Natural disaster strategic communication:
Drone, data and backpack journalism trends
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Abstract

New style media coverage of natural disasters is increasing in volume and immediacy, with knock-on implications for strategic communication. Advanced digital reporting and producing innovations have created an altered approach by journalists, leading to augmented demands on public relations practitioners managing a crisis. Drawing on journalistic experience covering the Typhoon Haiyan disaster in the Philippines, this paper analyses three digital advancements in disaster reporting that directly influence effective media relations during a crisis: the backpack equipment, drone cameras, and data infographics. This paper supports the theory that the symbiotic relationship between media management and journalists can be used successfully to support an informed public, and outlines a model of Digital Coopetition, whereby the digital requirements bring the two competing agendas of strategic communication and journalism into a cooperative sphere. With more natural disasters being in the news, it is timely to review how public relations practitioners can strategically address the needs of new style journalists, and recognise the potential of emerging reporting technologies in targeting their key publics.

Introduction

This research examines new style media coverage of natural disasters and its impact on strategic communication. It explores three emerging and technology-driven trends in reporting: the backpack journalists who work alone and use light digital equipment to report and humanise a disaster story; the drone journalists who utilise pilotless aerial cameras to video the disaster; and the data journalists who use infographic software and applications to summarise and interpret figures and statistics. The study outlines journalist usage of these technologies, and proffers a matrix of advantages and disadvantages of each guideline in crisis situations for managing the new-media journalism in a way that maximises the messages that are disbursed to key publics.

Strategic communication, in the context of organisations, is defined broadly as "communicating purposefully to advance its mission" (Hallahan, Holzhausen, van Ruler, Verčič, & Sriramesh, 2007, p. 4). The key word "purposefully" indicates that activities are set up to reach a long-term goal. This paper acknowledges that in order to be strategic, there must be a plan in place to address unforeseen crisis (Fink, 1986; Friedman, 2013; Nikolaev, 2012), which can be executed even on short notice, setting out working criteria and guidelines before they are needed by the crisis communication manager. As emphasised by Nikolaev (2012), these guidelines need to be constantly updated; for instance, to include new and emerging technologies that journalists use for crisis coverage. It has been emphasised that the crisis stage is the most critical moment of crisis management due to the "high levels of uncertainty, confusion, disorientation, surprise, shock and stress" experienced by crisis communicators (Seeger, Sellnow, & Ulmer, 2003, p. 125). This paper is an attempt to bridge the practice of journalism and public relations in the context of natural disasters. Our goal is to show areas of cooperation and mutual understanding between the two professions.

Among the crises of physical environment, natural disasters such as earthquakes, floods, typhoons and hurricanes often cross political boundaries and private borders (Lerbinger, 2012). Compared to biological crises (e.g. AIDS, SARS, H1n1) and technological crises (e.g. oil spill, nuclear accidents), the natural disasters also lend themselves with high

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predictability, and so advanced planning and disaster management are crucial to prevent infrastructure damage and loss of human lives (Lerbinger, 2012). This paper argues that the heart of disaster management is strategic communication; the function of government and non-government actors to disseminate reliable information during disaster and maintain relationships with their key publics, including the media. While there are dozens of sources that discuss crisis communication (Atkins, 2012; Coombs, 2012; Heath, 2012) many focus on organisational crisis rather than the growing area of natural disasters crisis.

It was November 2013 when the world witnessed the devastation brought by Typhoon Haiyan, the most powerful storm ever recorded to make landfall, and one of the most devastating disasters in the Philippines in recent history. The death toll reached 6,300, with more than a thousand individuals still missing (NDRRMC, 2013). The damage to agriculture and properties was also a record high. Major media organisations worldwide sent their journalists and news personnel to cover the event. The complex nature of the typhoon disaster, characterised by the overwhelming statistics of infrastructure destruction and deaths as well as the huge volume of data on retrieval and recovery operations, offered numerous opportunities for digital journalists to exercise innovation in disaster reporting, specifically using advanced technologies to gather, interpret and report the news. This ethnographic case study goes some way towards answering the following question: How does new technology shape the symbiotic relationship between journalists and crisis communication practitioners?

