

The Effects of Big Data on Public Relations

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Introduction:

As the field of public relations continues to evolve, the tools available to PR practitioners are increasing. Specifically, the effects of big data pertaining to the field of public relations has led to a greater understanding of the industry, especially when looking at the analysis of organizations and their publics. When determining the severity of big data on the industry, I looked at a variety of factors. These factors included the way artificial intelligence has automated some of the communication between brands and their publics, the engagement social media platforms offer as well as the way big data has affected a PR firm's ability to mitigate crises. Additionally, I researched the privacy and ethical concerns that big data has brought into the conversation. The way public relations operates currently has changed the way practitioners are able to research and predict trends as well, which may streamline theoretical research, ultimately leading to increased advancements in the field. However, not all of the effects have been positive which has resulted in some concerns over whether or not PR firms should be utilizing online platforms to conduct business.

Artificial Intelligence:

AI has played a significant role in communication between individuals and brands. AI tools have mimicked the complexity of the human brain and have threatened to replace some human roles through its natural language processing capabilities. For instance, the way artificial intelligence can consume, analyze, and report on mass amounts of data can provide organization's with interpretations of its findings much quicker than a human ever could (Arief & Gustomo, 2020). In addition to natural language processing, AI also has predictive capabilities from linking various data sets and comparing them. This has generated data driven campaigns within the industry. Some examples of artificial intelligence application include voice recognition, image recognition, language translation, speech-to-text, proofreading, language translation, journalist identification, and social listening (Ardila, 2020). Using these data driven tools allows an organization to gather information pertaining to its own brand, and use it to develop communication strategies that will have a greater chance at audience engagement. The ability to identify journalists or bots within a platform's traffic has led to an improvement in the accuracy of the reporting that public relations practitioners are able to generate. In the past, human error was a large part of flawed trend predictions, but with the tools provided via artificial intelligence those errors are reduced.

Xiaoice is a great example of what the future of public relations could look like in complete automation. Xiaoice is a Chinese chatbot that is capable of designing digital artwork, reporting on weather, and has even written poetry (Spencer, 2018). Her initial design was largely based on the emotional quotient (EQ) as opposed to the intelligence quotient (IQ), but through her interactions with human beings and her machine learning ability, her capabilities have increased. The data she is able to collect pertaining to individuals emotions and engagement is the qualitative data that is of great use for PR practitioners when developing communication strategies.

The responsiveness of chatbots, being available 24/7 on most websites, is a relatively inexpensive way for a company to provide immediate customer service. When matters are of relatively low importance, chatbots can easily direct a user to the appropriate part of the site that they are searching for. However, some PR professionals view chatbots as a risk to their reputation in cases where a user has a more complex issue and becomes frustrated with the chatbot's inability to assist in the matter, resulting in a potential loss in revenue from that user. Another instance of risk pertaining to chatbots are their ability to become hijacked. 'Tay', was a chatbot developed by Microsoft that was designed similarly to Xiaoice in that she was intended to acquire intelligence via human interaction on Twitter. However, she was hijacked almost instantly which resulted in a series of inappropriate tweets being released from her account (Gorkana News Editor, 2016). Public relations plays a vital role in mitigating the after effects from situations like these, which is why some PR practitioners are hesitant to implement them as a replacement.

Chatbots' alter ego, PR-bots, have posed some issues for public relations practitioners. For example, an article from the USC Annenberg Relevance Report found that over 50 percent of website traffic is composed of bots, and roughly 56 percent of those bots could be harmful to websites (Kozinets, 2018). These bots are designed to appear as real people, attempting to persuade opinions, especially related to politics. Discourse that's generated from these pretenses must be taken into account when data collection is being completed; otherwise, an organization could be adjusting their communication strategy unnecessarily based on false information.

