionalism to non-profit news organizations, though it can influence for-profits as well (Entman, 2006). The data supported H3, which predicted the greater the level of mimicry, the higher level of analytics use in newsroom decision making, though additional factors are likely involved in the results since the correlation is only moderately strong. The data also support the impact of coercive isomorphism (sameness because of directives by superiors) in addition to mimetic isomorphism (sameness because of mimicry). It appears managers are looking at other stations, but they are also following orders: Both behaviors encourage isomorphism. Still, there is evidence for institutionalism in this context.

Resource Dependence Theory (Davis and Cobb, 2010) was used to help explain the influence outside resources can exert on organizations. Previous literature depicts audience attention as capital, or a “resource” from the external environment that can influence media organizations, which seek a predictable inflow of resources (Tandoc, 2015). That prompted the inclusion of Resource Dependence Theory in this study. This approach posits that groups attempt to reduce uncertainty in their environments, and one important way is to increase search for information. The data support H4, which predicted the greater the tendency to information search, the greater the use of web analytics. This suggests support for Resource Dependence Theory.

The tendency to do information research in the environment, which applies to for-profit organizations but also to non-profits, and the tendency to mimicry, which applies to non-profits but also to for-profits, are the primary mediating variables in the theoretical model for this study (Figure 1). The data supports the relationship between these mediating variables and the primary dependent variable, which is level of analytics use in decision making about news.

However, the data do not support the relationship between the model's primary independent variable, the degree of perceived uncertainty, and analytics use. H9 predicted the greater the degree of perceived uncertainty, the greater levels of analytics use, which was not supported by the data, as results were the inverse: less uncertainty correlated with more analytics use. This seems to be inconsistent with the theoretical mechanism of Resource Dependence Theory. One possible reason for this may be found in the results for H2, which predicted the greater degree of perceived uncertainty, the greater the tendency toward information search in the environment. The correlation data showed a reverse relationship compared to H2's predicted outcome: It may be the act of increased information search is reducing perceived uncertainty among the respondents. If this is true, then analytics use in the model may be reducing perceived uncertainty as well, thereby creating an inverse relationship that undermines support for H9. Future studies may test the relationship between analytics use and uncertainty in this way to better understand the data results from this current survey.

An additional possibility is that the respondents of this survey -- primarily the top managers within the newsrooms (e.g., news directors) -- may not consider web metric data to be as vital as do members of upper management, such as the General Manager or President. These higher-level managers make more decisions regarding the acquisition of revenue, and therefore may be more in tune to uncertainty in the environment and the need to reduce this uncertainty

through information search. As has been stated in the literature review, journalists view web data and use it to search for information about their environments, but it's not the only element that drives their decisions. Newsroom leaders may also hold fast to their perceived authority as "gatekeepers," who have control over decisions on story selection (Lee, Lewis, and Powers, 2014).

The data supported one moderating variable, but not the other in the theoretical model. H7 and H8 dealt with the influence that more experience in the profession would have on analytics use. H7 predicted the stronger the professional background of the respondent, the weaker the relationship between tendency to mimic and the use of analytics. H8 predicted the stronger the professional background, the weaker the relationship between information search in the environment and analytics. Both hypotheses were supported. Per the rationale stated earlier, it may be that managers with more experience are trusting their professional news judgment more than external information. However, as young newsroom staff members age and move into management, this relationship between experience and analytics use may change – again, the question is to what degree they become socialized to routines of traditional gatekeeping.

The moderating variable that was not supported by the data was whether the respondent worked for a non-profit or for-profit operation. One possibility for the lack of support may be that non-profit local radio station newsrooms will behave like governmental operations (public radio does receive a small amount of government funding) (Meyer and Rowan, 1977). Another reason for the lack of support on H6 could be that analytics data are regarded as a true "resource" in only a limited way. Audiences may be viewed as "capital" or a resource (Zheng, Hsiang, and Kaufhold, 2012), but web analytics may be only one of many factors to be considered in the story selection process, with journalists hesitant to relinquish editorial control to the audience

(Welbers, van Atteveldt, Kleinnijenhuis, Ruigrok, Schaper, 2015). Still another possible explanation is that much of public radio's revenue derives directly from listeners, while this is not true of commercial stations. Therefore, it may be that public radio management feels more than commercial radio management that analytics data from listeners is more directly relevant to their decision-making.

