# FILTERING SCIENCE: CONVEYING SCIENTIFIC INFORMATION THROUGH LOCAL TELEVISION NEWS MEDIA

by

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A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Fine Arts

in

Science and Natural History Filmmaking

MONTANA STATE UNIVERSITY

Bozeman, Montana

November 2016

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# ABSTRACT

Dissemination of scientific data to the general population is problematic for scientists. Considering that science relies on public support for continual funding, timely and accurate communication is crucial; however, informing the general public on the latest research, in a relatable narrative, is not the primary function, nor the focus of a scientist. Co-mingling scientific and technical jargon with anecdotal stories, (that are inherently found in narratives), risks a breakdown in communication leading to unintended consequences for both the audience and the scientist. Bridging the gap between specialized sciences and the general public is the de facto local television news organizations. As a primary dispersal source, it is television news that dribbles scientific information across the audience spectrum. While television news still is considered the most trusted source for broadcast information, the internet is competing in a dead heat while other sources, such as newspapers and magazines are being left behind in the dust. Retrieving data anywhere, and at any time, is propelling the emerging trend of multi-platform accessibility and television news will be required to compete with much higher standards of data recitation.

# INTRODUCTION

Inherent in the scientific method is the analysis of data. While explaining the scientific method, Alina Bradford, on the website *Live Science* recaps the definition of science: "The word science is derived from the Latin word scientia, which is knowledge based on demonstrable and reproducible data…" (qtd. in Bradford). Regardless of the subject, information is collected and data points emerge out of patterns and trends. Pieces to puzzles begin to snap together, exciting the scientists who have dedicated unstinting energy towards solving "their" individual puzzle piece of interest: a miniscule point in the mysteries of animate and inanimate life.

The last step of the scientific process is the communication of results to both the scientific community and the general public. Communicating scientific discoveries in an understandable and relatable context to the general, non-expert, (and to some extent an uninterested) public is problematic for scientists. Deciphering the amalgamation of data into a simple narrative pushes a scientist out of the lab and into the uncomfortable realm of society at large; the classic nerd at the cocktail party scenario. If the scientist communicates his or her research too simplistically, critical information can generalized and facts lost in translation. Generalizations lead to assumptions, and fundamentally, assumptions lead to a bastardization of research, thus propelling the scientist into an intellectual paradox, however, promulgating scientific research is a requirement for public funding via tax payer dollars and is the lifeline for future

discoveries. It is also a requirement for national security and personal providence, both for the scientist and the population at large.

In the mid-1800s, President Abraham Lincoln recognized the need of providing scientific information to the nation; even if it was divided and decimated by the Civil War. In an era where knowledge dissemination en masse was still in its infancy, leaders in the United States saw value in sharing information from both a national security and commerce perspective. According to the "History" and "Mission" sections on the *National Academy of Sciences* website, on March 3rd, 1863, the National Academy of Sciences was created and its mission to "further science in America," subsequently signed into law. Additionally, NAS is tasked with, "providing independent, objective advice to the nation on matters related to science and technology" (NAS "Mission").

From nuclear proliferation to biological warfare, this non-profit society of science scholars also provides expert advice and recommendations to the government that often forms the basis for national security policies. This is important because it provides a central gathering point and clearinghouse for all scientific forms of research and study. Information found on the *National Academies of Sciences, Engineering and Medicine* website, (a branch of the NAS), illustrates the critical need for science as it relates to the security of our nation and the survival of our species on this planet.

> The *National Academy of Sciences* (NAS) formed the Committee on International Security and Arms Control (CISAC) in 1980 as a permanent committee to bring the resources of the Academy to bear on critical problems of international security and arms control.

> CISAC, in the Policy and Global Affairs Division, draws from the nation's finest scientific, technical, engineering and medical talent to advise the government, contribute to the work of non-governmental organizations, and inform the public about scientific and technical issues related to international security and arms control.

