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Science communication during COVID-19: when theory meets practice and best practices meet reality

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Abstract

This paper synthesizes the efforts of an interdisciplinary, University-convened communication task force in the U.S. that used science communication theory to develop an effective strategy during the early stages of the COVID-19 pandemic. We outline recommendations for researchers and practitioners who are, or are interested in, implementing theory-based communication practices while describing how we dealt with the unforeseen realities we faced. Overall, we recommend that effective public health and science communication should be based on theory and formative evaluation while relying on established infrastructure, real-time data, a deep understanding of intended target audiences, and intentional coordination with community partners.

Keywords Health communication; Risk communication

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Introduction

By March of 2020, the COVID-19 outbreak already proved to be one of the biggest global health crises in modern times. The highly infectious nature of the virus, combined with high fatality rates for certain groups [CDC, 2020; WHO, 2021b], was threatening to overload healthcare systems around the world. One insight became clear very soon: the only way to slow the spread of COVID-19 was through high compliance with the recommended protective measures. Effectively communicating the need to adopt these measures — such as practicing physical distancing, washing hands, wearing a mask, and sanitizing commonly touched surfaces [CDC, 2022; WHO, 2021a] — quickly became an immediate, pressing task. While the need for communication was clear, the strategy and structure for developing and deploying effective messaging to multiple audiences were not. In the present paper we, an interdisciplinary task force of researchers and communicators, discuss how we attempted to bridge this gap.

Our task force brought together members from departments and centers across the UW-Madison campus (listed here in alphabetical order), including representatives from Civil Society and Community Studies, Data Science, Education, the Global Health Institute, Life Sciences Communication, the Morgridge Center, Psychology, Population Health, and the UniverCity Alliance. We also had several community partners on our team, including the League of Wisconsin Municipalities, Wisconsin Agri-Business Association, Wisconsin Department of Health Services, and city and county public health departments. The group size ebbed and flowed with the members' availability and the different project needs, but there were generally 20–30 highly involved members and many more that worked on specific projects and/or attended meetings from time to time. To give a sense of scale, the email list for the group now has over 100 email addresses. We all came together to conduct rapid communication for the initial COVID-19 outbreak.

Leading a communication campaign during the COVID-19 outbreak was, at times, overwhelming, difficult, and frustrating. The weight of uncertainty, the ever-changing information and the gravity of the situation made it a daunting task with very real consequences. We do not claim to have handled communication perfectly or have a magic plan that is guaranteed to work for the next crises. There were many areas where we struggled: at times it was difficult to find creative talent for messaging, it was a challenge to build a following for a totally new social media presence on already busy platforms, and many of us had limited capacity to work on the task force. Despite these challenges, we also were able to succeed in many ways: we developed a few posts and memes that went viral, we were able to connect with local celebrities who helped spread our messages, and we had the opportunity to provide much-needed content to local constituents and governments.

We came together to write this Practice Insights manuscript to share what we learned along the way, and some things we wished we had known, with future groups who may find themselves in a similar place in the future. Our overarching goal is to provide a broadly accessible overview of our efforts to address the need for early, effective risk communication during the COVID-19 outbreak. We analyze the tensions between the theoretical best practices and the reality we experienced, as well as describe how we dealt with unforeseen realities. Specifically, our intended audiences for this piece are researchers and communicators who are involved in, or at least interested in, applying research and theory to communicate with lay-audiences about science- and health-related topics during times of crisis. However, many of the recommendations and underlying concepts could apply to strategic and science communication more broadly.

Overview of the paper and our approach

The narrative is structured around our key *recommendations*, which are more general and meant to apply to a wide range of communication efforts, and *insights*, which are more specific summaries of each section that reflect our lessons learned. Both the recommendations and the insights are specific and actionable points, which we hope makes them more useful for future communication efforts. We also chose this structure so that readers with limited time can efficiently review our take-away points, while readers with more time can review the foundation and

details for these points. This structure also allows readers to easily review the sections that are relevant to their specific work, rather than having to sift through the entire paper.

Our goal is not to present a single research method or approach that we have rigorously tested with COVID-19 communication as a case study, but rather to provide practical and actionable advice that is based on our collective experience and expertise. That being said, our team placed a strong emphasis on actively using social science research and theory to inform our efforts. We pulled on several different academic literatures and empirical methods when developing our broader strategy and specific messages. To keep this paper accessible, we include a broad overview of the methods and literatures we use and what we learned from them, but also include links and citations to freely available resources that provide the more technical details for those readers who are interested.

We begin with a very brief overview of some science communication literature we drew on for our work on the task force. As we discuss in the next section, this is not meant to be a deep dive into the literature — it is more a guide and place for interested readers to learn more. We follow the theoretical overview with a description of the COVID-19 pandemic as a unique issue for communication and background into our specific communication landscape. We then introduce each of the recommendations and their associated insights. Each section begins with a *recommendation*, which are all based on theory and/or best practices, and ends with *insights*, which are based more on our specific experiences as a task force.

