

# THE DELICATE RELATIONSHIP IN JOURNALISM:

Where content and production meet in the content management system. A comparative study of US and Brazil Newsroom Operations.

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## ABSTRACT

This comparative study documents how newsrooms with different media systems and cultures share a common connection regarding the content publishing systems. The authors argue that the challenges that the online journalists face with these systems in many situations is that the systems were created not with the reader or journalist in mind, but the creator of the system. Lastly, findings are presented of how each newsroom's CMS structure influences the level of presentation and its implications on the quality of journalism that is produced. The authors discuss the implications of the findings and how alternative formats such as open-source content management systems may provide a new level of journalism in this delicate relationship between content and production. Additional areas of further investigation are also suggested.

**Key-Words:** online journalism, content management system, online journalists.

## INTRODUCTION

Today's news citizen is bombarded with options of how to obtain news and information on the Internet. Readers now can get their news and information from their personal RSS feed to a Google news page to a downloaded podcast to a video from a newswire agency's website.

Globally, newsrooms are facing a challenge in today's media landscape in keeping up with this medium and making sure they are providing the news citizen with all and any news and information they can provide. They are looking outside and within the newsroom for answers.

Over the past ten years, scholars have investigated the role of the

audience and its relation to the news website, the presentation and quantity of the content that appears on the Web, and the role of the journalist in the online newsroom. However, there is an area of investigation that needs to be further explored of an important and delicate relationship in the online newsroom. It's where the content and production process meet - at the level of the content management system (CMS).

A CMS is a system of publishing that is used in many newsrooms. It allows editors, reporters, designers and the staff to have access to a system that moves content from queue to queue for multiple reviews and publication. The concept of a CMS is not new as many newsrooms have had some form of a content management system in place from the early years of computer terminals to more sophisticated intranets in today's newsrooms.

Thus, due to the characteristics of online journalism production, such as timeliness and continuous updates on the web, if one wishes to incorporate multi-mediality, hypertextuality, customization, in distinguished architectures of information, it is not possible to produce a *quality* piece of a work without a sophisticated, automated system of content publishing. This research was originally proposed as part of the international agreement between the University of Texas at Austin and Federal University of the Bahia, called "Comparative studies of the digital journalism in Salvador and Austin". Our study "The use of the content management systems in online newsrooms and academia" expands on this agreement. The first step of this study seeks to investigate how newsrooms in the United States and Brazil use content management systems (CMS) and if they are influencing the news production process.

This comparative study uses a combination of methods that include the case study method (MACHADO; PALACIOS, 2007) that includes participant observations and interviews at the newsrooms selected for this study. Specifically, this study asks two research questions of how these systems help or hinder the news production process and how do they restrict the dissemination and presentation of the news.

The study of the print newsroom and its technologies has been examined over the past fifty years. These studies have included the workflow of the telegraph (Gieber, 1956); the implementation of pagination (Russial, 1994; Underwood, Giffard, & Stamm, 1994; Sylvie, 1995; Pasternack & Utt, 1995; Tarleton, 1996; Sims 1999); the flow of information with technologies (GARRISON, 1998; HERBERT, 2000; REAVY, 2001; GUNTER, 2003); and the use of databases (SEMONCHE, 1993; GARRISON, 1998; MACHADO, 2004; BARBOSA, 2007) in the newsroom.

These studies have served as a record documenting the ways in which workflow and systems are implemented and used in the newsroom. The content management system in the online newsroom has also become another tool in the newsroom but like other technologies, it has become a fundamental part of the news production process.

The study of the content management system in the online newsroom has been examined in only a few studies to date. These include the descriptive analysis of how content is published online in Martin and Hansen (1998) to the more cultural analysis of technology of the content management system and its relation to the journalist by Boczkowski (2004, 2005), to the use and development of a content management system (SCHWINGEL, 2003; LÓPEZ, GAGO, PEREIRA, 2003; PALACIOS, MACHADO, SCHWINGEL, ROCHA, 2005; OLIVEIRA, 2005; GAGO, 2006). These studies provide insight into the realm of how content management systems work in the online newsroom. However, a question remains unanswered from these studies in how these content management systems interfere or support the workflow of news production. By investigating the functions of the system and not just their usage, may provide insight into how these systems are influencing the dissemination and presentation of the news that the citizens access daily.

