Foundations for a responsive and relevant science journalism course

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Abstract

When typhoon Haiyan hit the Philippines on November 8, 2013, it also brought to light one serious concern -- the need for science to be understood, appreciated and taken seriously by all Filipinos from all walks of life. Media reports on Haiyan, in terms of quantity, did not fall short but research have established that they were lacking in saliency, depth and clear messages of the risks[1].

The blame game among stakeholders including local scientists, the government, the general public and journalists that ensued at the aftermath of Haiyan was but a symptom of a bigger concern – that there is a dearth of qualified and dedicated science journalists in the country, and that science journalism remains an underappreciated beat. A UNESCO report identified "absence of training" as the "genuine obstacle" to addressing the concern among developing countries.[2]

Recognizing the urgent need to train and support science journalists in the Philippines and in response to the UNESCO report, this paper seeks to gather base information needed to design and develop a science journalism course to be offered as an elective course in the graduate level.

Specifically, this paper seeks to: a. bring to light the important role of science journalism in science public awareness and understanding, b. determine the education requirement, characteristics and personal values science journalists should possess, c. identify challenges facing science journalists in the Philippines today, and d. determine what new story-telling skills and techniques should science journalists learn and acquire to be more effective storytellers for audiences from all walks of life.

A review of related literature including academic journals and gray literatures of studies conducted in the Philippines for proper context will be made. Interviews with science journalists using structured interview guide will also be discussed

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Introduction

When typhoon Haiyan hit the Philippines on November 8, 2013, it also brought to light one serious concern -- the need for science to be understood, appreciated and taken seriously by all Filipinos from all walks of life. Media reports on Haiyan, in terms of quantity, did not fall short but research have established that they were lacking in saliency, depth and clear messages of the risks.

The blame game among stakeholders including local scientists, the government, the general public and journalists that ensued at the aftermath of Haiyan was but a symptom of a bigger concern – that there is a dearth of qualified and dedicated science journalists in the country; that science journalism remains an underappreciated beat; and that science literacy among the general public remains low.

The development and institutionalization of science journalism as a regular beat began four years after the declaration of martial law when in 1976, the Philippine Press Institute's now defunct Depthnews, a news service established in 1968, created its science news service.

In the 1980s, many local newsrooms maintained subscription to scientific journals which deskmen would either localize (give it a local news angle) or mined of information for news story that would appeal to the general readers. During this decade, science journalism started to gain ground so that by the early 1990s, the print media already "allowed developmental news to finally come from the cold in the form of reportage on science and technology mostly in regular weekly whole-page sections.".

Two decade later, the level of public understanding of research in science was found out to have remained at "low" level that even pseudo-science got more publicity in television than authentic science events and phenomena.. This is not to say, however, that the entire news industry had failed in its role in chronicling and informing the public of important issues including the issue of the genetically modified *Bacillus thuringiensis* (*Bt*) corn in the late 1990s.

Today, the mass media is again a battleground for another vigorous debate on *bt*. This time, the *bt* talong. Caught in the middle of this public debate among interest groups is the public whose level of literacy in science if far from comforting. This then

begs the question, who shall help enlighten the public? Are today's science journalists equipped with adequate knowledge and relevant skills to take on the challenge?

In response to the need to provide present and aspiring science journalists training support for them to tell science stories better, with proper context, depth, and clarity, this paper discusses the foundations for a responsive and relevant science journalism course to be developed for the graduate level.

Specifically, this paper seeks to a, bring to light the important role of science journalism in science public awareness and understanding, b. determine the education requirement, characteristics and personal values science journalists should possess, c. identify challenges facing science journalists in the Philippines today, and d. determine what new story-telling skills and techniques should science journalists learn and acquire to be more effective storytellers for audiences from all walks of life.

A review of related literature including academic journals and gray literatures of studies conducted in the Philippines for proper context was done. Interviews using a structured interview guide and a focus group discussion with science journalists were also conducted.

Results and Discussion

The seminal years that led to the development of science journalism is largely influenced by a dominant development theory, the modernization theory, embraced by the country shortly after the Second World War, and which continues to influence members of the academe, government policy makers and even some media practitioners even to this day. The theory postulates that development for poor and developing countries can only happen if they have the capacity to replicate the so-called successes of the modern world. *(UNDP. Communication for Development, page 2).*

Back in the 70s, science communication, a specialized skill taught under the discipline of development communication, and science reporting were deemed developmental in nature. The science writer and science promoters functioned as a "bridge between the scientists in their laboratories and the people who will use their scientific discoveries."[5]

Franklin noted the problematic results of such practice:

> *The science writer (reporter) was supposed to be a translator, and it was often phrased exactly that way. Well, one of the things translators do is make it unnecessary for us to learn the other fellow's language. There is another danger, as well, as those of you who have ever done any international negotiating will know. The translator is always in the great danger of becoming the de facto negotiator.*

During those years, stories journalists wrote were called developmental news and their practice was called developmental journalism. Developmental journalism supported the government's development agenda, an idea not every journalist in the country was comfortable with. As a result the whole practice of development communication was then mired with the bad reputation of "going to bed" with the government, the Martial Law government in particular.