Theoretical foundation

The foundation concept for this ethnographic case study is the nexus of public relations and journalism, in particular the informed public theories that posit that well- informed members of the public help the collective global community make better decisions (Baumol, 1965; Habermas, 1989). These types of theories are the underpinning of journalism (Hannis, 2014) and the precursors of political and media freedoms embodied in legislation in many countries (Freedom House, 2016; Reporters Without Borders, 2016; United Nations, 1966). The theories fit harmoniously with the Public Information model set out in Grunig and Hunt's 1984 Public Relations theory, which is based on communication, research and ethics (Lattimore, Baskin, Heiman, & Toth, 2011).

The Informed Public theories also intersect with the Symbiotic Relationship theory (Turow, 1989; Cameron, Sallot & Curtin, 1997), which posits that journalism and public relations can, and do, work together for mutual goals. This relationship often results in each side not seeing each other as adversaries (Newson, Turk & Kruckeberg, 2013; Henslowe, 2003; PR Council, 2014; Bernstein Crisis Management, 2015). Other scholars, however, affirm that the current journalism practice is to rely on media releases and public relations information to fill their content spaces, and they also criticise the relationship in terms of how it places communications management in a dominant position, leaving journalism communities to accept pre-vetted content for their media productions (Fynes-Clinton, 2015; Lewis, Williams & Franklin, 2008; Macnamara, 2016; Turow, 1989). The dominant-submissive relationship has become more pronounced over the past decade with the emergence of new digital technology, plus profit-driven media companies, which lead journalism to operate with a smaller workforce (Macnamara, 2016). The process of new digital journalism, explored further in this paper, has created the environment where opposing news agendas are represented by a single journalist on one side, and a large communication team on the other side (Lewis et al., 2008), and the theorists posit that the media audience could be the victim in missing out on the full information.

The symbiotic relationship, however, does not always need to be negative for journalism, and thereby the media audience, when the two disciplines harmonise for open dialogue (Macnamara, 2016). In a study of an organisational crisis in Australia, Hess and Waller (2015) concluded that the public still rely more on traditional news media rather than social media because of the image of accuracy and neutrality. They report that, "maintaining a good working relationship with journalists is an

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important part of crisis management generally" (p. 103). This relationship between competing industries is not confined to communication, nor to recent years, as the underlying theory stems back to the 1929 emergence of Games Theory, which sits within economic discipline's analysis of competing forces reliant on each other (Brandenburger, 2014). The theory was based on organisations having a business strategy that takes into account the strategic direction of its competitor, but without ever knowing that competitor's strategy. This was later developed and termed Coopetition Theory, whereby business competitors cooperate for mutually beneficial outcomes, such as merging to obtain overall better legislation or bigger markets (Brandenburger & Nalebuff, 1996). With Coopetition as a model, this case study analysis concludes with a guideline that can be used by the crisis communicators in maintaining relationships with new digital journalists covering a natural disaster. The guideline is an advance on previous best practice as it takes into account the new digital technology and the new journalism environment. The analysis starts with the journalist's viewpoint of producing news from a major natural disaster, and then explores this experience from the lens of the crisis communication manager.

Literature review

The significance of this research paper is underscored by the fact that natural disaster episodes are increasing in number and in intensity (IPCC, 2014; World Bank, 2012), thereby making the crisis part of strategic communication even more pressing. The experts contend that some natural disasters, such as earthquakes, are not truly increasing, but the impact is more devastating to humans and urban infrastructure since they are now in high population areas (USGS, 2015). All this leads to more newsworthy natural disasters that communication practitioners will be required to manage.

Journalism convergence meets public relations
Since the turn of the millennium, the term 'convergence' has been a part of the vocabulary of contemporary journalism practice, training and research, as evidenced by the number of

academic journals, textbooks and professional literature talking about the topic (Deuze, 2004). Journalism has been predicted to be entering a new era with the increasing integration or convergence of news organisations designed to deliver multimedia content. The convergence soon entered a major turning point as the content and the practice of newsgathering and delivery changed to encapsulate the rapid growth of digital technologies. The boundaries between formerly medium-specific news have been blurred, allowing the mixture of the sound and imagery of broadcasting, the depth and details of print, and the interactivity of online media in presenting the news in digital format (Wenger & Potter, 2012).