### **Methodology**

*Case Study Method* - This study uses this method to allow for the ample and detailed knowledge of the object under investigation. It is a method used in exploratory research that has been used in Brazil and the US (LOPES, 2001; SANTAELLA, 2001; Stake, 2005; Yin, 2003; Brewer 2000). A case study is “characterized by researchers spending extended time on site, personally in contact with activities and operations of the case, reflecting, and revising descriptions and meanings of what is going on” (Stake, 2005, p.450). In accordance with Gil (1991), the main advantages of the case study method are the stimulation of new findings; the emphasis in the totality; and the simplicity of procedures. In this research, case studies are descriptive in which they explain the phenomenon within its context (Yin, 2003, p.5). The use of two case studies instead of one has an advantage over a single-case design, “For instance, analytic conclusions independently arising from two cases, as with two experiments, will be more powerful than those coming from a single case (or single experiment) alone” (Yin, 2003, p. 135).

*Participant Observation* - This study used participant observations because it provides a different perspective that otherwise might not

be captured through other techniques such as surveys or experiments. According to Lindlof and Taylor, the observation method is sometimes the only way to get at the true understanding of what is studied, “Performed in a faithful, systematic fashion, they yield data that realize the goal of qualitative research: deeper understanding of the significance of social action for those who perform it” (Lindlof and Taylor, 2002, p.168). Using observational methods allows the researcher to naturally capture the action and routines of the newsroom without any external forces or influences. Second, observation allows the opportunity to gain several perspectives to one situation.

*Interviewing* - This study also makes use of qualitative interviewing that focuses on the interviewee’s experience through his or her perspective and language. According to Lindlof and Taylor, “Qualitative interviewing is predicated on the idea that interview talk is the rhetoric of socially situated speakers. We interpret the “truth value” of interview speech – that is, its truth for the speaker- within a whole matrix of information about the interview event and the person being interviewed” (Lindlof and Taylor, 2002, p.172-173). By using qualitative interviewing, a better understanding can be gained of the staff member’s experience of working in the online newsroom within the culture of his or her own environment and language. The researchers used informal and formal interviews.

As for the formal interviews, the researchers had a list of questions for every person in the same general order. Most of the formal interviews ran from 30 minutes to more than 90 minutes depending on the situation. Most questions started general and then became specific. General questions asked about length of time of working at the organization, their use of a particular technology and the content management system; specific questions included their greatest contribution to the news organization, and their definition of online journalism/journalists. In most interviews, a topic would present itself and the researchers would allow the interviewee to continue their thought and follow up with a relevant question versus moving forward through the list of questions. All of the formal interviews were scheduled. In all cases, the individuals were more than available to chat and to give their thoughts.

As for the informal interviews, the researchers tried to interview as many staff members as possible; during visits the researcher would observe and then follow with questions. These informal interviews allowed for a better understanding about the technology processes, the performance of daily duties, and how the organization overall operates. The informal interviews ranged from 5 to 45 minutes depending on

the situation. Some of these informal interviews occurred in the office, outside of the office and off site during a lunch. The informal interviews were not based on any preset questions or structure. The main aim of these interviews was just to get to know the individual more and their work. Most of the informal interviews were not predetermined, so in most cases, the individuals the researchers spoke with were more than available and glad to answer questions.

In the Brazilian case in particular, half-structuralized and in-depth interviews were also used. Triviños (1987) affirms that the half-structuralized interview assists in the theory and hypothesis development for any research investigation.

*Data Analysis* - Data was collected through these techniques mentioned above. In the Brazilian case in particular, the data consisted of half-structuralized and in-depth interviews, a questionnaire, and participant's comments. In the US case in particular, the data consisted of structured and unstructured interviews and participant observation. The analysis for both included the retrieval and transcription of data. This was followed by the tabulation, categorization and elaboration of the major themes found in the research that are in the findings described in this paper.