Social Media:

The various social media platforms that include Facebook, Twitter, Instagram, and blogs have greatly impacted a PR practitioner's social listening ability. Social listening pertains to the act of understanding how often and in what context a brand is mentioned online. Social listening helps companies to determine the stance of their reputation from the eyes of the public. The analytics tools made available from social media sites have facilitated this social listening process. Through the tools, websites are crawled and indexed to locate mentions of key terms that an organization would like to receive data on (Westermann & Forthmann, 2020). The data collected from social media tools provide insights into the shares, likes, and mentions pertaining to an organization. According to an article in the Corporate Communications International Journal, social media has made the term 'social analytics' more appropriate than social listening due to the heavy reliance on the analytic tools provided by social platforms (Westermann & Forthmann, 2020). For example, in the newly released Google Analytics 4, video tracking has been enabled. This is of great use for public relations practitioners who put out a video on an organization's website discussing press release material or a recent campaign. The stats pertaining to this metric include average watch time, number of viewers who watched a percentage of the video and exited out, as well as how many viewers completed the entire video. This is a great engagement tool to measure both the effectiveness of the message delivery as well as the attention span of the viewers.

Another side of social media is its instantaneous nature. These social tools allow public relations practitioners to engage in the two-way communication model that Aristotle felt was necessary in revealing the interests of both the organization and its publics. Social media builds on the rhetorical theory through its communicative settings. As we've learned, discourse is vital to the success of PR campaigns and the digital age has been of great assistance in building a stronger relationship between organizations and their stakeholders. According to an article in the Public Relations Review journal, "Social media provide PR with an opportunity to elevate its status within the organization and inspire management's socially responsible and ethical decisions" (Toledano & Avidar, 2016). However, this is somewhat contingent on the level of social media literacy that PR practitioners possess. The ability to analyze, understand, and communicate PR messages using social media platforms is crucial to avoiding crises. In a study conducted with respondents from New Zealand and Israel, the theorists were assessing the comfort levels of PR practitioners in their ability to respond to comments on social media, whether they should take responsibility for misconduct on social media and provide training for management, as well as their knowledge of social media best practices (Toledano & Avidar, 2016). The results concluded that the majority of respondents felt it was their duty to train employees and management on social media best practices, but only 27 percent of Israelis felt they were trained well enough to deal with the ethical issues that arise on social media. This proves that there is a knowledge gap between PR practitioners and their ability to operate via the evolving social media platforms.

Crisis Management:

Big data, through artificial intelligence and social media, has provided organizations with useful information that can predict and alert public relations teams to crises. For example, AI interprets data in a way that determines patterns. These patterns are then analyzed and generated in reports for practitioners to further assess. Due to its machine learning function, AI is able to generate a sentiment analysis on the data it collects (Ardila, 2020). This function determines whether discourse surrounding a topic is positive or negative based on computational linguistics. Once this data is generated, public relations practitioners are able to adjust or reformulate their communication strategy moving forward with the increased understanding of their audience. It is also used to predict reactions from the audiences, which can result in a reduction in crises. This contributes to the situational crisis communication theory which is used to formulate crisis responses (Smith, 2016).

Knowing how big data can predict the responses from stakeholders and publics is just one of the capabilities of artificial intelligence. These digital tools can also be used in real time to mitigate developing issues and communicate more efficiently with their publics. Responding to a crisis via social media allows organizations to respond in a much quicker fashion as opposed to traditional forms of media. This is important in the development of a crisis management strategy because timing is one of the focal points in crisis communication (Smith, 2016). For example, when Slack went down in 2017, they quickly took to Twitter and provided a link to real-time updates pertaining to bug

fixes and the estimated recovery time. This communication is alleviating to individuals because it lets everyone know that Slack is aware that there is an issue and they are working quickly to remedy the situation so organizations can adjust their communication method for the time being without wasting time attempting to discern the problem themselves.

During my interview with a PR professional, Josh Gregory - Public Relations Direction at The Martin Group, Josh articulated a situation that demonstrated the speed at which information, as well as misinformation, can spread. When he was working for a school, there was an incident with a student and a resource officer that was spreading online through discussions from fellow students on campus. Before the public relations team was notified of the occurrence, reporters from the local news station were already waiting outside of the school, seeking answers. Instances such as these complicate the job of PR professionals, but further prove the point in speed differential when comparing social and traditional media (Cercone, 2021).