While the NAS is the science and technology advisory arm to the United States Government, the National Science Foundation (NSF) is tasked with actually promoting scientific research. According to the *National Science Foundation* website, the NSF "is the only federal agency whose mission is to promote the progress of basic research in all fields of science and engineering." Further information from their website identifies the NSF 2016 budget as being $7.5 billion dollars. With that funding comes the accountability of how billions of tax-payer money is spent in the pursuit of science. Accompanying fiscal accountability is the transparent propagation of acquired research knowledge. United States citizens want to know where, and how their taxpayer dollars are being spent, and how the science is going to enrich their lives. This transference of scientific literacy requires communication skills that is often left to the expertise of non-scientists.

Translating facts and data into an understandable narrative can be problematic. What happens when critical scientific study information is only partially communicated? How will a scientist seek implicit or explicit public support for his or her research? What happens to scientific integrity when research data get distorted for political pain and economic gain? Timely, accurate, project communication to non-expert citizens should defray any mystery surrounding individual research topics, garner support for continual

funding of related research, and inform the public as to how this particular bit of insight will enhance or improve their lives.

Encouraging scientific literacy is a lofty goal fraught with pitfalls. The interplay within the social, political and economic arena, takes on various forms in order to sway public opinion. Fabricators, instigators, and hyper-ventilators stand on the sidelines eager to prevent data transparency and instigate data confusion among audiences. After all, the last place a scientist needs his or her research to end up is in a paragraph in the notorious *Wastebook* compiled by United States Senator, Jeff Flake. A tradition started by former Oklahoma Senator Tom Coburn, the *Wastebook* highlights wasteful government spending and many NSF and National Institute of Health projects make the list (Harrington, “Wastebook 2015”).

In 1948, in the era of McCarthyism, President Harry S. Truman eerily predicted a future of acrimonious assault on science stating, “Continuous research by our best scientists…may be made impossible by the creation of an atmosphere in which no man feels safe against the public airing of unfounded rumors, gossip, and vilification” (Mann 146). While some consider scientific study under attack, others in the scientific community have directly contributed to the inquisition. The tobacco, sugar, chemical, agricultural, pharmaceutical, and fossil-fuel industry are all guilty of hiring scientists to sway public opinion with agenda-based, scientific studies replete with facts and data embedded in a narrative skewed in their favor. The goal of the tobacco industry, covered in the

book *Merchants of Doubt*, was to “develop an extensive body of scientifically, well-grounded data useful in defending the industry against attacks” (Oreskes Conway 13). As Mark Twain sententiously stated, “There three kinds of lies: lies, damned lies, and statistics” (Twain and Neider 195). Accomplices in this information dissemination game, are the diverse media outlets. The focus of this paper, however, is the role that local television news stations play. Local television news media outlets in the United States are the primary propagation point for information dispersion. According to 2016 data from the Pew Research Group, found in the report entitled, “The Modern News Consumer”:

> TV continues to be the most widely used news platform; 57% of U.S. adults often get TV-based news, either from local TV (46%), cable (31%), network (30%) or some combination of the three. This same pattern emerges when people are asked which platform they prefer – TV sits at the top, followed by the web, with radio and print trailing behind. (2)

Even among the transmedia landscape, television is not dead, yet! Pew research continues to substantiate an earlier 2014 poll, led by the American Press Institute. In an article entitled “How Americans Get Their News”, found on the *American Press Institute* website, their data states:

> Television news organizations are the most popular news source for Americans. Whether from the TV broadcast or the station’s website, 93 percent of Americans say they used some kind a TV news operation as a source of news in the last week.
>
> Among the different types of TV news, more Americans (82 percent) turn to their local TV news stations either through the TV broadcast or online than another other type.