This study chose a qualitative approach to capture a moment in time of these online newsrooms to see how they operate. Through in-depth interviewing and participant observation, a deeper understanding can be gained as to the intricacies that occur within the daily routines of an online newsroom. These intricacies are not available to the public otherwise. As mentioned earlier, there is a need for more research to be done of online news operations in general. By having more case studies and information available on online news operations, a greater contribution can be made to understanding how this medium is changing and evolving within a complicated media landscape that lacks in having a central repository for the best and worst practices in the industry.

To avoid any risk or harm in this study, the management at both newsrooms briefed their employees as to the research being conducted. Each staff member gave voluntary consent to participate in which they could decline their participation at any time and have their information deleted or removed. All individuals mentioned in this study have had their identities changed for purposes of anonymity. The names of the news organizations are also protected for purposes of anonymity.

*Theoretical Framework* - This study looks at the role of the content management system in the online news production process from a systems

perspective that is contributed by Simondon (1958) and Sommerville (2003) with the application of complexity theory by Waldrop (1992).

Simondon (1958) states that as an element of an object is exacerbated, the more it builds its function to an associated device and a new object is configured as a result of the specific function required. This function is then utilized in a system that requires technical individuals to make the object work within a particular environment. Sommerville (2003) states that a collection of components that are inter-related that work together to reach a specific goal will form a system (p.18). The properties and behaviors of these components are dependent on each other to function and meet the task.

These two perspectives to systems are complementary in how they describe how an object or component works with other similar objects or components to function in a system that has a goal or task to achieve. Waldrop (1992) is able to advance these perspectives further by considering the layers that are involved with the system and the individual. Complexity theory is defined in this study according to Waldrop as a multitude of layers that interconnect and collide in a chaotic ecosystem. "In complexity, there's no duality between man and nature in which they are part of an interlocking network...As we begin to understand complex systems, we begin to understand that we're part of an ever-changing, interlocking, nonlinear, kaleidoscopic world. (Waldrop, 1992, p.333)." Another way of defining complexity theory is the study of complex systems in which the system is made up of many parts that are nonlinear but interconnect and weave within each other within a chaotic framework. Thus, this perspective focuses not only on the components and/or objects and how they function, but how they function and interact within an ecosystem that depends on the objects as well as the individual.

Thus, considering the content management system in the online newsroom, the complexity theory helps to demonstrate the multiple layers (multimedia information) that the journalists must work with daily to upload and post to the news website throughout the day constantly. This chaotic news environment contributes to a constant stream of news content that pours in that the journalist must organize and upload to the site's system. The system then organizes the content into areas on the backend and provides options for how the content can be viewed by the news citizen. The content management system is a part of the journalist as much as the journalist is part of the content management system and they are interlocked in this delicate relationship of the news production

process. Thus, this study seeks to answer these two questions:

1. How content management systems contribute and/or hinder the news production process?
2. How do content management systems in online newsrooms restrict the dissemination and presentation of news?

## Results

The preliminary findings from this comparative study document how a US and Brazilian newsroom with different media systems and cultures share a common connection regarding the content publishing systems.

*Sample* - Two newsrooms in this study are a part of a larger comparative project. The first newsroom is a mainstream newspaper company in the Midwest part of the United States. They are owned by a large, private media corporation that owns several metro newspapers and broadcast stations. They have over 20,000 employees company-wide, and \$5.5 billion in revenue as of 2006. They have over 600 journalists working for the print newspaper and 30 or so that work separately for their online operation (this includes their news editorial, sports, entertainment, advertising/marketing group, and senior management) at the time of this study. The newspaper began publishing in 1847 and its online operation launched in 1996. Twelve members of the online staff were specifically observed for this study. They work with a variety of content on a daily basis that includes text, graphics, video, audio and user-generated content.