Today, however, the demarcation line that separates the disciplines of journalism and development communication are clearer, but the criticism remains. The common practice among today's journalism professional organizations to also accept as members non-journalists, i.e. science communicators, public information officers (PIOs, government-affiliated) and activists affiliated with non-governmental organizations (NGOs), has not helped clear the blur. As a result, there exists still a confusion between the concepts of science journalism and science communication.

Although both science journalists and science communicators serve the interests of the public, their reasons for being and their societal functions are not the same. Journalists' loyalty and accountability are to the public; they are independent from the sources they cover. Science communicators, on the other hand, write stories for the science community, for the benefactors of science and for the public, for and in behalf of the science community.

Science Journalism and the Public

In 2014, the concern on the country's "neglect" of science, technology, and R&D over the past several decades was raised. Such neglect had resulted in a vicious circle of scant technological innovation and, among others, underinvestment in science and technology education, a public good that was "under-consumed and under-supplied, especially in terms of quality."

The sad state of science education in the country has also kept awareness and understanding of science or science literacy among the general

public at a very low level, despite the fact that the subject matter had already been mainstreamed in the major dailies and established as a regular beat of the media for three decades.

The level of confidence and competence of science journalists has not improved either. A case in point. Filipinos, victims or not of typhoon Haiyan, had underestimated the destructive power of the storm surge that came with the typhoon, and many blamed the media for failing to communicate clearly its nature and the risks that came with it. In their search for ways to better explain the concept to the public, some media men started comparing it to tsunami, but local scientists disagreed because it was scientifically wrong. It was only in the aftermath of Haiyan that the media found the correct Filipino word for it, *dalluyon*.

Science journalist, science advocate, and *Agham* (Science) Party-list Representative, Palmones also laments the lack of science culture among Filipinos which, according to him, is due to the failure of the country's educational system., (personal communication,)

This lack of science culture has also permeated into the practice of journalism in the country. Many journalists fail to explain in-depth and go beyond the usual 5W&H (who, what, where, when, why & how) formula of police blotters and media releases because of the failure to live out scientific values such as the need to validate data on hand.

The lack of science culture among journalists is not only observable in their output but in the practice of gathering data and information as well. Journalists are the usually the first ones to break yellow lines in crime scenes. Due to low level of understanding of science, journalists do not visit crime laboratories nor profile crime suspects.

Today, more and more newspapers are dropping their generic science pages in favor of more specific areas of coverage that may or may not have science in it. This move stemmed from the realization that science indeed is pervasive and that, in the future, science will no longer be just an area of coverage but a practice and mindset for all journalists as well. Economics-wise, this scheme has also allowed news organizations to give more space for industries with hefty advertising budget.

Some news organizations that still maintain specific areas of science coverage include GMA online with its Scietech page, InterAksyon with its Infotech page, Philippine Daily Inquirer with its health and energy pages, Manila Bulletin with its agriculture and education pages, and Philippine Star with a technology page in the business section. Business Mirror, on the other hand, has a more generic science page. With this set up, editors closing different sections often compete for the same news story submitted to the central desk. For Rappler, a social media news site that has no print history, its science stories are distributed in various sections deemed appropriate by its editors.

Present day science journalists however are divided on whether news organizations should continue to carry a science news section with a newsroom-supported science journalist, or encourage science beat reporters, competing against stringers, to submit stories to the central desk which will be responsible of farming them out to the appropriate sections, a practice premised on the fact that science is pervasive.

For indeed, science is pervasive and its impact to mankind cannot be underestimated. "Science journalism matters because of its pervasive footprint in the everyday, regardless of space and time, whether in mountain villages or in urban coffee shops, 24/7. By explaining seemingly complex concepts with ordinary words, science journalism enables citizens to act, react and make informed choices on science and technology issues and, in the process, become better persons and more effective citizens." (P. Icamina, personal communication)

Science Journalists as Storytellers

Science reporters are storytellers of science, of science news stories. Unlike the science communicator who writes to advance public education in science, the science journalist tells stories "shaped around the result of science."[8]

A science journalist tells stories the public needs to know, even though such stories may hurt certain interests groups including the science community as well as its benefactors. He also tells stories the public wants to know: what makes them wonder, what ticks their tickle, what makes them sad or angry; stories that make them feel connected. "Newspapers are a strange things: they are vital to the health of a democracy because they are free."[8]