Our recommendations are organized into three different requirements for effective communication: (1) infrastructure, (2) data and an understanding of intended audiences, and (3) engaging in theory and empirical evaluation. We selected these requirements and put them in this order to demonstrate the different phases of communication and highlight the breadth of activities and considerations that go into effective communication efforts. We provide a table of the specific recommendations below before beginning our overview of science and risk communication literature.

Table 1. Overview of recommendations for effective communication campaigns.

Effective communication requires infrastructure	
1	Develop a crisis communication structure and management plan in advance.
2	Develop a clear goal and key activities.
Effective communication requires data and an understanding of intended audiences	
3	Collect data as soon as possible — leveraging all available sources.
4	Leverage the strength of good data to identify specific target audiences and behaviors for messaging.
Effective communication requires engaging in theory and empirical evaluation	
5	Use an adequate theoretical framework that is relevant to the context and goals for efficient development of persuasive messages.
6	Develop ways to test the effectiveness of theoretically derived messaging.

Quick overview of foundational science and risk communication literature

This overview is by no means an exhaustive review of relevant literature, but rather (1) provides suggested reading for those looking to learn more and (2) provides context about the theoretical perspectives underlying our efforts on the taskforce and the recommendations in this paper. We provide a brief overview that includes several citations for interested readers to review.

The science communication literature provides many important considerations and insights for applied communication in contexts like the COVID-19 outbreak. For starters, the nature of the issue itself is highly important for communicators to consider, as science communication can be inherently political [Scheufele, 2014]. Similarly, issues that are complicated, or have no one right answer, require high levels of engagement and inclusive, two-way communication [Brossard, Belluck et al., 2019]. A great deal of the communication surrounding COVID-19 has focused on experts and technical decisions, which places key importance on factors like trust [Anderson, Scheufele et al., 2012; Cacciatore et al., 2018] and deference to scientific authority [Brossard and Nisbet, 2007; Howell et al., 2020].

The necessity for effective science communication is even more critical when considering the inherent challenges of our current media environment, both in terms of online platforms and social media, as well as more traditional sources like broadcast news and newspapers. Such challenges include misinformation [Scheufele and Krause, 2019] and people's tendency to process information in a biased manner [Kunda, 1990]. Furthermore, many online discussions of science are prone to incivility, which negatively impacts the communication of science [Anderson, Brossard et al., 2014; Anderson, Yeo et al., 2018] (major insights provided by science communication research are summarized in a 2017 report by the National Academy of Sciences, Engineering and Medicine in the United States (NASEM) [2017] and Hall Jamieson, Kahan and Scheufele [2017], among other resources).

There are also important insights for communicators in times of crisis from the field of risk communication. Scholars in this discipline have conducted extensive research on communication related to health risks and crises [e.g., Holmes, 2008; Holmes et al., 2009], which has resulted in several collections of lessons and best practices for health risk and crisis communication [e.g., Abraham, 2011; Covello, 2003; Seeger, 2006]. This risk communication research has focused on key dimensions of risk, such as audiences' familiarity with the risk [Fischer and Frewer, 2009] and the potential outrage the specific risk may lead to [Moon and Balasubramanian, 2004]. The applied research and best practices in this area focus on messaging strategies [Fraustino and Ma, 2015] and the effectiveness of different narratives [Austin, Fisher Liu and Jin, 2012].

While the theoretical and applied literature surrounding the communication of science and risk are undoubtedly important and necessary for understanding how to effectively communicate, it is not always clear how to put the findings and recommendations into practice, particularly in the context of new, evolving public health crises such as the COVID-19 pandemic.

The context of COVID-19

The COVID-19 outbreak presents an interesting phenomenon for science and risk communication. During the initial outbreak, when we were initiating our communication efforts, COVID-19 tapped several key dimensions of risk — it was unfamiliar and widespread with a lot of uncertainty. These and other dimensions of the associated risks likely impacted risk perceptions and behaviors surrounding the pandemic [Fischhoff, Lichtenstein et al., 1983]. Despite the many unique aspects of the COVID-19 outbreak, there are many parallels and lessons to be learned from other risk phenomena. For example, science and risk communication scholars have studied perceptions, behaviors, and the media in the context of many past pandemics and disease outbreaks [Dudo, Dahlstrom and Brossard, 2007; Fischhoff, Wong-Parodi et al., 2018; Wirz, Mayorga and Johnson, 2021]. Similarly, scholars have long been designing, implementing, and evaluating campaigns related to health behaviors [Kiwanuka-Tondo, Hamilton and Jameson, 2009; Rekhy and McConchie, 2014; Snyder, 2007]. Science and risk communication literatures have also examined the role of political polarization related to various health topics [Hart and Nisbet, 2012; Trumbo, 1996], which became an issue in the U.S. throughout the outbreak [Grossman et al., 2020; Hart, Chinn and Soroka, 2020]. Although it is important to note that while public health policy surrounding COVID-19 eventually became a controversial and contentious issue in the U.S. [Woolhandler et al., 2021], the majority of our efforts took place in the early phases of the outbreak before political partisan tensions became so extreme.