It has been previously noted that all these changes in the practice of journalism are important in public relations because of the symbiotic and often complicated relationship between these two professions (Lloyd & Toogood, 2014; Verčič & Colic, 2016). Public relations practitioners facilitate the needs of working journalists such as the constant search for data and information during a disaster, while journalists are the ones processing information for their key publics (Illia, Lurati, & Casalaz, 2013; Franklin, Hogan, Langley, Mosdell & Pill, 2009). Studies have noted that media relations is a key component of strategic communication during a disaster, since effective communication with the media allows the public to learn about the crisis, its interventions as well as recovery efforts (Austin, Liu, & Jin, 2014; Schultz, Utz, & Göritz, 2011). However, the emerging trends in the journalism field, specifically the style and content of backpack, drone and data reporting, are not well explored in public relations research.

Multiskilling and backpack journalism
Throughout the years, technology has played a vital role in enhancing the contents, routines and practices of working journalists. For instance, the convergence of technologies eventually unlocked the emergence of multi-skilled journalists who were capable of producing content for different news outlets and multimedia packages for a single story utilising the web (Domingo, et al., 2011; Cottle & Ashton, 1999; Saltzis & Dickinson, 2008).

Several technological innovations in reporting have paved the way for multiskilling training among journalists in the newsrooms (Gordon, 2003). Multiskilling comes in three categories. The first is media-multi-skilled journalists who are capable of filing news reports for multiple media outlets or creating multimedia content for a single story. The second is issue-multi-skilled journalists who are able to report on various subject or topic areas. And the last is technical-multi-skilled journalists who perform technical duties in addition to their reporting jobs (Domingo et al., 2011).

Some news organisations prefer calling this breed of news staffers VJs (video journalists), MMJs (multimedia journalists), OMBs (one-man bands), MJs (mobile journalists), SoJo (solo journalists), and APJs (all-platform journalists) (Tompkins, 2012; Smith, 2011). These types of journalists have been perceived to be a "jack of all trades and master of none" (Huang et al., 2006) because of the perception that they lack specialised skills (Erdal, 2009). But practicing backpack journalists highlight instead the benefits of solo reporting. During fieldwork, for instance, it has been argued that "the cloak of invisibility" allows backpack journalists to be unnoticeable in the field (Green, cited in Kennedy, 2010, p. 3). Apart from the creative freedom, there is also the advantage of "looking like a tourist with a small consumer-sized camera who blends into the crowd" (Tompkins, 2012, p. 157).

Undoubtedly, technology reduces the need for large crews (Kumar, 2011) and changes the job descriptions of news workers (Bock, 2012). Because tools and equipment used in journalism are becoming lighter and more portable, the backpack reporter is able to move around more easily in the field than they could with a crew carrying numerous pieces of equipment (Quinn, 2004), although at the "price of newsroom collaboration and camaraderie" (Bock, 2012, p. 33). In newspapers, photojournalists are no longer still-image shooters, they must be proficient as well with digital software and tools (e.g. Photoshop, PhotoMechanic, Final Cut Pro) in order to produce multimedia content (Wesley, 2013). More importantly, backpack journalists need to perform both journalistic and technical jobs, such as interviewing, shooting video, taking photos, writing up the news story, as well as post-production roles. This is the reason solo journalists are referred to as the embodiment of convergence; they utilise converged technology, work in a converged environment and fulfil convergent roles (Boczkowksi, 2004; Deuze, 2004).

Besides the extra skills required, the backpack/mobile journalists are faced with the growing problem of physical danger. Money saving reasons have led to more backpack journalists being sent into war zones (Committee to Protect Journalists, 2013) and natural disaster zones. These assignments are dangerous for solo journalists without anyone to watch their back while they are concentrating on collecting content, and while also distracted ensuring audio levels and visual focus is appropriate (Stairs, 2009; CPJ, 2013). Over the past decade, journalism has become even riskier, with more journalists killed while doing their job annually (CPJ, 2015). The international journalism watchdog Reporters Without Borders concludes that the number of murders of journalists is increasing, and becoming more barbaric (RT, 2014), and UNESCO reports more than 700 journalists have been killed globally in the past decade, currently running at one journalist killed each week (UNESCO, 2015).

The physical dangers to backpack journalists are not limited to political conflict, as there are substantially growing numbers of natural disasters throughout the world (Brandolino, 2015), leading to more journalists being sent out to unstable landmass areas. The media audience's expectation for immediate first-hand coverage of disasters (Hannis, 2014) also increases the dangers facing journalists as they are sent to earthquake, flooding or storm areas while the urban infrastructures are still unstable.