As storytellers, a science journalist's task can be categorized into three Cs: 1. chronicle, to inform the public about what has happened since the last instance of publication; 2. criticism, to protect the public and warn them of dangers and inadequacies; and 3. commentary, to interpret and explain to the public what is happening.[9]

To be able to effectively perform its role as storyteller, a science journalist need not be a science expert or a scientists himself but must at least have basic understanding of what science is, its branches, its relevance to society, its ethics, its values and best practices. P. Icamina believes that:,

> *The education requirement, characteristics and personal values science journalists should have are not much nor less different from other reporters. A slight difference is in the delivery of technical and scientific matters into understandable language. But then again, the court reporter does no less with legalese jargons and concepts. Even the police reporter writes about the physics of bullet velocity and direction. This is because all reporters are required to write in plain language understandable to the public.*

In order to support the development of science journalism in the country, the science journalists agree that the following are necessary: a. an award giving body to recognize best practices in the field, b, retooling workshops for practicing science journalists, c. offering science journalism subjects in journalism schools, d. conferences for science journalists to share and exchange best practices, and e a professional group that looks after the interest of science journalists.

Today, the country has four active professional organizations with science journalists as members: the Philippine Agricultural Journalists, established in 1976; the Information Technology Journalists Association of the Philippines, also known as Cyberpress, (1996); the Philippine Association of Science Journalists, (2001; and the Philippine Network of Environmental Journalists, Inc (2013).

The Science Journalists' Challenges

The science community, specifically the community of scientists, is a valuable news source making it imperative for journalists to maintain a healthy relationship with them. However, some scientists do not often realize that a journalist's loyalty must always be to the public he serves. It is claimed that "Journalists do not see it as their task to work for any special interest, whatever its benefits." [8]

Because journalists scrutinize and criticize scientists and their work, and in the process often commit errors, it is sometimes difficult for journalists and scientists to build trust. Some scientists often shy away from, or at times maintain grudges against journalists, because of unmet expectations, i.e. expecting journalists to write only the good, expecting to receive long airtime on radio and television because the interview was long, expecting journalists to give in to their every non-disclosure request, limited understanding of the process of news production where errors occur beyond the control of the beat reporter such as errors of facts due to poor editing in the newsroom. At times, scientists also treat journalists with patronizing attitude, a sure turn off for journalists.

The development of science journalism in the country is stunted by the fact that science stories in the Philippines have low prominence among the general readers which explains why science stories with only relevance and impact for news values hardly ever land on the front page. Desperate to sell science news to the general public, the tendency for newsrooms is to look for popular and sensational angles, or to relate stories to mysticism, e.g.. a pool of water on fire!, and pseudoscience angles. The low prominence also makes it doubly harder for journalists, correspondents or supported, to pitch their stories to newsrooms.

That many newsrooms in the country do not have dedicated, supported or in-house reporters covering the science beat also indicates the low prominence of science news and that newsrooms do not give priority to the beat. When newsrooms do have an in-house science reporter, s/he is also burdened with other minor beats to cover, making it more difficult for him to write enterprise and investigative stories.

It can be recalled that it took a blogger, not a science journalist, to sound off the alarm on the alleged irregularity committed by the Department of Health when it authorized the testing of a dengue remedy on humans. Her blog was picked up by media, to the dismay of one science journalist who had already successfully pitched the story but took time to submit it because of the need to do verification via triangulation.

Filipino science journalists, being poorly paid and having limited access to funding, struggle in their daily rounds of searching for news leads and news stories. Having no access to the latest scientific journals and faced with the burden of having to submit two to four stories a day, local science journalists often have to dig into their pockets to have access to journal articles straight from publishing institutions. That the craft also requires stories to have at least three news sources for

thorough fact-checking and verification does not make the job easier or less expensive.

Science journalists following important news leads often face legal hurdles. Icamina explains:

> *The legal challenges are caused by proprietary issues regarding research and development. Intellectual property issues restrict the information and data that can be shared by scientists to journalists. The restrictions are most often put in place by funding agencies using public funds, which conflicts with the principle of freedom of information.*

The small community of Filipino science journalists, however, are not immune to corruption and unethical practices, including moonlighting, a practice among journalists to write for other organizations including but not limited to public relations (PR) outfits; free trips masquerading as research trips but in reality are just pure junkets; journalists not disclosing sponsorships or source of funding; and expensive gadgets given to journalists for product review, which the PR practitioner will eventually "forget" to retrieve.

Having no newsroom subject matter experts to consult, many science journalists have become more open to pre-publication review of stories by their scientist sources, giving the latter an opening to filter the content of their articles. Such practice becomes questionable when the scientist begins to dictate on what should and should not see print.