Respondents were given an opportunity to add qualitative text comments on their thoughts about internet based News. The for-profit comments included concerns about how best to spend limited resources on pursuing web-based coverage, while championing the power of the internet to connect immediately with the audience. Non-profit respondents often wrote about how the internet enables public radio to connect with listeners. Both groups of respondents voiced concern over the amount of questionable news coming from non-traditional sources. The speed at which internet news is disseminated without proper confirmation, along with the short attention span of web audience members, is another mutual concern.

Implications for public radio

The data support H3, which predicted the greater the degree of mimicry, the higher level of analytics use. This also supports the proposed influence of Institutionalism (Meyer and Rowan, 1977), which suggested that organizations, typically governmental and non-profit, are likely to imitate one other in an effort to establish legitimacy by doing the things similar organizations do. As stated in the theoretical frameworks section, Institutionalism applies to for-profit as well as non-profit news organizations. But, for not-for-profit organizations, it can be argued the pursuit of legitimacy figures into "engagement" with the audience. Just as profitability can lead to credibility between for-profit radio organizations and prospective advertising customers, the demonstration of "doing the right things other news stations do" could

be used by non-profit stations to generate legitimacy, credibility, and possibly revenue, from its audience.

National Public Radio receives much of its annual operating revenues through programming fees charged to its local stations (Pew, 2015). Roughly 10% of that money comes in the form of grants from the Corporation for Public Broadcasting, allocated by the Federal government. Conservative members of Congress have long advocated eliminating this funding. The loss of dollars from Washington could lead to an even greater effort by non-profit news organizations to engage with their audiences, to lengthen the time spent in each listener's visit to its website, and thereby to derive greater local financial support (as seen by its non-profit television counterpart PBS) (Graves, 2014). If so, this could lead to a change in the style of news featured on non-profit news outlets, as public radio stations tailor their content toward listeners based on their web data preferences in "affirmation" fashion, instead of the current observed tendency of "verification."

Kovach & Rosenstiel (2007) suggested this verification news vs. affirmation news classification, and it is useful here. "Verification news" is closely associated with NPR, where reporters speak to sources on all sides of an issue, and use that thorough examination to "verify" the facts, regardless of the expectations of the listener. Affirmation news is closely identified with highly conservative or liberal news sources, which tailor their news to the beliefs of their conservative or liberal audiences, so as to "affirm" what viewers already think is true. If Congressional budget cuts eliminate funding for the Corporation for Public Broadcasting, and therefore NPR and its member stations, then non-profits will need to seek greater financial support from its listeners and the companies and foundations who purchase underwriting spots, which are NPR's version of on-air ads. This greater level of listener engagement could lead non-

profit broadcasters to more closely mirror the tastes and beliefs of their audience, and thereby create content that's more "affirmative" in nature. The data show that non-profit general managers appear to be already embracing a high level of online engagement with listeners.

As detailed earlier, the study examined level of mimetic isomorphism (sameness due to mimicry) by asking respondents to rank the emphasis they apply to a list of web-related features including blogging, posting, and interacting with the audience through social media – and then comparing this with emphasis placed by managers in the rest of the sample. To measure the presence of coercive isomorphism, questions asked if top management required news staff members to perform these web-related features. A cross tabulation finds similarities and differences between responses from for-profit and non-profit news managers. 62.9% of non-profit managers require their news staffs to post online transcripts of their radio stories, which is higher than the 42.3% response among for-profit managers. 73.1% of non-profit top managers require pictures and videos on the web, compared to 46.5% of for-profit managers. Other responses for requiring podcasts, blogging, interacting through social media, and posting on social media appear nearly equivalent between non-profit and for-profit respondents. Clearly then, coercive isomorphism is at work here to encourage sameness, in addition to mimetic isomorphism (mimicry). It may be that higher levels of mandatory use of web-related features among non-profit broadcasters results from an organizational objective to achieve greater engagement with audience members and, perhaps, the greater financial support that can be linked to it (Graves, 2014).