Data journalism

Part of the innovations in journalism convergence is data journalism, also called computer-assisted reporting (Doig, 2013). The term denotes the transformation of huge data into visuals to convey a story (Rogers, 2014). Data could be presented in the form of information graphics and other data visualisation cues, providing rich news context

(Craig, 2011). It combines the traditional nose for news and storytelling through a large range of digital information (Gray, Bounegru & Chambers, 2012). The creation of this 'born digital' content has transformed the online medium from being a mere repository of traditional media content to its state as a brand new medium with original web features (Thornton & Keith, 2009). Readability studies have proved that the media audience favours digital visualisation of large data (Krum, 2013) and therefore journalists are searching for more compilations of large amounts of interrelated statistics and data that they can create into a news story (Gray, et al., 2012).

Drone technology

The increasing popularity and use of drone cameras, also called remotely piloted aircraft systems (RPAS) and unmanned aerial vehicles (UAVs), in conflict, environmental and disaster reporting has been a subject of interest in the journalism profession. This was evident in the establishment of the Professional Society of Drone Journalists (PSDJ) in 2011, an international organisation dedicated to the ethics, development, and practice of drone journalism around the world (PSDJ, 2011). Prior to the use of this remotely piloted technology, a news organisation would take aerial recordings of news events such as fires, protests, crisis and traffic, using a media helicopter, which is often rented and incurs higher production cost.

Drones offer several advantages. They are smaller, safer and cost-efficient in comparison with helicopters and other aircraft that journalists use to provide the same aerial view (Goldberg, Corcoran & Picard, 2013). Furthermore, journalists who use drones with cameras and sensors provide a unique eye-in-the-sky perspective to news events that they are covering (Corcoran, 2014). Thus, it is not surprising that this technology is also used not only in journalism and mass communication but also in other fields and commercial endeavours. It also raises practical, ethical, technical, policy, and newsgathering concerns (Tremayne & Clark, 2013; Goldberg, et al., 2013; Culver, 2014). A particular problem for journalists and public relations practitioners alike is the differing rules between countries.

Some countries have no restrictions on the use of the remote piloted devices, but most western countries have placed the rules in the hands of the national aircraft regulatory bodies (Strong, 2015). There has also been criticism that journalists are using drone technology almost as a toy, simply to advertise they are using a drone, whereas it is not warranted for their story in newsworthy terms (Strong, 2016). Nonetheless this new technology has been used extensively in recent natural disasters (Holton, Lawson, & Love, 2015). The first natural disaster to attract wide use of drone cameras from the media was the Philippines' Typhoon Haiyan in 2013, the subject of the case study in this paper. Since then, the Nepal Earthquake in 2015 has been dubbed the most-drone-covered natural disaster to date, closely followed by the Cyclone Pam in Vanuatu the same year (Strong, 2016).

In summary of the literature review, the media audience is gaining a new style of news coverage, particularly in relation to global natural disasters. The audience may not be aware of the technology used, but the advantages are a wider understanding of a news event, whereas the disadvantages are based on the lack of such visual and accurate information.

Method

This ethnographic case study draws on first-hand experience covering the aftermath of the devastating Typhoon Haiyan that hit the Philippines, in light of previous experience by both authors in covering major natural disasters for mainstream news media outlets. The primary field notes were drawn from the one of the authors' trips as a backpack journalist to cover how the local inhabitants were coping one year after the natural disaster. The multimedia backpack stories were collected over a week in the hardest hit middle part of the Philippines and a week in the capital Manila. The initial news feature was published on the Radio New Zealand online feature website and the full version is available to view: https://haiyanreview.wordpress.com.

The data gathering was conducted one year after the typhoon, when people were still homeless and some villages still mainly rubble. At this stage, only 1252 homes were built, from

a goal of 205,128. The information and videos obtained by this backpack journalist were unique, despite hundreds of journalists from around the world having descended on the affected areas over the previous 12 months. Unlike many other journalists, he was invited inside the tent-city homes, interviewed survivors who had never before told their stories, and covered a community Catholic mass conducted in the middle of the crumbled ruins of an old historic church. People were honest, and emotional, about the difficulties they still faced in the sparsely repaired region. The stories focused on possible mismanagement of overseas aid funding, but found, instead, that the delays in rebuilding were due to lack of stable land, complicated by legislative rights of private property ownership. The stories included photographs, several videos from the disaster area, an interactive timeline, an interactive cyclone map slideshow, infographics, and an interactive big data map showing each country's aid pledge and actual giving.