Further important context for understanding our efforts is that we focused specifically on serving the U.S. state of Wisconsin. The midwestern state provides an interesting and relevant example for COVID-19 communication in the U.S. because of its geographic and political composition. The state has two larger metropolitan areas in the southern portion, Madison and Milwaukee, and several good size cities scattered throughout the state; it is otherwise made up of smaller communities. The median size municipality in Wisconsin has a population of 1,450. Research has demonstrated political tensions and resentment between those living in the rural suburban communities and those who live in the larger metropolitan areas [Cramer, 2016]. As we discuss later in this paper, these tensions and political divides proved to be relevant factors for our COVID-19 communication efforts, as our audience was ideologically diverse over a politicized topic that eventually became polarized [Lobo, 2020; Redman, 2020]. With this context in mind, we present our recommendations and insights for future communication efforts.

Effective communication requires infrastructure

Our first set of recommendations are focused on the infrastructure required to be able to communicate effectively. Infrastructure is often overlooked and can cause communication to be inefficient by wasting time and energy. Making sure these valuable resources are in place will make any future efforts stronger and more sustainable.

Recommendation 1: develop a crisis communication structure and management plan in advance

Pre-crisis communication and planning are key dimensions of effective strategic communication and widely discussed in the crisis communication literature [Coombs, 2009; Lee and Lee, 2021; Seeger, 2006]. Large-scale risk communication

and messaging efforts require a strong interdisciplinary team with diverse expertise, especially if the communication is intended to induce behavior change [Rowan, 1991]. Ideally, this is a team that would exist with a working rapport and ready to act quickly with little to no set-up time in times of crisis. Unfortunately, these teams did not exist at many institutions around the world when the COVID-19 outbreak began. Many institutions, under the initiative of a few motivated individuals, quickly scrambled to respond to the immediate need for effective science and risk communication. Our institution was no exception.

Our interdisciplinary task force grew out of an email seeking partners from The UniverCity Alliance, a center connecting education, service and research activities across UW-Madison with cities, followed by a call to action by the Morgridge Center for Public Service, which is a university institute that connects campus and community through service, service learning and community-based collaborations. The initial conference call was comprised of nearly 30 academics and community leaders who had connections to UW-Madison and who were all motivated to participate in efforts to limit the spread and impacts of COVID-19.

Effectively coordinating the large number of team members from across this widespread network was no easy feat and would not have been possible without regular coordination from the Managing Director of the University-City Alliance, who was one of the initial conveners. Weekly check-ins kept the group on-task and allowed information to flow efficiently. As the group formed and grew, we not only worked to produce effective messaging about COVID-19 but also to establish our (virtual) workflow for a brand-new team. While we tackled how best to increase Wisconsin audiences' compliance with public health recommendations using social media platforms, we also had to figure out the basic logistical elements of a new team — where do we store files, how do we communicate, how often should we meet and on what platform?

Despite all the impressive efforts of this rapid response, there is no doubt that our team could have saved valuable time if protocols for rapid communications response had been in place (such as clearly attributed research responsibilities; team leads for survey design and implementation, message testing and development protocols, etc.). The protocols could take the form of a clear communication crisis management plan at the institutional level, with input from scholars who are experts in the field. If set in place, this plan would greatly streamline our ability to address an unexpected public health crisis (beyond what is done in the Public Health agencies) and, as evidenced by our experiences with the COVID-19 outbreak, should be a priority for institutions to put into place. In addition to protocols, work of this nature requires research funding that is quickly accessible. One team member took responsibility for writing a proposal and soliciting resources from participating units. We were fortunate to quickly mobilize approximately $20,000 from various sources across our campus, including the personal research funds of the faculty involved. This provided resources for data collection and development of videos and other media for the campaign, which we eventually named "Do Your Part".

Insight #1.1. Given that we expect complex public emergencies to be more frequent in the future due to climate change, infectious disease and other causes, institutions of higher education should be prepared to "do their part" in the

context of these crises. This includes clear communication crisis management plans in place before they are needed, and emergency research funds budgeted that can quickly and easily be leveraged to conduct crucial, time-sensitive research in applied communication related to the crisis at play.

Insight #1.2. Task forces should work closely with public health officials to optimize the accuracy and effectiveness of messaging and to coordinate terminology and timing of messaging. This not only ensures that communication itself is optimized, but also enhances public trust in official communications which is crucial as information and policies change.