The symbiotic relationship between scientists and the news media is evolutionary. News media objectives, however, are driven by profit margins; not the altruistic notion of delivering knowledge for the sake of improving the lives of its viewership. Advertising dollars form the bedrock for station revenue and media consultants are hired to provide guidance from hairstyles to the length of each news segment in an effort to retain viewership and the subsequent exposure to advertising. As a result, the quest for market share competes with investigative journalism in the form of “infotainment” or sensationalism of subject matter. In an article entitled, “The Need for Critical Science Journalism” by Jalees Rehman, in the US edition of *The Guardian*, infotainment is described as providing science news in an entertaining fashion. Rehman, states:

> The "informing" typically consists of giving the reader some historical background surrounding the scientific study, summarises key findings and then describes the significance and implications of the research. Analogies are used to convey complex scientific concepts so that a reader without a professional scientific background can grasp the ideas driving the research.

The entertainment component is where science information can be corrupted. In an effort to improve ratings and increase advertising dollars, a broadcast entity has to stand different from their competitors. A well-worn technique is to claim to be the first entity to communicate late-breaking news in the form of odd discoveries, strange phenomenon, and medical mysteries. It is important to understand this popular medium, what motivates programming and how it is feeding scientific knowledge to the general public.

# THE TELEVISION NEWS CONDUIT

Television stations, operating with transmission within the United States, are for-profit enterprises regulated by the Federal Communications Commission. The responsibility of the FCC is stated on their website as:

> The Federal Communications Commission regulates interstate and international communications by radio, television, wire, satellite, and cable in all 50 states, the District of Columbia and U.S. territories. An independent U.S. government agency overseen by Congress, the commission is the United States' primary authority for communications laws, regulation and technological innovation.

While operating under various laws governing certain possibly objectionable content, (nudity, language, and violence being the most notable), there are no specific mandates requiring stations to promote one form of content over another. The free-market enterprise, cloaked by advertising dollars, dictates what we can watch; therefore, pushing any resemblance of a scientific agenda is largely dependent on, and promoted by economics.

There is one exception to FCC regulation that does loosely push science. The Children's Television Act of 1990 (CTA) requires, “television broadcast licensees to serve, over the term of a license, the educational and informational needs of children (ECFR).” Requiring educational and informational programming aimed at improving the intellect of children 16 years of age and under, this FCC mandate meets the burden of providing free community information for the nation’s youngest citizens.

Each week stations are required to hold a minimum of three hours of regularly scheduled, thirty-minute educational programs called “core programming”. This mandated programming must air between the hours of 7AM and 10PM local time and is subject to strict advertising rules. Since weekday timeslots are covered by local news and daytime television, and are heavily embedded with highly coveted advertising spots, most of this core programming is offered on Saturdays, thus eliminating the Saturday morning cartoons that pre-90s children enjoyed.

Educational and informational programs meeting the CTA criteria must be stamped, on screen, with the “E/I” symbol (ECFR). Stations not in compliance can face fines. For example, broadcast entity KICU of San Jose, California, was fined in 2014 for not identifying one of its core programs with the E/I symbol. In its petition for license renewal, KTVU, the licensee of KICU, admitted to the mistake, and stated that it had corrected the problem. Instead of the eight thousand dollars it could have been fined, the Commission reduced the fine to three-thousand dollars (FCC eDocs). In the matter of educational programming content, the FCC does seem to take the matter seriously.

While children’s programming covers the sciences and natural history, to some extent, adult exposure is less focused and mainly transpires through local daily news shows, or during weekly network newsmagazine broadcast shows, such as *60 Minutes*. Like the children’s game of Gossip, (whereby one child is told a sentence and that child repeats the sentence by whispering it to the next

child, continuing until the message is relayed to multiple children), bits of information always get lost in the translation and retransmission. The propagation of scientific facts and data through the local news is truly hit and miss coverage.

Dissemination of fractional pieces of systematic knowledge is at the mercy of the Executive Producer or News Director of each news show. Armed with an infotainment agenda, station news anchors must write attention-grabbing headline teases and a reporter must compress a press release to fit within a few seconds of broadcast time.

The newsroom is a high pressure environment. Reporters are focused on the late-breaking information delta between yesterday and today, not the science narrative, or zeal to educate the public. KCNC 4 Reporter, Jamie Leary, states: “I can’t remember the last time we had a science based story.” Albeit a cliché, the old adage, “if it bleeds, it leads” is the primary driver behind what is shown during the nightly newscast. The viewing public is still fascinated by the “train wreck” of life, not the existential questions that provoke thought among the sciences.