This paper is not about the initial news story obtained from the field event, but rather the process of covering a natural disaster using the new digital and backpack technology. It analyses the new working conditions for the journalist, and outlines how the digital news gathering process affects the task of crisis communicators in managing the media during a natural disaster, in line with Informed Public theories.

Results and discussion

Like many recent natural disasters causing fatalities and homelessness, the Typhoon Haiyan disaster in 2013 attracted large numbers of crisis communication practitioners from both government and non-government organisations based in the Philippines and overseas. To provide a working space for media stakeholders arriving to cover the crisis, the local government at the urban centre of Tacloban converted its business building to a temporary media centre where regular press briefings were held (personal communication, July 30, 2016). Despite particular shortcomings in terms of logistics supplied to the media, the new style journalism disaster reporting descended on central Philippines – a style now increasingly common for disaster areas. The disaster drew in all types of journalists from traditional to new media. Journalism technologies played a big role in public communication. Typhoon Haiyan was noted as the first major news event where drone cameras were part of mainstream journalism equipment (Ponsford, 2013). Local officials, previously unaware of drone technologies, realised its capacity to capture images of disaster and to aid them to visualise the magnitude of devastation.

Three years after the disaster, the former Tacloban city administrator, Tecson Lim, told us that there was panic because the region's public broadcasting was destroyed. He now feels that getting some immediate way to get information out to locals would have avoided confusion and panic. This hindsight put the role of journalists as a high priority in the early days of the disaster.

The experience of this case study was significant to show the relationship and open communication between new media journalists and public relations practitioners during a disaster. This journalist was allowed full range to interview victims inside the makeshift tents (utilising backpack digital equipment), to wander through rubble and to collect data through video recording. Disaster data (both online and hard copy) were provided by the government and non-government organisations. The journalist, in turn, interpreted the data to validate his field research. The resulting stories were not necessarily complimentary to the government or disaster relief agencies; however, the heartfelt first-hand stories from the victims and statistical overview accurately portrayed the state of the region at that time. It is beyond the scope of this research to measure the amount of positive effect generated from these particular stories, but the online readers' comments showed a new awareness.

The following analysis describes how new technologies of journalism (backpack, drone and computer data) were used in the crisis coverage. The backpack experience in this case study is compared with both authors' previous disaster journalism coverage with traditional television production equipment. The analysis describes the journalistic practices and

illustrates how these affect the practice of media relations during a disaster.

Table 1: Advantages and disadvantages for journalists

	Advantages	Disadvantages
Backpack news stories	Quicker to collect story segments More personal stories More exclusive stories Unobtrusive video recording	No backup to prevent physical risks Stress-related concerns Technical malfunctions Incomplete information
Big data graphic stories	Better audience engagement Context and story background	Time and effort to collect, analyse, verify, produce story
Drone news stories	Physically safer to use Better visual storytelling and unique perspective Cost-effective Easier deployment	Local regulations Technical malfunction Short battery life

Backpack journalism advantages

Backpack journalists are characterised by their lightweight equipment in contrast with the big cameras and accessories carried by a large television crew. In this case study, it offered several advantages. First, fieldwork was quicker. Moving around the typhoon-affected areas was much easier because the equipment was smaller and lighter. Second, there was autonomy and artistic freedom in backpack journalism. It was convenient in many instances to quickly change the planned schedule, such as deciding the times and locations to begin and end the production. Third, the use of small equipment was found to be unobtrusive and conceptually invisible, which is in line with the term described previously in the literature review of "the cloak of invisibility" (Kennedy, 2010, p. 3).

In comparison with equipment that attracts attention when filming in public places, the use of smaller equipment did the contrary. The newsgathering toolkit used created a feeling of familiarity among interviewees, who felt less intimidated by a small digital single lens reflex camera, than large professional broadcast cameras. The weary typhoon victims got to know the journalist personally, without immediately being confronted with large recording equipment or production teams.