Circling back to social media literacy, a study comparing the use of social media in crisis management between Vietnam and the U.S. found that most Vietnamese organizations lack the confidence and social literacy necessary to mitigate a crisis using social media. The uncontrollable nature of social media brings them concern that their statements will be misconstrued. They feel that only people with a high competency level of digital media should be responsible for commenting on crises, which has prevented them from utilizing social media as it relates to crisis management (Ly-Le, 2020).

Ethical/Privacy Concerns:

Transparency from public relations teams to the publics is an important aspect in the perceived credibility of an organization. The field of PR has often dealt with the negative connotation that it embodies deception and persuasion as a messenger for organizations. Public relations practitioners work to dispel this falsehood through honest and frequent communication methods. The use of social media has complicated this process slightly due to the privacy concerns and authenticity issues relating to the nature of the Internet. For example, ghost blogging on behalf of organizations is a popular trend that allows frequent copy to be released. However, these ghost bloggers are writing in the name of a CEO of the company, which results in a lack of authenticity from that organization (Toledano & Avidar). Another example of unethical practices with the use of social media is the act of deleting negative comments and attempting to control the discourse surrounding an organization. PR practitioners must be cautious when engaging in such practices because it can harm the reputation of a brand and ultimately tarnish the relationship and communication between the organization and its publics. According to Wang, the dialogic theory states that "organizations should be willing to interact with publics in honest and ethical ways in order to create effective organization-public communication channels" (Wang, 2015). This theory cannot be rightfully utilized if PR teams are creating a one-sided, or asymmetrical, viewpoint in their comment sections.

Privacy in digital media is another area of ethical concern that permeates the PR field. The Industrial Marketing Management journal has cautioned practitioners to use the information they are able to gather from data mining responsibly (Farrokhi et al., 2020). When it comes to app tracking and personal information, the entered data must be protected. Leaked information can result in a level of crisis that may be difficult to rebuild. The personal information of millions of Facebook users that was leaked in 2019 was a prime example of the risk social media brings to organizations.

The PRSA encourages public relations teams to outline social media policies, such as enabling reporting/flagging options, at organizations to promote best practices and ethical-decision making actions from employees (Ewing, 2021).

Negative Impact/Limitations:

Despite the many advantages that artificial intelligence and social media bring to the field of public relations, there are also some drawbacks. An example of this is the 2012 Twitter campaign by McDonald's (Burke, 2019). The company was attempting to increase awareness of their fresh produce and meats through the generation of a "#meetThefarmers" hashtag. The PR was closely monitoring the responses of the hashtag, but due to its lack of traction the team decided to adjust the hashtag within a few hours to "#McDStories". However, this resulted in horrific responses from individuals sharing stories of food poisoning, terrible customer service experiences, as well as foreign object discoveries in their McDonald's meals. McDonald's quickly removed their promotional post as soon as they saw that the hashtag was being misused, but that did not stop the backlash. In fact, the hashtag was utilized for years after its initial release as a way for individuals to share their horror stories. If McDonald's provided more clarity into how the intention of the hashtag, the experience may have taken a different turn, but the lack of direction led to a public takeover that McDonald's lost control of quickly.

Although AI is becoming smarter each day, the human element is still necessary when dealing with public relations. AI currently lacks original thought and the determination of which AI algorithms should be implemented at each organization is still heavily reliant on human analysis (Ardila, 2020). The emotional quotient is still lacking in a lot of the AI systems that are currently functioning on sites, but chatbots like Xiaoice are helping to collect data necessary for generating the Empathic Computing Framework that Microsoft is working to perfect (Spencer, 2018). The Institute for Public Relations discussed the advantages that AI brings including the speed of statistical interpretation, the accuracy of number conversions, and the large amounts of data that can be analyzed at a given time (Rogers, 2020). However, the journal also mentioned the inability for most AI systems to replace human creativity. Skills pertaining to compassion, flexibility, and relationship building do not yet have the capability of automation. The audience targeting, strategic planning, goals and objectives, and mode of communication selection within the development of a message strategy is still heavily reliant on human analyses. Although, the tools provided by artificial intelligence and social media streamline this process and increase the speed at which messages can be

formulated and implemented, as demonstrated with the swiftness messages can be carried on social media platforms.