Insight #1.3. Engage students at all levels of rapid response communication. We found that students played a key role in informing the work, getting things done, self-organizing around tasks, and being advocates. Students not only learned and contributed through their service, they also experienced a sense of community during a time of isolation. A number of global health certificate students completed program requirements through this service. Further, a number of advanced trainees and faculty members were able to both have an immediate impact and publish relevant research results. Students were also a source of diversity in our working group, which allowed us to more effectively reach marginalized communities and prepare surveys and materials in a number of languages.

Recommendation 2: develop a clear goal and key activities

Goals have been shown to be a factor predicting success in communication campaigns [Kiwanuka-Tondo, Hamilton and Jameson, 2009], but goals should be realistic [Snyder et al., 2004]. As the crisis unfolded, our team quickly formalized and became the University of Wisconsin Communication Task Force for COVID-19 (UCCC19; [*Do Your Part* 2020]). It adopted the following mission statement in March of 2020:

> The University of Wisconsin Communication Task Force for COVID-19 (UCCC19) aims to save lives and reduce the incidence of illness through the effective communication of prevention measures such as physical distancing and related behaviors that support overall wellbeing during extended periods when "stay at home" and "physical distancing" policies are in effect.

The aim of the group required a broad range of expertise, connections, and effort from its members. One of the initial tasks of the group was to develop 10 key points of information related to physical distancing that could then be messaged for various audiences (Figure 1). Our efforts required subject matter expertise and coordination with public health experts within and outside the university. This work was done very carefully and resulted in a good set of messages. This process also built trust among the players in the task force dispelling some initial worries that messaging could lead to more confused or misinformed community members.

To be effective, the task force needed to leverage relevant theory and findings from communication research and the behavioral sciences to inform its messaging efforts. Indeed, using theoretical insights from the literature and empirical