One more motivation to pursue web analytics and the level of engagement they engender is the exploding popularity of on-demand radio, including podcasts, which are episodic features provided on an on-going basis to subscribers. Visitors to radio news websites can also select, "or

click," on stories of their choice which is the audience traffic monitored by web audience analytics programs (Pew, 2015). This differs from traditional broadcasts where the programming is determined by the editorial staff and delivered for the use of the audience. 28 million NPR listeners used the internet to receive content in 2014, which was an increase of 35% over 2013. Roughly half of those users listen to NPR stories on mobile devices, with the other half on desktop computers. Consuming radio features online allows listeners more flexibility to choose, as is reflected with the growing success of NPR podcast programming. NPR reported just under 40 million month podcast monthly downloads in 2013, which grew to over 50 million in 2014 (Pew, 2015). The network appears to be leading local stations in the distribution of podcasts. Respondents were asked if station managers required news staff to produce podcasts. Among the non-profit news managers who took the survey, 17.70% said "yes." It would be interesting to track these responses to see if they increase over time.

Implications for Commercial Broadcasters

The data support H4, which predicted the greater the tendency toward information search, the greater the level of analytics use in newsroom decision-making. Information search was modeled in this study as a response to perceived uncertainty, which is most typically, though not exclusively, linked to for-profit organizations. The finding for H2 was a reverse of what was predicted: Results show that lower uncertainty correlates with higher search. This may be showing that the causal direction is opposite to what was predicted: More searching for information may be reducing perceived uncertainty, rather than higher uncertainty leading to more information search.

Cross-tabulated results indicated that 58.9% of the 159 for-profit managers use web metrics, which is less than the 86.5% of the 173 non-profit respondents. This suggests for-profit

newsroom decision makers may be less inclined to consider direct feedback from the audience. This contradicts some of the literature, which found that to some extent, editors were willing to cede some control of story selection if the result is greater revenues for their organization (Vu, 2014). It also contradicts Resource Dependence Theory, which suggests for—profit organizations will be most likely to seek to increase certainty about incoming resources (e.g., audience attention, in the case of radio stations). One possibility, as mentioned earlier, is that commercial radio news operations have sales staff members who interact more directly with advertisers and the public than do news managers. This stands in contrast to public radio news stations, which depend more directly on listener revenue and therefore are likely to be directly responsive to listeners. Half of the revenue generated by non-commercial public radio stations is voluntarily offered by listeners, whose preferences are directly illustrated by web audience data. One piece of observational data that lends credence to this idea was found during the formation of the sample for the survey. Most often, commercial stations offered easy access to their sales representatives by telephone or email; however, reaching their news directors was more difficult. Contact phone numbers or email addresses were either unavailable or required effort to find. Non-commercial news staff members, by contrast, were more often listed clearly on their station's web site.

Another reason for the lower use of analytics among for-profits could be in the make-up of local news operations. In assembling the sample for the survey, and during the 300 phone calls to arrange additional responses, the for-profit stations appeared to follow a pattern. A number of them seemed to be small stations with varying degrees of local news production, and so this may have suppressed perceived need to use analytics. Future studies could, in addition to survey questions, consider a content analysis to see how much local news is being produced. A higher

pace of editorial work could mean greater focus on what the audience is thinking, and greater reliance and receptivity to web analytics.

One element that could favor greater use of web analytics among for-profit stations is the nature of their programming schedule. Many of these stations in the sample feature network talk show programming, which is typically conservative. Assuming this is the case, these stations may provide “affirmation” style news, defined earlier as content tailored to fit what the audience is already thinking. If true, then knowing what stories listeners find receptive would be useful, and might prompt newsroom interest in web analytics, or least reaffirm that their story selections are reflecting the tastes of their audience.

One indication as to whether respondents are seeking to engage with their audiences or simply to generate content to grow listenership may be found in the responses to the open-ended question that gave respondents the opportunity to comment qualitatively about their perceptions of internet news. Both types of respondents voiced concern over the speed of internet news and whether stories are posted online before they undergo the type of rigorous editing and confirmation associated with traditional news stories, and how to allocate resources to the generation of internet content. Some non-profit managers seemed to focus on engaging with the audience, which would support the assertion that non-commercial news managers see web analytics as a possible means to greater revenue (Seaves, Graves, and Grueskin, 2011). Some for-profit manages commented favorably on the speed of internet news and how it gave them the chance to get “to the listener” faster. For-profit respondents may more inclined to seek profit transactionally, quickly and directly through popular programming. This stands in contrast to the “organic” community-based approach sought by their non-profit counterparts, which may require more prolonged analysis of, and engagement with, listeners -- and thus, deeper use of analytics.