Conclusion:

The goal of public relations is often associated with increasing brand exposure and relationship management between organizations and their publics. According to Smith, the definition of public relations is “a strategic communication process that builds mutually beneficial relationships between organizations and their publics”. The long-term relationship that is developed with the use of public relations is often an indicator of the effectiveness of its work. Despite the training that public relations practitioners must go through in order to reach social media competency level that is appropriate for the success of an organization, its relevance and importance to the field is invaluable.

The capabilities of AI and social media outweigh their limitations. Millions of users are on the web and using digital tools to communicate with organizations. Having the ability to mine that data and formulate predictive analyses from its findings is enough of a reason to encourage PR practitioners to adopt the usage of big data for their organization. As mentioned in the crisis management section, AI can enhance the UX of an interaction with an organization online due to its ability to quickly remedy issues on sites, allowing PR professionals to communicate with the publics about when errors will be fixed, potentially avoiding a crisis (Zaki et al., 2021). In addition to technical errors, we learned that AI, through key-term search algorithms, can alert organizations to unhappy users, negative online discourse, as well as providing readily available customer service through chatbots. This is essential to relationship building and an organizations familiarity with its publics.

The use of big data has taken on a lot of the mundane, tedious tasks that past public relations practitioners were obligated to perform. The greater accessibility to quantitative and qualitative data from the information available via the web will contribute not only to customer experiences from enhanced messaging and communication, but it will also contribute to the value of the public relations industry. The effectiveness of PR is often in question, resulting in hesitation from some organizations to implement a public relations team. However, with the metrics provided via AI and social media tools, there will be evidence of its strategic messaging success. I strongly advise public relations practitioners everywhere to advocate for the opportunity to train themselves in social media literacy in order to help their firms gain insights into the information provided by big data.

Annotated Bibliography

Ardila, M.M. (2020). *The Rise of Intelligent Machines: How Artificial Intelligence is Transforming the Public Relations Industry*. University of Southern California.

This thesis uses case studies from public relations campaigns as they relate to the use of social media. It addressed how AI has affected the relationship between journalists and PR professionals as well. The research also demonstrates how PR practitioners are using AI based technology to assess website analytics, manage social media accounts, as well as to conduct media monitoring. A challenge mentioned in the study related to “AI anxiety” and the impending threat that artificial intelligence will one day replace PR practitioners. The research noted how easy data collection has become with AI in PR. For instance, PR practitioners have quick access to data pertaining to the number of times their organization is being mentioned online as well as how often and by whom.

Arief, N.N & Gustomo, A. (2020). Analyzing the Impact of Big Data and Artificial Intelligence on the Communications Profession: A Case Study on Public Relations (PR) Practitioners in Indonesia. *International Journal on Advanced Science Engineering Information Technology*, 10(3).

This work of analysis is particularly interesting because it looks at big data in another country. This represents the powerful hold that AI is developing in public relations, globally. The study examined the capabilities of big data and its potential to replace human practitioners. It looks specifically at the way AI has impacted data analytics, social media management, influencers, and content creators. The results from the study determined that although AI is extremely intelligent and efficient, the human element of public relations is still needed. However, it addresses the importance of using AI public relations as it relates to the potential success of an organization due to the two way communication that is offered with big data.

Burke, E. (2019, June 3). McDonald Backlash After Twitter Campaign #McDstories. *Medium*. <https://medium.com/@burkelisabeth/mcdonald-backlash-after-twitter-campaign-mcdstories-e4925d6d3762>

This article refers to a case study pertaining to a failed public relations attempt to generate communication surrounding their high-quality produce and meats. Instead it turned into a public uproar of stories relating to the poor experiences individuals have endured at the establishment. Although this was not a success story, I felt the ability to track the ongoing engagement through a social media tool was relevant to the article. It demonstrated the downside of social media platforms and how quickly an organization can lose control of a situation. McDonald's ultimately shifted their strategy to use the hashtag to promote their

own positive stories as they attempted to recover from the negativity surrounding the situation.