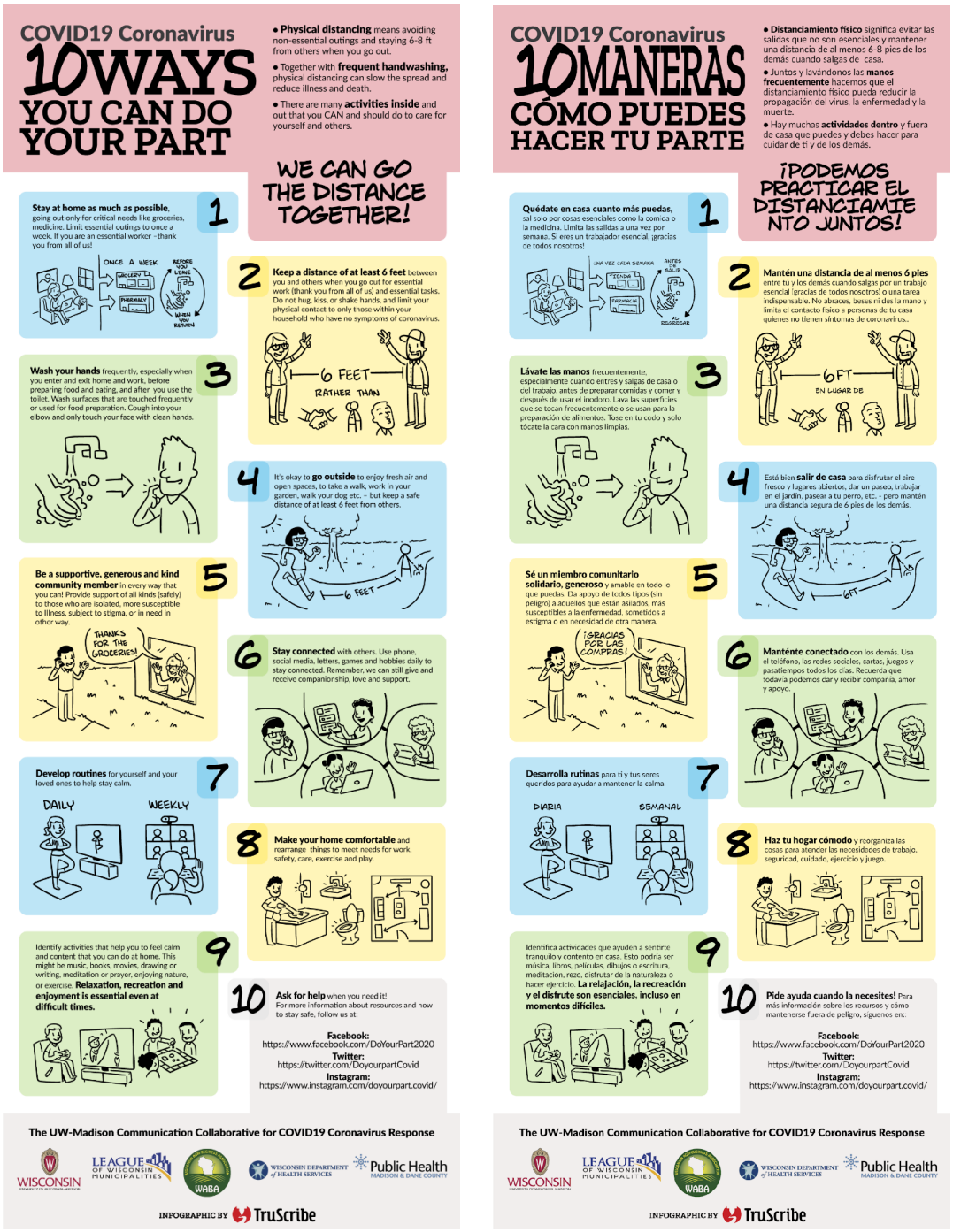

Figure 1. Example messaging from our task force in both English and Spanish.

evidence gathered through research to update and adapt messaging efforts helped make sure the messaging was on target.

In sum, the importance of connecting communication theory and practice were directly integrated into the team's key activities:

– To discover "what works" to foster compliance with life-saving recommendations through a rapid approach to communications and behavioral research.

- To gather and develop persuasive, effective, targeted messages which convey accurate recommendations related to physical distancing and related behaviors.
- To distribute messages through appropriate channels, emphasizing social media, but also developing other kinds of educational tools where appropriate.
- To use a "rapid research to practice approach" that includes iterative real-time learning among researchers, communicators, and community leaders.

The development of goals and key activities helped focus the task force's work and make it clear what we did and did not do. This was incredibly helpful because there seemed to be an infinite number of things that needed to be done and so little time and resources to do them all well. Early on it was easy to get overwhelmed with just how great the need for good communication was and how much time and effort it took to do it. By establishing a clearer focus, we were able to quickly develop partnerships and collaborate with other groups where it made sense for our mission, but also not get distracted or overwhelmed by requests or projects that were outside of our scope.

One way that the group focused the work was to develop a set of messages called "10 Ways You Can Do Your Part" (Figure 1). A UW instructor with public health expertise (DiPrete Brown) worked with students who were participating in the project for a credit-based project to develop key messages that would be the basis of the campaign. These were carefully reviewed by public health officials for accuracy and approval. The team wanted to form a stable core of messages that would not change quickly, with the idea that more time-sensitive information could be added via tags and additional messages. These messages were then targeted for different audiences as appropriate — including a video aimed at college students, a coloring book for children from 2 to pre-k and some messaging for historically marginalized groups. These communications were developed with insights from the surveys and communications expertise about how to best communicate to different audiences.

Insight #2.1. Messaging and communication teams should set a clear mission and key activities to help them organize their efforts and stay on task. Crises, such as the COVID-19 outbreak, are often extremely complex, multifaceted issues that can easily become overwhelming. Task forces should use their mission to stay focused and communicate their priorities well, rather than stretching themselves thin and doing too much in a poor manner.

Insight #2.2. Ensure the communication task force includes and considers diverse communities and perspectives when designing communication plans and materials so that the messaging effectively engages a wide range of audiences.

Insight #2.3. Be ambitious about research to practice rapid-response. Despite what one might expect, we found that the culture of crisis and its properties (urgency, the presence of a common threat, the sense that we had something to offer) enhanced our ability to work across fields and disciplines and coordinate expert inputs effectively. Attendance at meetings was high, and the task force was productive and actively engaging on social media throughout the pandemic.

Effective communication requires data and an understanding of intended audiences

Understanding the values and motivations of targeted audiences is a fundamental part of effective communication and messaging [National Academies of Sciences, Engineering, and Medicine, 2017]. Knowledge about who the target audiences are, where they access information, and whom they trust are crucial information for messaging teams to develop purposeful and effective communication strategies. Additionally, knowing the factors that inhibit or could encourage individuals to partake in pro-social behaviors provides essential evidence to use when tailoring messages [Campbell and Brauer, 2020]. As a result, empirical evidence that sheds light on these dynamics is a powerful tool for communicators. In the following sections, we provide a broad overview on our research related efforts. For those interested in more of the specifics and technical information related to each of these efforts, we also provide references and resources where this information is freely available (Table 2).

Table 2. Sources for more information about our specific efforts.

Public opinion surveys	– Brauer et al. [2020] – Chen et al. [2020]
Message testing	– Cate et al. [2021]
Resources & content to share	– http://www.doyourpartcovid.com

Recommendation 3: collect data as soon as possible — leveraging all available sources

Data collection to inform messaging is a key part of effective communication and targeting messages to your audience [Jayatilleke et al., 2020; Thompson, Davis and Mullen, 2013]. Our team was aware that empirical work would be needed in order to develop effective messaging but did not have the resources right away to launch a survey to a representative sample of our target population. In the interim and as we were actively pursuing funding, we developed a survey that was circulated largely through social media. This 'crowd-sourced' approach was fast, free, and provided us with a steady flow of data we could use to better understand our audience, their messaging needs and test different messaging approaches. With the help of the UW-Madison press office, which wrote a press release about the study and helped with social media outreach (https://news.wisc.edu/covid-survey/), the response to the survey was overwhelming, with a total of 49,029 responses between March 19 and March 24, 2020 [Chen et al., 2020].