Limitations

The primary limitation in this study was enlisting the cooperation of newsroom decision-makers to take the survey. 3,528 emails were sent inviting participation in the study, followed up by over 300 personal phone calls to keep the completion rate at acceptable levels for the multivariate statistical analysis. The most common excuse among non-profit news staff members was that they had seen the email invitation to take the survey, but hadn't got around to it before being reminded. The challenge to collect information from for-profit newsrooms was steeper. Many news directors and managers in the initial sample included names of people who were either no longer with the company, not at the email addresses that were listed, or in some cases retired or deceased.

The possible difficulty in enlisting commercial managers' cooperation was anticipated at the outset of this study, which prompted the gathering of double the number of prospective for-profit news leaders compared to the number of non-profits. Since this was a rare statistical study of for-profit and non-profit newsroom decision-makers, there were no guideposts to assist in the assembling of the sample, which was expected. Future studies seeking input from a similar sample might find more success by making follow-up phone calls earlier.

As previously mentioned, future follow-up studies might also incorporate a content analysis along with a survey to determine which newsrooms actively produce local news programming along with their network or syndicated offerings. This could offer valuable additional information on how local news production influences, or fails to influence, the use of internet web metrics. Content analysis data could also shed light on content changes in response to online audience data.

The study was dependent on self-reporting of analytics behavior among the respondents. The data may have been influenced by a “social desirability” effect among those taking the survey, creating the feeling that they “should be using analytics” even if they are not. Future studies might benefit from specific measures, including “time spent using analytics” to determine more specific results – or even actual analytics data on station use rather than survey data.

Finally, a possible age imbalance among the respondents may have had an effect on the statistical outcome of the study, particularly in the analysis of hypotheses in this study. A split case reordering of responses through SPSS, indicated participants with ten years’ experience or less represented only 34.90% of the total. Managers with more experience, and greater age, may be less familiar with internet based technology and therefore be less likely to embrace it. Future assessments may change as younger managers, with greater internet skill, assume greater managerial responsibility.

In conclusion, the support for a relationship between both information search and Institutionalism-based mimicry and greater web data use appears to indicate that both non-profit and commercial news rooms, to some degree, seek to know about their audience and imitate their colleagues in order to achieve legitimacy, and use web data to achieve that goal. There was some support for Institutional Theory. Also, professionals in both groups with greater experience are marginally less likely to rely on web metrics to make decisions in their workplaces. Support for Resource Dependence Theory in the model was mixed. The relationship between perceived uncertainty and web metric use was not supported, but the relationship between tendency to do information search and analytics use was supported.

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APPENDIX

SURVEY

DugginsWebDataSurvey

Q1 Welcome! This brief survey on the use of internet audience data in your newsroom should take you less than 10 minutes to complete, and your responses and identity will be kept strictly confidential. On the next page is a consent form with detail about the survey. If you're OK with taking the survey, just click "Yes, I agree to take the survey" at the bottom of the next page, and you can get started.

Q2 CONSENT FORM-Buttons for "Yes, I agree to take the survey," and "No, I decline to participate" are at the bottom of this form.

You are being asked to participate in a research study of commercial and non-commercial newsroom decision makers, and their perceptions and usage of internet web metric data. The study "The Effect of Web Traffic Data on Commercial and Non-Profit newsroom story selection," is being conducted by Pat Duggins for the Department of Journalism at the College of Communication and Information Sciences at UA.

I'm interested in studying how radio newsroom decision makers use web traffic data in the selection of news content. I am conducting this study because of the growing power and influence of the internet on journalistic organizations and the people who consume this news content. You have been asked to participate in this study because as a manager, you are in a position to shape decisions about news content for your radio station. [WL1] Only professionals who do what you do are being approached to participate in the study. The study involves taking a single online survey on a computer, and it may be taken anywhere with Internet access and a browser. The online questionnaire should take approximately 10 minutes to complete.
Please keep the following in mind as you decide whether or not to take part in the study: Taking part in this study is voluntary. It is your free choice. You can refuse to be in it at all. If you start the study, you can stop at any time. There will be no impact on your relations with the University of Alabama. ·

If you withdraw from the study your information will be destroyed by deleting your data from the computer file immediately. Your contact information was obtained from publicly available sources. Your identity and the information you provide will be kept confidential. Data will be stored securely and will be made available only to the primary investigator, Pat Duggins, and the chairman of his thesis committee, Dr. Wilson Lowrey of the University of Alabama. ·

Your IP address will not be tracked as a part of this research. Participating in this study will not cost you anything aside from your time. The risks to you are minimal. If any question makes you feel uncomfortable, you do not have to answer it. There are no direct benefits to participating – you will not be compensated. We hope that learning more about the news selection process will be valuable to the news industry and to the public.