Cercone, E. (2021, October 8). Personal Interview.

For this class, I conducted an interview with a public relations professional. My participant's name is Josh Gregory and he serves as the Public Director for The Martin Group. Throughout the interview, I asked Josh multiple questions pertaining to the digital tools he uses as a PR professional as well as the impact social media has on the industry. Josh spoke about the various ways social media can be used to reach large audiences at once, but he also spoke of the challenges. One of those challenges is the speed at which misinformation can spread regarding a brand or information being leaked to other media sources before the brand has a chance to release the information itself. Josh effectively addresses these concerns and barriers throughout the interview.

Ewing, M.E. (2021). Ensuring the Ethical Use of Social Media in PR. *PRSA*.
<https://www.prsa.org/article/ensuring-the-ethical-use-of-social-media-in-pr>

Ethics is a vital aspect pertaining to the use of social media in public relations, and this article discusses how ethics should be integrated into the various social platforms. The article promotes transparency from organizations on social media while also taking the necessary precautions to ensure that the personal data people are providing is secure. Ewing stresses the need to incorporate the PRSA Code of Ethics into social media policies at organizations so that public relations practitioners will have a guide to follow ethical decision making when interacting with the public online. The article also discussed how professional social media engagement can enhance the reputation of an organization.

Farrokhi, A., Shirazi, F., Hajli, N., & Tajvidi, M. (2020). Using Artificial Intelligence to Detect Crisis Related to Events: Decision Making in B2B by Artificial Intelligence. *Industrial Marketing Management*, 91. pp 257-273.

The study assesses the intelligence level of AI in its ability to predict potential crises. The researchers used AI to assess the interaction of email communication within an organization to determine if patterns would present themselves on the cusp of a crisis. The goal of the researchers is to develop a tool that influences decision making actions prior to a crisis to limit the potential damage. The study also determined the ability of AI to determine the severity of the crisis and whether or not it was stable. This insight will make it increasingly easier for PR practitioners to develop appropriate responses when in the early stages of a crisis.

Gorkana News Editor. (2016, May 3). How the Rise in Chatbots Impacts Digital PR. CISION Gorkana. <https://www.gorkana.com/2016/05/how-chatbots-impact-pr/>

This blog addresses the ways chatbots can influence the reputation of an organization. It discusses the responsiveness of having a machine ready to interact with site visitors at any time. The article goes on to analyze the way these chatbots can act as customer service representatives and the level of effectiveness they can provide in that role. It also touches on the negative aspect of chatbots in their susceptibility to hijacking, potentially causing further detriment to the organization. The affordability of setting up a chatbot might be appealing for organizations, but the article demonstrates some of the precautions that organizations should be aware of before implementing them.

Kozinets, R. (2018). Invasion of the PR-Bots in F. Cook (Eds.) *2018 Relevance Report* (pp. 14-15). USC Annenberg Center for Public Relations.

This article discusses the impact that bots have on communication between organizations and publics. It looks at their presence in politics and social media as well as their ability to attack brands. Specifically, it looks at the impact of the interaction that these bots generate, both positively and negatively, on Twitter with brands and politicians. Their potential influence on elections and public discourse are also discussed throughout the article. The article also addresses the ability these bots have to harm websites and why protection is important. The information in this document was helpful in analyzing the influence of automation in PR.

Ly-Le, T.M. (2020). The Use of Social Media in Crisis Communication - A Vietnam - U.S. Comparison. *Development of Research Management*, 15(2).

This study analyzed the differences between how Vietnam and the United States use social media. Social literacy and confidence were determining factors in Vietnam's apprehension to use social media throughout crisis communication. Vietnamese public relations practitioners did not feel comfortable releasing information on social media during a crisis because of the risk in their statements being misconstrued further and spreading quickly on the web. However, the U.S. was far more accepting in the use of social media during crisis communication because they felt that the majority of their stakeholders use that medium so it would be the most effective way of reaching them efficiently.