Initially, we used this dataset to collect information on media use, trust, and behaviors. Using this information, we developed messaging that targeted groups with lower levels of compliance with our behavior of interest — physical distancing. Through this work, we identified younger men (ages 18–35) as a target group for our communication efforts [Brauer et al., 2020]. We then used the key motivators (e.g., helping family members, reducing their risk of infection) and barriers (e.g., their work, family, or other obligations) to practice more physical distancing reported by these groups to create relevant messaging and media content. We also conducted an in-depth analysis of 30,000 open-ended survey responses to gain a more nuanced understanding of the communication needs of different audience segments [Chen et al., 2020]. After the initial data collection, we used the survey to experimentally test the performance of different persuasive messages. Using a random assignment of survey respondents, we evaluated the

effectiveness of different versions of similar messages and the best name for our group on social media, which was "Do Your Part". The initial data we collected were essential for focusing our messaging efforts on key audiences and behaviors before we had the resources to do other data collections. It is also worth noting that teams with the resources and ability to collect data can support other groups who do not by freely sharing their results and making their data openly accessible.

Insight #3.1. Communicators can leverage social media and convenience samples (when time and resource constraints prohibit more expensive data collections) and use them to test message effectiveness through random assignments and experimental designs. Data and empirical evidence can provide much-needed context about the audiences and what messaging efforts should be focused on to achieve the task force's aims.

Insight #3.2. Partners from outside the university should be included in the effort from the outset. In the present case, the League of Wisconsin Municipalities was an excellent bridge between our team and other areas of the state with very different contexts and needs. This connection helped us understand our audiences more effectively and allowed us to share data and information with community leaders. Additionally, the connection with the Department of Public Health brought valuable insight surrounding the policies and key developments related to the outbreak in the state.

Recommendation 4: leverage the strength of good data to identify specific target audiences and behaviors for messaging

Campaigns that are tailored to and specifically target audiences are generally more successful [Rekhy and McConchie, 2014; Snyder, 2007]. Our team then leveraged the convenience sample data collection to develop a probability survey that we launched once funds had been secured. We studied self-reports of physical distancing in a nationally representative survey of U.S. adults. The survey was conducted using a Qualtrics Panel and was fielded from March 26 to April 1, 2020 ($n = 2,251$). The survey over-sampled individuals aged 18–35 and individuals from Wisconsin to help directly inform the communication campaigns being conducted at our university.

At the national level, we found that younger, less educated individuals who did not see physical distancing as effective or the norm were less likely to fully comply with physical distancing recommendations. Barriers such as not being able to tolerate physical distancing for a long time prevented individuals from doing so, while seeing how physical distancing could help one's family and others was a potential benefit that could be made salient to encourage compliance.

We also separately analyzed a subsample of Wisconsin residents ($n = 503$) and their self-reported physical distancing practices. Overall, a high percentage of Wisconsin residents reported practicing physical distancing, with 61 percent reporting distancing very much and with higher compliance rates among the educated, women, respondents over the age of 35, and those living in small towns. At the time, there did not appear to be a relationship between political ideology and self-reported physical distancing in Wisconsin.

Respondents from Wisconsin who did not report the highest level of physical distancing reported their barriers to practicing more were their situation (work, family, obligations) preventing them from doing so and their perception that most people were overreacting. However, these respondents also said they would consider practicing more physical distancing if it would help their family or if they were at high risk of infection. Our research also showed that respondents' top news sources were national news networks and social media, and that the CDC, public health experts, university scientists, and WHO were the most trusted sources of information about COVID-19.

We used these findings to develop a report used to inform communication efforts surrounding the outbreak, with an emphasis on communication in Wisconsin [Brauer et al., 2020]. The report was circulated with stakeholders and shared on social media. The data were reported on by the local media [Ahmad, 2020], as well as shared by the League of Wisconsin Municipalities [Brown, Luter and Sumi, 2020].

Insight #4.1. Communication teams with the needed resources should leverage the power of high-quality data to inform their efforts, as well as to increase the impact of their work. As we learned, the data collection was extremely insightful and a key product for both our team and for other stakeholders around the state. For groups who do not have the resources to collect data themselves, there may also be datasets freely available. For example, during the COVID-19 pandemic there have been many high-quality datasets shared for open use [*The COVID States Project* 2021], as well as high-quality expert reports [National Academies of Sciences, Engineering, and Medicine, 2020]. All communication teams should rely on using empirical evidence to inform their messaging whenever possible and use their networks to disseminate findings.