Survey questions are designed to measure your feelings and opinions. There are no right or wrong answers. If you have any questions at any time, please feel free to ask. If you have questions at a later date, you may contact the researcher or the IRB Research Compliance Officer. The University of Alabama Institutional Review Board ("the IRB") is the committee that protects the rights of people in research studies. The IRB may review study records from time to time to be sure that people in research studies are being treated fairly and that the study is being carried out as planned. If you have questions, concerns, or complaints about the study right now, please ask them. If you have questions, concerns, or complaints about the study later on, please contact the investigator or committee chair at the information below.

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If you have questions about your rights as a person in a research study, call Ms. Tanta Myles, the Research Compliance Officer of the University, at 205-348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email the Research Compliance office at participantoutreach@bama.ua.edu. After you participate, you are encouraged to complete the survey for research participants that is online at the outreach website or you may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

- ❍ Yes, I agree to take the survey (1)
- ❍ No, I decline to participate (2)

If No, I decline to participate Is Selected, Then Skip To That's it! Thank you so much for your...

Q3 Thank you for agreeing to take the survey. Again, your responses and identity will be kept confidential. Let's get started.

Q4 Which of these most closely matches what you do...

- ❍ News Director (1)
- ❍ Assistant News Director (2)
- ❍ Editor (3)
- ❍ Producer (4)
- ❍ Program Director or Manager (5)
- ❍ General Manager (6)
- ❍ Other (please specify) (7) _____

Q5 Web metrics data, or analytics, track online audience traffic and the behavior of online audiences. They may count how many times people visit stories or pages, or track the time people spend on sites, etc. Do you directly or indirectly use any kind of web metrics data in your job at the station?

- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To This series of questions deals with h...

Q6 The following group of questions focuses on how you use web traffic data in your place of work.

Q7 How likely are you to run stories on your website that are similar to stories that are popular with your website audience?

- ❍ Very likely (1)
- ❍ Likely (2)
- ❍ Neutral (3)
- ❍ Somewhat likely (4)
- ❍ Not Likely (5)

Q8 How likely are you to change the placement of a news story based on the popularity of a story with your website audience?

- ❍ Very likely (1)
- ❍ Likely (2)
- ❍ Neutral (3)
- ❍ Somewhat likely (4)
- ❍ Not Likely (5)

Q9 How likely are you to run editorials on your website related to stories that draw high response among site visitors?

- ❍ Very likely (1)
- ❍ Likely (2)
- ❍ Neutral (3)
- ❍ Somewhat likely (4)
- ❍ Not Likely (5)

Q10 How likely are you to run follow-up stories on your website based on the popularity of a story with your website audience?

- ❍ Very likely (1)
- ❍ Likely (2)
- ❍ Neutral (3)
- ❍ Somewhat likely (4)
- ❍ Not Likely (5)

Q11 How likely are you to run additional materials (pictures, videos, etc.) for stories on your website that draw high response among visitors?

- ❍ Very likely (1)
- ❍ Likely (2)
- ❍ Neutral (3)
- ❍ Somewhat likely (4)
- ❍ Not Likely (5)

Q12 The series of questions below deals with how often you keep an eye on what's going on in your newsroom and in your market. Please choose the best option for each statement below:

Q13 I assess how effective work practices are at my station.
- ❍ Constantly (1)
- ❍ Often (2)
- ❍ Occasionally (3)
- ❍ Rarely (4)
- ❍ Never (5)

Q14 I review reports on effectiveness of practices within the news industry.
- ❍ Constantly (1)
- ❍ Often (2)
- ❍ Occasionally (3)
- ❍ Rarely (4)
- ❍ Never (5)

Q15 I study the tastes and demands of my news audience.
- ❍ Constantly (1)
- ❍ Often (2)
- ❍ Occasionally (3)
- ❍ Rarely (4)
- ❍ Never (5)