The second newsroom is a mainstream newspaper company in the Northeast part of the Brazil. They are owned by a private media corporation that owns the newspaper, the radio station and the internet portal along with eight others in the state of Bahia and one in the federal capital, Brasília. The newspaper began publishing in 1912 and its online operation launched in 1996. The newspaper is the newspaper of record for the North and Northeast and it has 180 employees (journalists, trainees and technicians)<sup>1</sup>. There are 18 professionals at work for the online (two editors, three sub-editors, seven reporters, four trainees and two technicians). Its principal public is the citizens of Salvador and countryside. The online site receives 2 million viewers a month of which 56% are men and 44% are women with 84% of them between 20 and 49 years old. The online operation includes their news editorial with breaking news, cities, national, Carnaval, cineinsite, culture, economy, sports, world, politics, weather and college admission. Since 2005, the journalists and technical team have developed a publication system, a

part of the CMS specifically for news composition and publication. This publication system is now in its third iteration and it was developed for the news production online. The coordinators (technical and journalistic) of this development were interviewed for this study along with the online team. The system allows for the use of audio, video and slideshows, photogalleries, audio interviews and movie trailers. The platform is integrated with the print pagination system that was implemented in 2006. The newspaper is in the process of converging since December 2007 the online newsroom was integrated with the print newsroom.

### **1. How content management systems contribute and/or hinder the news production process?**

#### **US Newsroom**

In the United States newsroom, their content management system allows them to upload text, images, graphics, videos and photos. In some cases, they use multiple content management systems that will focus on only uploading videos or user-generated content for instance. The journalists of the site from the early morning hours (6am) to the late hours of the night (2am) will post and update content to the various sections of the site.

As part of their daily activities, the content management system gives them the opportunity to add resources to stories they post on the site that would not be feasible with their print counterpart due to size or media constraints (such as video or photo galleries). Thus, the content management system gives them the space and flexibility to post news content and provide additional context for the news citizen.

During one day of observation, there was a major storm that came into the metropolitan area and left a lot of damage after it left the city. The storm lasted for several hours. While this occurred, I observed how much the online staff sought to provide as much information as they could on the website for the reader. While the storm was developing, the producer and editor updated the homepage constantly. The staff posted a request for readers to send in their comments and photos about the storm. Photographers were sent out to get shots of the weather. A few hours later, a producer began to upload them to a gallery while another producer added other items to the main story like hyperlinks and related stories. The producers discussed the possibility of having a forum to discuss the storm's damage and one producer began to work on setting up an area for comments from readers on the storm. As the



storm created a lot of damage within the city and suburbs, the editor asked a designer to make a Google map where readers could submit addresses of locations where storm damage had been reported. As the work continued, a photo gallery was added to the site and another producer put together transportation links for the readers so they knew what to expect for the commute going home. Weather links and video from the partner television station were hyperlinked to the main story and on the homepage. Within a two-hour timeframe, several items were added to the main story from several producers of the online staff. This example showed how much the story developed throughout the day and how the content management systems they utilized allowed them to add information throughout the day to the site and give the news citizen as much information as possible. In many cases, these forms of information were able to easily appear on the site as the content management system was able to organize the various forms of multiple media such as the photo gallery and video into their appropriate areas of the site. The content management systems allowed the staff to post these various forms of content quickly on the site, allowing for the news production process to flow quickly and efficiently for a breaking news situation such as this one.

On the other hand, a special information technology team programmed the system to function in certain ways created the content management systems. As a result, the journalists are limited in their options at times to post content to the system. In the storm example above, this limitation came when the staff began their creation of the user-contributed Google mashup map and this required additional work for it to be included into the existing content management system because the system had not been introduced to a function of that sort before. The map was not able to be posted as quickly as the other content items and thus did impact a part of the news production process in that regard.

### **Brazilian Newsroom**

In the Brazilian newsroom, the content management system was developed specifically for the journalist production process of the online newsroom. The newsroom is the same for the print and the online. The newsroom is composed of editorial desks and at each one there is one online journalist. The idea is that he or she helps the print journalists with deciding what goes online.

Their content management system is in its third iteration; the first was launched in May 2006. It allows them to upload text, images,

infographics, videos and photos. The photogallery and the random photos are a differential in the system.

The newsroom uses two different publication systems. The print uses the Good News GN3 that was bought also as an online publication system. So, the print journalists compose the stories in the GN3 and they put an indication if the news can be published for the online version. The online journalists access and adapt the content for online. With the converged newsroom, there is an editor from the newspaper to do the inverse, that is, to see what online content can be published in the newspaper.