Effective communication requires engaging in theory and empirical evaluation

Developing a message that caters to an intended audience is a critical step on the way to effective communication. Instead of relying on guesswork or intuition alone, it is important to use existing theories and past studies to inform message development. The relevant literature gives a starting point for message development with insights into what may or may not be effective. However, the use of theory does not guarantee messages will be successful and the effectiveness of a message is unknown until it has been evaluated empirically. In this section we provide an overview of a case study we conducted to inform our messaging efforts on social media.

Recommendation 5: use an adequate theoretical framework that is relevant to the context and goals for efficient development of persuasive messages

Using theory and theoretical frameworks is highly recommended across many literatures [e.g., Balonas, Ruão and Carrillo, 2021; Cappella et al., 2001; Rossmann, 2015; Werder, 2015]. Our team leveraged the data collections described above to identify a target audience who were less likely to practice self-protective behaviors but who might be influenced to adopt the behaviors through targeted messaging. For this campaign, we selected young men (ages 18–35) in Wisconsin as a group to

focus our efforts on. As the pandemic response and associated policies became more politicized and polarized [Lobo, 2020; Redman, 2020], we were also interested in reaching audiences with a range of political ideologies. We sought out a theoretical framework to help develop a message that would reach and resonate with this group. To this aim, we relied on the Moral Foundations literature as our theoretical framework for framing messages.

Moral Foundations Theory aims to explain the origins and variation of human morality [Haidt and Joseph, 2004]. The theory positions morality as both innate and learned by illuminating a previously ignored link between innate intuitions and socially constructed virtues. Initially, Moral Foundations Theory proposed five foundations upon which differences among individuals' morals can be described: Care/Harm, Fairness/Cheating, Loyalty/Betrayal, Authority/Subversion, and Sanctity/Degradation [Graham et al., 2013; Haidt and Joseph, 2004]. A sixth Moral Foundation, Liberty/Oppression, was proposed later to represent the tendency to object to coercion by a dominant power or person [Haidt, 2012]. For more information about the message testing, see Cate et al. [2021]. Each message was concise, reflected a specific foundation, and reflected the team's goal of motivating audiences to 'do their part' to control the COVID-19 outbreak. Using these messages, we then conducted a series of message testing experiments to evaluate their effectiveness among our target audience.

Insight #5. Developing theory-based messages takes time, so be sure to have other messaging materials ready to share while you develop them. Try to establish some important 'evergreen' content (messages that are not time-sensitive and will be relevant to your target audiences for a long time) early on so that you can have overall coherence and keep the volume of messages on various platforms at a manageable level. For example, Figure 2 demonstrates a message we shared that targeted our key audience (younger men) and addressed a motivator we found through our survey research (being viewed as a considerate person). These messages can be used when your efforts are focused on other dimensions of communication, such as data collections or preparing for major events.

Recommendation 6: develop ways to test the effectiveness of theoretically derived messaging

Testing message effectiveness through evaluation is a standard best practice for communication campaigns [Harrington, Palmgreen and Donohew, 2014; Hornik and Yanovitzky, 2003; Valente and Kwan, 2001], but evaluation can also be challenging to do well [Noar, 2009]. The use of theory or relevant insights is not a guarantee that messages will resonate with the chosen target audiences. Once messages have been developed, they should be empirically tested to determine their effectiveness. We used a relatively simple way to do this by comparing how well messages performed in comparison to one another, which is often referred to as A/B testing.

The target audience that we intended to reach consisted of young adult men (ages 18–34 years). The goal of our message testing was to identify the message that would most effectively resonate with our audience and encourage interaction with the post. This goal built on one of the overarching aims of the task force — to connect a wide range of audiences with high-quality communication about

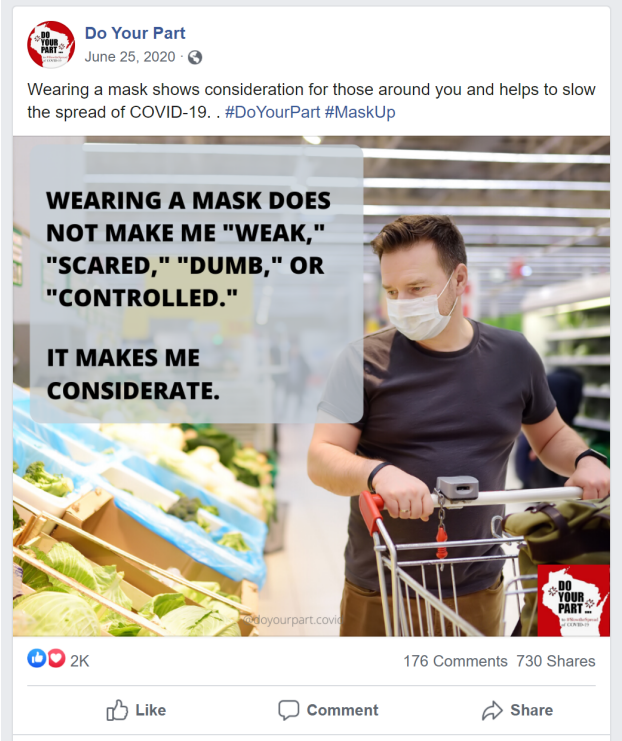

Figure 2. Example tailored, evergreen social media post from our task force.