One typhoon survivor said that many feel the fatigue of answering the same type of questions from media and other researchers (personal communication, September 3, 2014). Based on our previous journalism experience covering disasters, it is clear that the presence of a traditional television crew composed, for instance, of a director, a producer, a television host and a videographer, sometimes overwhelms and intimidates the subject and elicits the tendency of a person to act tense and unnatural in front of a camera. In contrast, solo journalism created a comfortable atmosphere during the sit-down interviews, and redefines the nature of source-journalist relationships.

Backpack journalism disadvantages

Backpack journalism still has its major pitfalls. Apart from the technical limitations of using a consumer-sized camera and decreased newsroom collaboration, another downside of backpack reporting was the reporter's focus on technology rather than content. As evidence was the collection of technically useless interviews that were recorded out of focus because the tripod got knocked while the attention was on the emotional story. In another instance the microphone became faulty, resulting in an inaudible recording after the journalist checked it and left it unmonitored while conducting the interview. Reporting solo also left less time for traditional journalistic practices such as cross checking of sources and finding contextual information (as also identified in Avilés, León, Sanders, & Harrison, 2004).

The fear of technical malfunctions or missed contextual information – whether they occurred or not – added tremendous stress levels to backpack journalists covering Typhoon Haiyan. Traditionally there would have been a team overseeing the story, so if one journalist missed something, another one would notice. Thus, multitasking adds to increased work pressure (Deuze, 2008) and leads to higher stress levels among journalists (Wallace, 2009). This is especially true in a demanding disaster report where a reporter gets a one-shot chance to interview and record.

For the communication team, a solo journalist poses risks that may end up their responsibility to solve, such as a physically or emotionally fatigued foreigner. Also, the journalist may turn to the communication team to help with technical maintenance, battery charges, or short-notice accommodation.

Data journalism advantages

Prior to digitisation, journalists had limited space and airtime available for big data. For instance, our complete list of foreign aid pledges and donations for the Philippines' recovery would require at least two pages to publish in a newspaper and might be too cluttered for print publication. Likewise, a broadcast report would usually highlight one or two examples of donations using graphics and then simply state the sum total. On the other hand, data journalism extends the range of storytelling by allowing journalists to showcase complex data through engaging and interactive visuals and providing the audience an option to choose the content that is important to them. A crisis communication team would normally lack the time or resources to produce data information to enhance the news in this way, which makes complex statistics easily digestible by the media audience.

Data journalism disadvantages

The disadvantage of this journalism style in a disaster event is obviously the limitations in obtaining large amounts of figures and statistics, and especially the time required to verify the accuracy of the data. Journalists sometimes lack the time to gather and organise the data effectively. A more pressing disadvantage, however, is the added time and effort put on communication teams managing the disaster recovery. Officials who had access to the information were more focused on basic rebuilding and recovery tasks, and rushing data without double-checking accuracy can lead to erroneous media reports.

Drone journalism advantages

The use of video cameras mounted on small remotely piloted aerial devices is based on the 'drone' devices used by the military in the Middle East. The civilian use has been quickly picked up by journalists, especially in natural disaster crisis situations. They are particularly useful in allowing journalists to film risky situations while keeping themselves physically safe on stable ground. Compared with the traditional video camera restricted to a land-based tripod or hand-held by the photographer, the aerial camera gives a better view to the media audience, and is considerably less risky for the journalists.

Some emergency response personnel in the Philippines found drone footage captured by international journalists useful in communicating the impact of the disaster as well as in assessing the extent of damage in their locality (personal communication, July 30, 2016). An international NGO, on the other hand, was able to use drone recordings to plan housing interventions after the disaster (personal communication, July 30, 2016). In some instances, drones capture such unique overview photos of the devastation that it helps encourage aid to the country. As a recent example, in the Nepal earthquake and Vanuatu cyclone, even the aid organisations brought their own drones to take footage and send out to global media, to ensure audiences got a feeling for the massive destruction (personal communication with UNESCO, June 4, 2015).

Drone journalism disadvantages

A current problem for operators is the ever-changing legal constraints – which vary from country to country, in addition to being constantly updated (Strong, 2016). Some countries, such as the USA, specifically restrict journalists using drone photography; while others such as New Zealand and Australia have relatively open usage. Some developing countries have no rules at all. This causes problems in natural disasters when foreign media show up with drone video cameras and

are unaware of local regulations. The Philippines, however, is open to flying drones except in populated areas, airports, military training camps and over the Malacañang Palace, the official residence and workplace of the President (CAAP, 2014).