The online journalists use these two content management systems. For video, they use the Windows Movie Maker and for photos they use Photoshop. They send the audio files to the radio journalist's edition. Until 2006, they did this separately with another program.

The online journalists will work on the site from 7am to midnight daily, posting and updating the content to the various channels of the site.

The content management system gives them the opportunity to add multimedia resources to stories that the online journalists catch from the GN3 (from the newspaper) or they produce with their own resources throughout the day. Usually, the online journalists publish 10 to 12 stories a day using original sources using the characteristics of the digital journalism, with more breaking news and stories from the newspaper's journalists.

An example of the content management system showing its ability to work efficiently and allow the journalists to add context to a developing story was the Carnaval's coverage in 2006. The staff had various points of coverage for this party that is very popular and famous in Brazil and specifically in Salvador. They developed chronological coverage. So, with the resources they had of cameras and computers, they uploaded reports and photos to this special channel.

### **Major Findings**

As the findings demonstrate, the system has several layers that they can access to upload and post news stories as well as additional resources that include graphics, video and user-generated content. The system they work with requires that they act with each object they interact with and direct it to its appropriate location. In turn, the item appears promptly on the site in the area they requested efficiently and easily. On the backend, the content is placed into databases that will access the content when requested by the news citizen when they visit the news site. These databases help to organize the large amounts of

content that the journalists upload minute by minute on a daily basis. The system helps to stream the chaos of the content that is pouring in into manageable pieces of information that are placed into their appropriate areas of the site. Thus, the content management systems help contribute to the news production process by making the process of uploading and posting the content easy and efficient, while hindering the process at times because of the limitations and restrictions that are already set in the system because of the functions that were programmed into these systems. As the CMS helps the news production process workflow, it also contributes the dissemination and presentation of the news on the site. This is discussed next.

## **2. How do content management systems in online newsrooms restrict the dissemination and presentation of the news?**

### **US Newsroom**

In the newsroom in the United States, the content management system that the journalists use has a layout that allows the journalists to decide where and when the content is published to the site. This system gives them control over how the news citizen will find and view the content on the site. The dissemination of the news content on the site for this newsroom is based on a category or section in which the journalist decides what area it should be housed under for the overall site (i.e. Business, National News, etc). Once selected, the journalist has the opportunity to preview the content before it appears on the site to check for any errors or discrepancies as well as to see how it will appear on the site.

During the same day of observation of the major storm that came into the city (that was discussed previously), the journalists in the online newsroom were constantly updating the story with new details throughout the day. As a result, the story began as a few paragraphs (10am hour) and by the latter part of the afternoon (during 4pm hour) the story had become extremely long. The online staff began to review the story and decided to break it into subheads with bold text at that point to make it easier to read. The online staff in this example looked at the appearance of the story on the site and took control over its presentation by adding subheads in the story to make it easier for the news citizen to glance and read over.

Another example included the multiple observations I noticed of the journalists in the online newsroom updating the homepage with new story headlines. During this process, they would rewrite the headline

for the story that they received from their print counterpart or a wire agency. After they wrote the headline, they would preview the page to read the headline again for any errors but also to see how it appeared on the page and if the link to the story appeared widowed, which means the wording goes on to the next line and is shorter than the line above it. If it widowed, in many cases, the journalist would go back into the content management system to shorten or lengthen the headline to eliminate the widowing effect and post the revised homepage immediately. Once again, the journalist in the online newsroom had the control over the appearance of the content on the site and was able to do this easily and efficiently through the use of the content management system.

This example above shows the various ways the journalists can control the appearance of the content that appears on the site via the content management system. However, there are also restrictions for the journalists in disseminating the information they have. The restriction is where – in many cases, the journalists in this online newsroom are limited to specific areas of the site that are saved for news content while the other areas of the page are reserved for site navigation or advertisements for instance. This limitation may prevent the journalist from posting the news content in a different area of the page because of these specific areas that only accept news content and not others.