Rogers, C. (2020, May 20). How Artificial Intelligence and Big Data Will Affect the Future of PR. *Institute For Public Relations*. <https://instituteforpr.org/how-artificial-intelligence-and-big-data-will-affect-the-future-of-pr/>

This article discusses the various forms of artificial intelligence as they relate to the public relations field. It assesses the advancements in technology and how AI is and will continue to streamline messages to audiences. The article looks into how AI processes data in a much more efficient manner than a PR professional can and what this means for goal achievement. By completing a lot of the more mundane tasks, big data allows public relations practitioners to focus on the

more creative side with a greater emphasis on message strategies that better connect organizations with their publics.

Spencer, G. (2018, November 1). Much More Than a Chatbot: China's Xiaoice Mixes AI with Emotions and Wins Over Millions of Fans. *Microsoft*.
<https://news.microsoft.com/apac/features/much-more-than-a-chatbot-chinas-xiaoice-mixes-ai-with-emotions-and-wins-over-millions-of-fans/>

Xiaoice is a Chinese-developed chatbot who was created with a focus on the emotional quotient as opposed to the intelligence quotient. She was developed with machine learning in mind, i.e., the more human interaction she received, the greater her intelligence would become. She is a prime example of the capabilities of AI and what public relations could look like in the future. Xiaoice is not perfect, but the cognitive data she is collecting from her interactions will be of great value to public relations practitioners as well as to AI developers. The ability to understand your audience and publics better will help to adjust communication strategies between organizations and their publics.

Toledano, M. & Avidar, R. (2016). Public Relations, Ethics, and Social Media: A Cross-National Study of PR Practitioners. *Public Relations Review*, 42. pp 161-169.

This article used empirical studies from interviews with public relations practitioners to answer questions pertaining to the ethics of social media in the industry. Specifically, the study assessed the ethics surrounding blogging in the industry as a form of releasing information when the authors of the blogs are sometimes outsourced. The participants often felt that the blogs lacked authenticity when written on behalf of a CEO and whether this impacts the transparency of an organization. The fact that outsourced bloggers are receiving compensation to write on behalf of the CEO or organization was also used to question the authenticity of the practice.

Wang, Y. (2015). Incorporating Social Media in Public Relations: A Synthesis of Social Media-Related Public Relations. *Research Public Relations Journal*, 9(3).

Wang discussed the importance of ethical communication between an organization and its publics through the dialogic theory. I felt this theory was beneficial to mention because of its focus on honesty and transparency on behalf of public relations professionals. It discussed the incorporation of these principles with the use of social media as a mode of communication. Wang encourages the two-way communication model and lists the dialogic theory as a reason for its importance.

Westermann, A. & Forthmann, J. (2020). Social Listening: A Potential Game Changer in Reputation Management. How Big Data Analysis Can Contribute to Understanding Stakeholders' Views on Organizations. *Corporate Communications As International Journal*. DOI: 10.1108/CCIJ-01-2020-0028

Social listening is the monitoring of a brand's mentions of itself throughout the internet. The study measures the impact social listening can have regarding the reputation of an organization. AI grants PR practitioners the ability to check the status of a brand's reputation instantly, which helps the practitioners to assess the value and responses generated from the publics. Reputation development is also analyzed in this study from the use of artificial intelligence. The researchers determined that the social listening generated online combined with traditional opinion assessments that include surveys will provide the comprehensive data organizations desire when learning about their audiences.

Zaki, M., McColl-Kennedy, J.R., & Neely, A. (2021, April 10). Using AI to Track How Customers Feel - In Real Time. *Harvard Business Review*.
<https://hbr.org/2021/05/using-ai-to-track-how-customers-feel-in-real-time>

Having the ability to track data pertaining to customer preferences without conducting expensive studies using focus groups has been made possible with artificial intelligence. AI provides a qualitative approach to seeking out what consumers are really interested in and how they interact with the products and services offered by organizations. The article discussed how AI was able to determine the emotional responses from customers which is the feedback they need when improving customer service experiences. Another area of the article touched on how AI can alert an organization to communication issues with unsatisfied consumers. AI is essentially mitigating minor crises by alerting organizations to issues and giving them the chance to communicate with the publics promptly.