Drone journalism also affects those who are crisis managers for the affected region. From the technical point of view, many drone battery charges are only for half an hour, and they need constant recharging. At this early stage of drone journalism in natural disaster coverage, many crisis communicators will not easily distinguish between an experienced drone journalist and a hobbyist who may be using it for the first time, thereby also producing less than professional products, as demonstrated in many instances where journalists use a drone almost like a toy without the video adding to the newsworthiness of the final production (Strong, 2016).

Table 2: Advantages and disadvantages of new digital media for crisis communicators

New digital media	Advantages	Disadvantages
Backpack	Better global stories Less demand for media tents/power/big-equipment facilities Less pull on generator Fewer media people obstructions Provides global audience with the human face of the disaster Unobtrusive in crisis operation	Invisible journalists impossible to manage Inaccessible for updated information Blurry distinction of journalist vs hobbyist More media opportunity to find and publicise mistakes
Data graphic	Global audience better understand contextual information of the disaster Journalists' analysis of the data may inform communication team too	Time to find and verify statistics Journo demand for 'exclusive' data sets Time conflicts between data search vs field help
Drone camera	Puts disaster in context for global audience Journalists kept safe Visualisation of widespread damage emits empathy from global audience Possibly more financial donations Possibly more inter-country help Provides better community face of the disaster	May annoy and scare victims Privacy concerns Inexperienced pilots Inability to identify hobbyists Need to provide power for battery charging Some journalists unaware of local regulations or airstrip locations

Conclusions

The continual growth of digital media technology has altered the method journalists use to cover disasters, and in turn has altered the challenges for crisis communication staff who manage disaster events. The new technologies used in the Philippine typhoon disaster were beneficial to the global media audience, which gained a deeper understanding of the disaster event and its impact on the community. Crisis communicators would welcome public empathy with the survivors and those trying to salvage or rebuild the disaster areas. This was possible through journalist and communication teams cooperating together, even though they often work as competitors, which extends Brandenburger and Nalebuff's (1996) model of Coopetition into the public relations digital arena.

The new media technology, however, is a mixed blessing for both sides. Yes, it allows the journalist to move swiftly and deftly through disaster areas to gain significant stories. This speed, however, sacrifices the safety of working in a team. More accidents can happen both to the reporter as well as the equipment. At the same time, crisis communicators face difficult decisions, and their focus on salvage work may lead to decisions that ban some of

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the new media technology, simply to eliminate extra work. This analysis, however, indicates banning drones or refusing to help backpack journalists would be short-sighted for the strategic goal of better global media stories, leading to a more informed public. Communicators who work towards the model of public information, and acknowledge the theories of freedom of information and expression, can also acknowledge that aiding journalism endeavour, regardless of size and equipment, will maximise output and minimise effort overall for serving the media audience.

The media is an efficient method for a country to inform the rest of the world of its plight, especially when leaving it to professional journalists who can deftly disseminate the new technology images and text, even when normal community life and infrastructures are destroyed. Worldwide audiences can help, once they are made aware of the pain and misery suddenly heaped on a community through unavoidable natural disasters. In the Philippines' situation, the country received a whopping $2 billion in foreign aid within months of the typhoon devastating the country. This was such a significant amount that officials clearly reported that any delays in rebuilding the area were not because of lack of funding (Zafra, 2014). The publicity helped quickly mobilise foreign agencies and equipment to deal with the destroyed buildings and homeless residents.

Although the agendas of the crisis communicators and journalists may be very different in disaster situations, the overarching mission to ensure the local and global publics have accurate awareness of the situation can be put into action through news media stories. Despite their competitive agendas, with advanced digital production shown in this case study, the two sides work cooperatively in what we refer to as Digital Coopetition. They compete, but still cooperate to ensure the journalists can get the stories out on the global digital platform. Like the classic model of Coopetition, the two sides have differing agendas but find it mutually beneficial to help each other attain their goals.