When I produced an Antarctica series during the 2013 February Sweeps, for KBZK, I would go out to the stations internet site to see how many clicks the written version of the Antarctica packages was garnering compared to the other written news stories of the day. Seven of the eight news packages I produced were about science taking place at the bottom of the earth. While not a Nielsen

level poll, the statistics did give me a view of who was accessing the stories online. Every night, the drunk driving arrests in Butte, Montana, the domestic assault and abuse cases, or horrible accidents, garnered more attention than the Montana-based, late- breaking science news coming out of Antarctica. And, if you add in my small fan base across the United States, those who were eager to see the stories who lived out of area, the number of true online news viewers, as I remember, were even less; about one-fourth of the total web site visits.

During a thirty-minute news broadcast, roughly ten minutes is consumed by commercials leaving twenty minutes for news, weather and sports stories. With these type of time constraints, it is difficult to disseminate significant information in nothing more than a sound bite. Viewers are often left frustrated because the information covered during the piece, just a few seconds beyond a tease, leaves the viewer with more questions than answers.

A recent example of this type of limited information coverage occurred during the first week of November, 2016, when Washington state ABC affiliate KOMO broadcast a story, “Health Officials Investigate 8 Cases of Kids at Children's with Neurological Illnesses” citing 8 children in the area had developed mysterious polio-like symptoms within the previous six weeks. According to the news story, the Washington Department of Health in conjunction with the Centers of Disease Control and the Seattle Children’s Hospital are looking into the possibility that these are all cases of a rare condition known as acute flaccid myelitis (AFM) for which there is no known treatment or cure. Marijo DeGuzman,

the mother of one of the children profiled in the story sums up the frustration, angst and sorrow:  “Whether my son lives or dies, parents need to know about this."  Other than the profile of a dying child, the news story just dropped scary tidbit of information regarding an emerging health pattern, but failed to produce in-depth coverage.

# THE NEWS BROADCAST

News shows are produced using a series of intertwined stories running anywhere from fifteen seconds to roughly two minutes. Glenn Halbrooks provides common industry definitions in his article entitled, “B-Roll to VO SOT: Definitions of Common TV Broadcasting Terms.” Stories are categorized as sound on tape (SOTs), voiceover to sound on tape (VO/SOTs), and news packages. SOTs are sound bites covered by B-Roll and generally run around fifteen seconds. VO/SOTs are accompanied by a live news anchor who reads an introductory script while the voiceover segues into a sound on tape. These stories run under forty-five seconds. There can be multiple variations of SOTs and voiceovers; for example, a SOT/VO/SOT.

Coming in at around two minutes or less, news packages are the longest running stories. Two minutes during a thirty- minute broadcast is considered an unusually long time. When I worked as a reporter for a local CBS affiliate, the News Director, John Sherer, repeated a quote he had heard at some point in his career: “if your story is over two minutes, it better be God that is talking; otherwise people lose interest.” While the origin of the quote is unclear, research has shown that our attention spans are shrinking. *Time Magazine* reports that we have lost four seconds of coherent thought. In an article entitled, “You Now Have a Shorter Attention Span Than a Goldfish” author Kevin McSpadden relays research from the Microsoft Corporation. According to the researchers in the study, our digital lifestyle is causing us to lose focus after 8 seconds.

Each local network affiliate produces its own news shows, catering to the demographics of its respective community. When it comes to scientific topics, however, public interest generally centers around healthcare, food, weather, environment and energy. Stories, therefore, usually fall into one of these categories. According to Heidi Meili, Anchor at Missoula, Montana, NBC affiliate KECI:

> It costs a lot of money to run a TV station, so most of them do some kind of survey to find out what viewers in their communities want to see. Many often say they want any information on what could put their families in danger. So, they may not be specifically requesting 'scientific content,' but scientific headlines like tainted food, or bad medical procedures and medicines, or water and air pollution are all covered under that sentiment from viewers.