In addition, the journalist is limited by how much content they post on the site. In many cases, the functions of the content management system are set by characters limiting the number of words the journalists can use in their headlines and briefs (paragraphs that appear below the headline on section pages) for the homepage and other sections of the site. In other cases, they are limited in the number of headline links they can post per a section or homepage. So, the journalists are making constant decisions as to what information is disseminated and which needs to be cut to make room for the most updated and new stories on the site.

### **Brazilian Newsroom**

In the newsroom in Brazil, the content management system used by the online journalists allows for the choice of the channel and date of the publication, that is, the journalist can choose where and when the story will be posted. The breaking news is the area (channel) of the site used the most. The majority of this news is from the newspaper and the news agency. The journalist can open the print publication system (the GN3) and import the information into the CMS. In the breaking news screen, the journalist can place the headline and the text of the story as well as

choose if the news will be sent via WAP for cell phones. If this story is applicable for cell phones, the journalist must put the text in a specific area.

The journalists can create new channels or areas for the site and select different templates for the channels and for the home page. The journalists can put in internal or external links, photogalleries, photos of various sizes, key-words, audio and video. They can chose if a story or channel is closed or open for free access (because the business model of the online is for stories from the newspaper are subscriber or fee-based).

The technological structure of the system has a time delay. Another issue is the text needs go cannot be formatted. The journalists don't comment about the size of the stories and their adequacy, but they comment about problems in publishing in real time, particularly when it comes to real time coverage such as the play by play in a soccer game. In addition, the online newsroom doesn't have the ability to post infographics with good agility, because there is only one dedicated web designer. Because of the converged newsroom, all graphics must be passed by the editorial Art group, but this doesn't work. Because of the server structure, the journalists can't publish files as a pdf, word document nor as spreadsheets. Another issue is about the platform and database integration. The files from the group are not in the same database. As a result, the stories are composed, verified and published in other systems and not only in the content management system.

### **Major Findings**

In summary, these two newsrooms demonstrate that the CMS does disseminate and present the news on the site in the manner that the journalists wish – but to a certain point and then they have limitations. Limitations in space and availability that are many of the same issues that are dealt with on their print counterpart's operation. Ironically, despite the online page and space appearing to be a blank slate with lots of space, the content management systems of these newsrooms demonstrate that is not the case because of the structure that is required for information management workflow.

### **Discussion**

The findings in this study demonstrate how structured content management systems contribute to the news production process. They also demonstrate how these systems contribute to the complex and fluid environment that the online journalists work in. At times, these systems

show their benefit and hindrance to the news content produced due to the structure and format of the system. These limitations may be overcome by news organizations considering alternative formats such as open-source content management systems that may provide a new level of flexibility in this delicate relationship between content and production. This is a developing area of technology for the journalism industry over the next ten years as open-source systems like Linux and the sharing of tools and applications on the Web 2.0 platform become more popular in the online world.

*Limitations:* There are a few limitations to this study. The two newsrooms in this study were not observed during the same period of time, which can impact how some of the daily routines and practices occurred. Some of these routines and practices may have changed since analysis of this study. The findings presented only represent a short period of time in which the operations were observed over weeks and months instead of years due to time and resource constraints. Additional observations over a longer period of time (several years) would prove more fruitful in providing a deeper understanding as to how these two news organizations operate.

*Implications:* This study has two implications for the industry. First, it provides news organizations with additional insight as to how two newsrooms handle content workflow for getting news up on the site. The finding in this study could provide other news organizations with additional methods of how they can adjust their internal processes. Second, this study demonstrates to the journalism industry how two online newsrooms are developing a structure of content production that may be more flexible and complex than their print counterpart.

*Future Directions of Study:* This study aims to serve as a starting point for exploring the resources in the online newsroom in North and Latin America from a lens of a systems and complexity theory. Expansion on these theories and other approaches can delve deeper into the culture and artifacts utilized in the online newsroom by exploring additional news organizations and over longer periods of time to witness changes and transformations in workflow. In conclusion, as the number of news consumers going online worldwide increase and as more news organizations devote more resources to their Websites, the online newsroom is becoming more crucial to the evolution of the journalism field. The insights that can be gained from this exploratory study and future studies of online journalists around the world can only benefit and increase our knowledge as to how the industry is changing in the 21<sup>st</sup> century.

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