COVID-19. One way we did this was by directing audiences to our website and social media pages. For this specific study, the call to action was to use the post to draw traffic to the "Do Your Part" campaign website.

Following our call to action, we conducted our study using the message testing feature in Facebook Ads Manager. The "Do Your Part" campaign team decided to use Instagram owned by Facebook — which also uses the Facebook Ads Manager — because Instagram is a popular platform for our target audience of young (ages 18–34 years) adult men [Hulkower, 2018]. Testing our messages on Instagram using Facebook Ads Manager allowed us to compare how effective our different ads were across many different metrics, which we discuss in more detail in a separate report [Cate et al., 2021]. While not widely used by academics, this approach lent itself well to the integrated theory and practice design of our team and goals. Studies can be conducted on Facebook and Instagram directly from the organization's social media account, which means communication practitioners can easily use this tool without needing to learn or have access to third-party software. For more information on how to run these studies, see Choi et al. [2017], Cate et al. [2021] and Shaw, Campbell and Radler [2021].

We also developed a visual to accompany the text in our messages described above because visuals are useful in gaining the attention of an indifferent audience [Moriarty, 1987]. To appeal to our target audience, we conceptualized a visual of a man defeating the virus with a crowd cheering him on, which we then developed with a graphic designer (Figure 3).

Our social media advertising test on Instagram using Moral Foundations Theory indicated that the Loyalty/Betrayal message resonated the most with our target

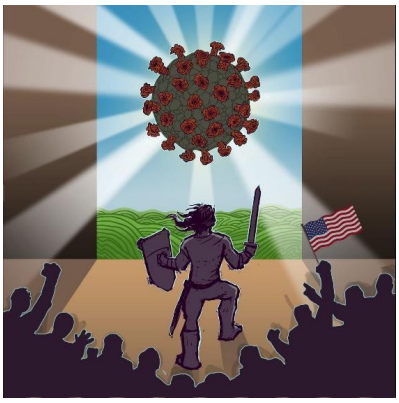

Figure 3. The stimuli for our social media visual used in an Instagram experiment.

audience. It appears that the Fairness/Cheating message resonated the least with that same audience. The remaining three messages, Care/Harm, Liberty/Oppression, and Authority/Subversion, performed similarly to each other, and were in between Loyalty/Betrayal and Fairness/Cheating in regards to resonance with the target audience. Using a newer, more applied approach, we found the message test still revealed valuable insights on the effectiveness of different headlines on capturing the attention of our target audience. However, the relatively poor performance of the ads in general further suggests that this target audience is particularly difficult to reach for this issue.

Insight #6. Test your messages on social media targeting your intended audience. A theoretically informed, real-world message test on social media provides immediate data on cost-effectiveness of messages relative to each other allowing outreach professionals to select the most effective strategies to accomplish their goals and refine messaging as needed for continual improvement.

Conclusion

In this paper, we synthesized experiences and lessons learned from our efforts to address the need for early, effective risk communication in the state of Wisconsin during the COVID-19 outbreak. We have provided some general recommendations and insights from our experiences that can hopefully make the task of applied communication under the time and resource pressures, like those experienced with the COVID-19 outbreak, easier and more effective (see Table 1 for a review of all recommendations). In addition to our recommendations, we also have several resources and downloadable media available from our website [*Do Your Part* 2020].

One final, overarching insight that we learned and feel cuts across all the different recommendations is to *choose goals that are feasible given your networks and the resources available*. Initially we hoped to focus our work on individuals who were not complying with physical distancing recommendations. While we did learn and develop some messages to potentially reach non-compliant groups, it is important to acknowledge there we were unable to directly reach those who did not use the communications platforms where we were sharing information. In practice, we also addressed groups from historically marginalized groups. Our informants indicated that they wanted guidance about how to comply, and supportive messages that reflected their identities and social realities. In the end, because we

were limited to Facebook, Twitter, and Instagram, we could not reach people who did not use these platforms, and we were perhaps more effective when we were helping people on these platforms who already wanted to comply to do so effectively, to encourage people to stay motivated for continuation, and to enable people to access support related to food, self-care, and social support.

We cannot guarantee following each of the recommendations will result in a perfect communication campaign but addressing as many of them as possible will definitely help the campaign run smoother and increase the likelihood of success. While we hope to never find ourselves in a similar situation as we did in March 2020, our insights and recommendations will help us be more prepared, and we hope others can learn from them as well.

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