Health news affects viewers the most and by providing medical related content, anchors and reporters alike, keep the general public informed about the latest advances and disease discoveries in medical science. Some stories start small, gain momentum, and then dominate coverage for years to come. Such was the case on June 12, 1982, when San Francisco CBS affiliate KPIX became the first station to break a temperate news story on a group of gay men with Karaposi Sarcoma symptoms. That story was reported by Barry Petersen, now a CBS network news correspondent. According to his biography on the *CBS News* website, he has the distinction of being the first to report on the “then-new disease called Acquired Immune Deficiency Syndrome (AIDS).”

The symbiotic relationship between scientists and news outlets is most pronounced in the health and medical sciences. News outlets do provide an

invaluable service to the viewing audience. Hope! The latest drug trials leading to cures, tests for early disease detection, improved ways to manage diet and exercise all provide information and promise of a better life. Cautious optimism sneaks in when news propagates the latest findings by peppering scripts with modal verbs; such as, would, could, may, and should, just to keep from over-promising and under-delivering.

As a television viewer, one medical news story had a profound impact on my life and the life of my late husband. In the mid-1990s, a local Denver station aired a medical story about the latest “smart” drug to fight Non-Hodgkin lymphoma. Albeit a brief news package and lacking facts and figures, it spurred a desire for further research. The information we gathered ultimately prolonged my husband’s life. The story mentioned the name of a new drug. Armed with the name of the drug, I began searching for any information I could find about the drug. At the time, this was a new class of drugs in the early stages of approval for human consumption so information was scarce. After dedicated research, and prepared with data, I took the information into the oncologist and we asked to be part of the trial. (This became a pattern after realizing the power of research in fighting the war against cancer.) At first we were dismissed, however, a year later he became the third patient in the Rocky Mountain region to obtain the one-time dose of a $25,000 drug. I am convinced that if I had not heard this story on the news, which subsequently sent me into research mode, we would not have obtained this drug. That particular “smart” drug probably

added three more years to his life. Thinking back, it still amazes me the impact that one local news story had on our lives.

When asked how CBS affiliate KPAX decides what science based stories to run, former Missoula based KPAX News Director, Mike Powers states, “Often our meteorologists will contribute ideas. It is generally determined by the impact or importance of the story or its visual impact. A breakthrough in a new drug would get strong play because of significance, while a rocket launch or volcanic eruption would be considered for the visuals.”

Some news producers run topics that mirror local businesses or universities. For example, Montana State University is a regular news beat for KBZK (CBS) and KTVM (NBC) due to the plethora of ground-breaking research going on at the Bozeman, Montana campus.

In Colorado, Denver-based (large market), CBS Reporter for KCNC 4, Jamie Leary mentioned, “if there is a leading science story locally, we would cover it. There have been a lot of developments in the aerospace world. We have Lockheed Martin here so we have covered those kinds of stories.” Meili further elaborates that in Missoula, the local NBC affiliate she works with looks for stories with a local angle, “We cover local science content including climate change studies by Nobel Laureate and University of Montana Professor, Steve Running, experiments at Rocky Mountain Labs in Hamilton, and other local entities like one devising new types of dishwasher detergent.”

## REPORTING VERSUS INVESTIGATION

Common constraints among all local broadcast stations, especially in small markets such as Montana, are the lack of resources to execute an in-depth analysis or investigation of any story. In small markets, reporters have to shoot, write, edit and upload their own stories just in time for the daily news broadcast. This “hello” and “goodbye” approach to news gathering means television stations rely heavily on secondary and tertiary resources for information and STEM news is usually a repackage of a national piece from a broadcast network.