As shown in Table 2, there are benefits and challenges to disaster communication managers

when journalists use new technology. Drone cameras keep the journalist physically safer from falling debris and unstable footholds, while producing unsurpassed visual stories that help the global audience understand various aspects of the disaster, and develop empathy for the victims and damaged community. This in turn can lead to more financial donations and a greater emergency response. On the other hand, the high-pitched sound and menacing sight of the drone vehicle can annoy and scare those victims or local residents on the ground. It is also difficult for communication teams to identify who is an experienced drone journalist, and who is a hobbyist or inexperienced operator who may lose control of the contraption, allowing it to crash into vehicles and people. Even experienced drone operators may not know the location of airstrips, thereby wandering into the path of low flying planes and helicopters. They also may be unaware of the local rules for the devices as far as night flying or restrictions on height and distance from the operator.

Table 1 shows that backpack journalists are able to quickly and easily integrate with the local community and obtain deeply first-person stories, which elicits strong global readership/viewership. Being alone means the journalist does not need a large workspace, or cause equipment power surges and obstructions, as is often the case with multi-person media teams. However, this invisibility of the backpack journalist also means government agencies may not be aware they are on location, and thereby have no contact with them. This means the agency does not give them updated information, security checks or survival guidelines. While under the radar, the backpack journalist has the opportunity to talk to anyone in a private situation, which can lead to disgruntled community victims revealing shortcomings of the rescue agencies, whether or not the criticism is warranted. Another drawback is that bona fide backpack journalists can be seen as the same as hobby reporters who have no qualifications or experience in journalism. On the other hand, agencies may ignore hobby reporters, thinking they are experienced backpack journalists, allowing

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them to create obstructions, and re-victimising victims with inappropriate discussions.

The data graphic requirements of journalists can be the most time consuming for communication managers, as seen in Table 1. Although the audience appreciates and engages more with stories that condense massive facts and figures into infographics, this creates conflict with communication managers who are the ones who have to provide the raw data. Managers may find it overly demanding when journalists ask for large amounts of raw data with short notice. The outcome, however, can be illuminating in that the journalist may find a novel analysis of the figures, and their story gets more widespread audience than anticipated.

Table 3: Strategic communication guidelines for cooperating with digital disaster journalists

New digital media	Crisis communication plan inclusion: Provide to digital journalists
Backpack	Workspace Power outlets Latest statistics Personal safety information Extra SD cards, readers, etc. Extra USB storage Regular contact
Data graphic	Accurate data Data easily accessible (web or hard copy) Ability to provide big data on excel or CVS format Basic information already in infographic jpegs
Drone camera	Local drone regulations Map of airstrips Battery recharge spaces Safe location for lithium battery

In order to be strategic, crisis communicators can prepare guidelines that proactively inform agencies about the emerging new technologies used by their media stakeholders, as listed in Table 3. As an example, crisis managers should know and provide information on the national civil aviation drone regulations, if any, plus a map of all public and private airstrips that may be used for relief deliveries. These are more useful if provided both on websites and hard paper copies. Also there should be facilities available to drone journalists to recharge batteries, which include safety measures for lithium batteries. Someone should be tasked with seeking out and helping backpack journalists by providing a workspace, power chargers, and updated information. Crisis managers should anticipate the possible request for big data figures, so that statistics and figures can be accessed immediately. Online platforms should also be utilised well as a repository of disaster data. Be prepared to provide the raw data in Excel or spreadsheet form for easier data visualisation. It is also important to be meticulous in updating figures such as fatalities and homelessness in terms of location, age, gender, and nationality. Crisis managers should provide updated information on aid money received, including recipient country, amount pledged and amount received.

In conclusion, strategic communication plans are wise to include steps to assist journalists using backpack technology, drone cameras, and data infographics as a form of Coopetition to attain their cooperative mission to help media audiences better understand the world around them. This type of crisis communication is not adversarial with journalists, despite their having competing

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agendas behind the ultimate stories. Unlike previous eras, with bulky analogue equipment, the new style digital journalist can produce energised stories quickly and relatively effortlessly for the communication teams, which only need to provide the environment for the journalist to work in. The technology allows the news to speedily reach all corners of the world, and in a form that can be easily understood. Communication managers in natural disaster situations can develop symbiotic relationships with the media to ensure their crisis stories get out to all audiences, thereby creating an informed public. The up-to-date crisis communicators will understand and embrace new technologies of journalism and ensure they help, not hinder, their media stakeholders.

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