Q16 I pay attention to the practices of other news organizations in my market...
- ❍ Constantly (1)
- ❍ Often (2)
- ❍ Occasionally (3)
- ❍ Rarely (4)
- ❍ Never (5)

Q17 I keep up with trends related to news practices in the radio news field...
- ❍ Constantly (1)
- ❍ Often (2)
- ❍ Occasionally (3)
- ❍ Rarely (4)
- ❍ Never (5)

Q18 Below, you'll find practices for online news being adopted by some news organizations. Please mark these depending on how much emphasis your newsroom places on these practices. "Great Emphasis" (far left) to "Very Little Emphasis" (far right.)

Q19 How much emphasis does your station place on Podcasting?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Great Emphasis:Very little emphasis (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q20 Does station management require the news staff to produce podcasts?
❍ Yes (1)
❍ No (2)

Q21 How much emphasis does your station place on Blogging?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Great emphasis:Very little emphasis (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q22 Does station management require the news staff to produce blogs?
❍ Yes (1)
❍ No (2)

Q23 How much emphasis does your station place on posting news stories online with transcripts?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Great emphasis:Very little emphasis (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q24 Does station management require the news staff to post news stories online with transcripts?
❍ Yes (1)
❍ No (2)

Q25 How much emphasis does your station place on having reporters take pictures or videos for their web stories?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Great emphasis:Very little emphasis (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q26 Does station management require the news staff to take pictures or video for their web stories?
❍ Yes (1)
❍ No (2)

Q27 How much emphasis does your station place on interacting with audience through social media?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Great emphasis:Very little emphasis (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q28 Does station management require the news staff to interact with their audience through social media?
❍ Yes (1)
❍ No (2)

Q29 How much emphasis does your station place on posting to social media?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Great emphasis:Very little emphasis (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q30 Does station management require the news staff to post to social media?

- ❍ Yes (1)
- ❍ No (2)

Q31 Below you'll find questions about factors in your news organization's environment. Please rate items below on how easy or hard you think these factors are to predict. (Far left= very easy to predict, Far right = very hard to predict.)

Q32 How favorable the response of our audience is to a certain news story.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Very easy to predict:Very hard to predict (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q33 How web technology in our industry is changing.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Very easy to predict:Very hard to predict (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q34 What our competitors will do online.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Very easy to predict:Very hard to predict (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q35 The cooperation of our news sources.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Very easy to predict:Very hard to predict (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q36 Almost done! Let's wrap up with some basic things about you. Again, your name, title, and station will remain strictly confidential.

Q37 How many years have you worked professionally in journalism?

Q38 What are your station's call letters?

Q39 What kind of station do you work for?
- ❍ Commercial (1)
- ❍ Non-commercial (2)

Q40 How many people work in your newsroom? Estimate if you need to...

Q41 Click on all the web audience metric data systems listed below that are used in your news outlet to track visitors to your website.
- ❑ Google Analytics (1)
- ❑ Facebook Insights (2)
- ❑ Hootsuite (3)
- ❑ Twitter (4)
- ❑ In-House system (example, NPR's Core Publisher web system) (5)
- ❑ Sprout (6)
- ❑ Spread Fast (7)
- ❑ Other (8) _____

Q42 What year were you born?

Q43 What is the highest degree or level of school you have completed?
- ❍ Primary school (1)
- ❍ high school (2)
- ❍ Trade/technical/vocational training (3)
- ❍ Bachelor's degree (4)
- ❍ Master's degree (5)
- ❍ Doctoral degree (6)
- ❍ Professional degree (M.D., J.D.) (7)

Q44 Do you have any additional thoughts on internet based news?

Q45 That's it! Thank you so much for your time!

THE UNIVERSITY OF ALABAMA® | Office of the Vice President for Research & Economic Development
Institutional Review Board for the Protection of Human Subjects

July 8, 2016

Pat Duggins
News Director
Alabama Public Radio
Box 870370

Re: IRB # 16-OR-243 "The Effect of Web Traffic Data on Commercial and Non-Profit Newsroom Story Selection"

Dear Mr. Duggins:

The University of Alabama Institutional Review Board has granted approval for your proposed research. You have also been granted the requested waiver of documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on July 7, 2017. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Study Closure Form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

Carpantato T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer
Office for Research Compliance

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