Heidi Meili, Jamie Leary, and Mike Powers all brought up the reliance on resource distribution services such as *CNN Newsource* and *CBS Newspath* for in-depth science news. Ironically, as competitive as network affiliates are, both Leary and Meili, (Leary is with a CBS affiliate in Colorado, and Meili with an NBC affiliate in Montana), mentioned CNN as their number one go-to resource for science based stories, late-breaking medical news and the visual aesthetics of nature. A clearinghouse for stories, these subscription-based services can be instantly accessed by news personnel for rich content and B-Roll that otherwise would not be available on a local level. Each affiliate also reaches out to their respective national networks for additional in-depth stories to fill programming blocks.

The national broadcast networks have on-staff Medical Directors, however, they do not dedicate headcount positions to trained science reporters.

Most Science Journalists, trained specifically for this type of reporting, work directly in the print medium, not television.

Television news is not equipped, nor is its purpose to ferret out the merits of scientific data. Its purpose is to pass on information that satisfies the market demographics they represent. This is where infotainment resurfaces. "Infotainment science journalism appears to operate under the assumption that if a scientific paper has been peer-reviewed and published by conscientious scientists, the results and conclusions are valid" (Rehman).

Many producers will rely on information coming from Public Information Officers (PIOs) of various organizations. Hospitals, laboratories, pharmaceutical companies, science technology corporations, collegiate and government institutions all have Public Information Officers (PIOs), whose primary function is to provide information to the media. These individuals bridge the communication gap between the scientist and the general public. Each PIO comes bearing an agenda to promote "their" cause, whether it be through written articles, press bulletins, speeches, educational conferences and roadshows, promotional videos, or news appearances.

On the *American Association for the Advancement of Science* website, (an organization founded in 1848 - long before advent of multi-media sources), the role of the PIO is discussed, highlighting the important functions a PIO serves while assisting both the scientist and the media.

Working with journalists gives scientists opportunities to provide accurate, informative updates about the latest research to the general public, decision-makers, funders, and other scientists. Specifically, scientists can:

- **Reach a wider audience:** Journalists help scientists reach the broader public, decision-makers, and grant-makers, not just those actively seeking information about a particular topic.

- **Raise awareness:** Consistent and accurate news coverage can increase public awareness of specific work and of science in general.

- **Create positive attitudes:** Stories about current science discoveries and future science goals can help generate enthusiasm for research and support for funding.

According to the National Science Foundation's "Public Communication and Media Policy," the objective of the Public Affairs office is as follows:

- Promoting media attention on important scientific and institutional developments;

- Coordinating and facilitating contact between journalists and the requested agency staff;

- Providing both reporters and scientists with timely, accurate, and professional media assistance; and

- Providing draft press releases or other public statements to agency scientists whose work is included, to assure the accuracy of scientific information being communicated (NSF).

Even though the NSF is still a government bureaucracy, it reigns as an excellent resource for information. The NSF holds a treasure trove of STEM information with a massive database of papers, journals, photos and videos

created by PIOs from individual projects. Not many television news journalists think of the NSF as the first go-to source for “filler” stories, or as a repository for research data.

Local and state agencies often have resources for news organizations to tap into. For example, the state of Montana has a great video resource outlet produced for outreach education by Montana’s Fish Wildlife and Parks government agency. Weekly spots are produced and given to local news outlets for broadcast. The MTN Network usually runs these features in the Saturday evening news cast.

PIOs are an excellent resource, however, when using a PIO, or passing on the work of another organization, transparency is important. Reporters should make an effort to include details regarding how a study was funded, or elaborate on the source of the information.

# ANOTHER VISION

Multi-media convergence is fueling a new breed of science storytellers. The PIO landscape and the traditional television news industry is ripe for a new type of innovative science promoter; the breakout renegade schooled in visual, technical and artistic craftsmanship armed with the ability to write clear, concise narratives. This hybrid "Reporter" will propel science past traditional media platforms by popularizing science through documentary short film that is easily accessible in responsive web design (RWD) formats found on smart phones, tablets, gaming consoles and other IoT devices. As satellite and broadband technologies fueled the cable boom of the 1980s and 1990s, IoT technology will provide a home for new science narratives. Blue chip films are glorious, but are expensive to produce. It is time for a new "chip" that is not blue!

An example of this type of in-depth, hybrid reporting is the upcoming release of the revamped series *Explorer* produced by National Geographic. According to the November 6, 2016 edition of *MultiChannel News*: "…cable television's longest-running documentary series mixes intrepid field pieces, roundtable discussions and in-depth interviews in a continuation of the series' legacy of pushing the boundaries of journalism." While this show will not be totally dedicated to science, there will be science segments. Claiming "hard-hitting investigative stories from all over the world" this weekly program marries news with documentary film and provides the opportunity to educate the consumer in a longer format than a two-minute news package.

I envision a new industry “disrupter”, which I define by the acronym CHIPS. This acronym stands for: Chunks of Internet-Based Programs. The purpose of CHIPS is to be a web-based portal platform whereby short, science based documentary stories, “chunks” that are no more than 3 minutes long, are housed and retrieved. Think of a three-way intersection whereby Netflix intersects with each science based RSS feed available, and acts as a multi-media clearinghouse, such as POND5. Similar to FedEx’s network of transport capabilities, CHIPS will leverage digital transport capabilities for science short stories and algorithm capabilities currently used in “big data” mining. Imagine the possibilities if IBM’s Watson obtains a degree in Science and Natural History Documentary Filmmaking.

The CHIPS portal only caters to short video packages instead of written articles, journals, blogs, etc. CHIPS is not a warehouse for longer documentary films, nor long-form films. As attention spans become shorter across the digital landscape, and the information burnout we all are familiar with increases, so does the need for documentary film to follow the lead of the television news journalist; tell a story in under two minutes. Promoting the experiential journey, these short science narratives must cater to the senses by engaging the eyes in rich visuals, locking the ears on to natural sounds and the inviting the brain to ingest the message.

Embedded in the meta data of each chunk is the easily retrievable pedigree of each story: 1) Who funded the research; 2) Names and Institutions of the principle researchers; and 3) Detractors of the research. The scientist, the outreach coordinator or PIO, own the content and are responsible for submission, however any submission must meet the basic transparency criteria. In order to be self-sustaining by paying for cloud hosting services, there would be a subscription fee to submit and to retrieve content, however, the rules of engagement, such as standards for transparency and policing would be similar to those at *Retraction Watch*.

The difference between this model and *CNN Newsource,* (or *CBS Newspath),* is the scientist (or designee) owns and produces the content. Not a television producer or reporter. The story is no longer passed through multiple hands and repackaged for other purposes.

Since scientists are busy working on research, another income opportunity for filmmakers becomes available. Just as public relations consultants have multiple clients, a filmmaker can carve out a niche by producing short films for many scientists by tapping into the grant funds already available to scientists strictly for PIO purposes.

# CONCLUSION

The age of communication inundation is growing exponentially, side-by-side with computing capacity. Consumers are losing patience with the constant barrage of “latest and greatest” breaking news. Coupled with the fact that digital platforms are evolving and news audiences will eventually morph into an eclectic set of distribution channels, dissemination of science information must find a new, more reliable format. Successful differentiators will be those entities that can produce thorough, documented information quickly, accurately.

Just as the telecommunications landscape changed after divestiture, the break-up of the “Bell” phone company monopoly, the news industry is next in line, and overdue, for a major overhaul. Rasmus Kleis Nielsen and Richard Sambrook, in their article entitled: “Digital Disruption is Coming Quickly to TV News; How Can Broadcasters Adapt and Respond?” call this era the “golden age of television content.” The news revolution will be forced by Millennials and their successive generations who are not as tied to consumerism or advertisement as previous generations. Nielsen and Sambrook further elaborate: “Because the environment is changing so rapidly right now, and because no clear set of best practices has been developed, the most important thing television news providers need to do to be in a position to respond effectively is to ensure that their organizations are capable of constant adaptation and change.” Now is the time for documentary filmmakers, news journalists and other passionate

professionals to facilitate smart collaborations and capitalize on a new industry of information dissemination.

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