The Science Journalists' Storytelling Techniques

In order to remain relevant in the future, science journalists, just like all other journalism beat reporters, must learn to thrive in the web, the future of all present media platforms, and acquire new skills to produce stories that are both useful and engaging for the general public.

It is claimed that "Science journalism which has served as boundary-minder and intermediary between internal scientific spheres of communication and external public spheres, risked being bypassed in both directions if it does not successfully adapt to the changed environment." Both directions refer to the science community, which had lately become active in directly publishing its works online, and to the public, which had already discovered personal publishing through blogging and via social media.

Science journalists today need to distinguish themselves by upholding the profession's legacy of reliability and credibility as information source. The challenges of independent science journalism lie more than ever in "interpretation and contextualization, or...information about information." In addition to research and localization, journalists can also add context to science stories by providing links to reliable sources and to other related news stories in and outside of their domains.

Another important aspect science journalists need to pay attention to is the way today's media consumers access and use science news. In the case of online news sites, science stories tend to gain more traction if they are social media-driven or pushed in the social media realm using "candy-coated apple approach" (responsible use of click baits or teasers) and packaged in alternative story formats such as "listicles" or articles that lists information.

For news stories delivered *via* the television medium or online, stories need visualizations which include animations, fun graphics, interactive charts and diagrams. Appeal can also be increased by providing analogies to familiar things and to relate the science story to pop culture, i.e. references to movies.

The Web is also host to a cacophony of useless, fabricated and misleading information. More than ever, science journalists today need to step up their game as providers of fact-based, localized, and contextualized science stories the public needs and wants to know.

Conclusion

The purpose of journalism is to provide people with the information they need to be free and self-governing. Journalism empowers the public with information when they need to make correct choices and decisions. It enables them to get involved in all the affairs that affect them, including the affairs of science.

Science, including all its vast areas and emerging fields, is an important subject matter and area of coverage for journalists because of its relevance and impact on the lives of the people. Science journalism can help the public understand science; it can check on irregularities in the field and encourage best practices; it can also promote science narratives that could lead to the creation of shared experiences and promotion of science culture.

Science journalists are storytellers, not educators. They are peddlers of science stories, both of the good and of the bad. And being so does not make

them any different from all other journalists who cover other challenging beats. To effectively tell science stories, science journalists do not need advanced science degrees. However, one must be a zealous practitioner of journalism principles and values, and an expert of the journalism craft which begins from exhaustive research, skillful reporting, and effective and responsible writing.

Today's Filipino science journalists face the following challenges:

a. Difficulty of dealing with scientists with unreasonable expectations;
b. Lack of funding support to access scientific journals;
c. Difficulty in accessing scientific data due to legal hurdles related to proprietary issues;
d. Lack or limited availability of subject matter experts in the newsroom;
e. Competition with non-journalist science bloggers whose posts get picked up by newsrooms ignoring the cardinal rule of triangulation in verification;
f. Being poorly paid with limited access to funding or grants;
g. Low prominence to science stories which: a. tempts newsrooms to use mysticism and other pseudoscience angles to grab the attention of readers and b. makes it difficult for science stories to land on page one or simply pitch a science story to newsrooms
h. temptation to do moonlighting, join junkets, and accept expensive gifts, i.e. gadgets

To be more effective science storytellers for today's audiences, science journalists should be able to distinguish themselves from science communicators and science bloggers by telling stories that are locally useful and relevant and rich in local context; stories that make use of visualizations, analogies and references to pop culture for clarity and added appeal; and stories that do not rely too much on the written word but makes use of alternative story formats. Science journalists should be able to provide science stories that the public need to know and want to know.

References

1. G. Montemayor, Science and the Media. A public lecture for the Center of Third World Studies, 2014, University of the Philippines Diliman, Quezon City.
2. UNESCO Report: Developing a science journalism course for developing countries: A report on the UNESCO workshop and questionnaire conducted in association with the World Conference of Science Journalists, April 2007,.Available at http://www.upf.edu/pcstacademy/_docs/200706_unesco.pdf
3. J. Vestil, Broadcast News in Cebuano. Department of Science & Technology, 1996, Region 7, Cebu City
4. M. Tan,. and M. Ferido, Public Understanding of Research in Developing Countries: Challenges and Opportunities. 1996, Available online http://pcstnetwork.org/PURWorkshop/word/Ferida_Tan.pdf
5. C. Maslog, and A; Colet-Villadolid, (1992) *Science and Science Writing*. 1992,. Philippine Press Institute. Manila
6. J. Franklin, J. The end of science journalism. In *Journalism, Science and Society: Science Communication between News and Public Relations*. (M. Bauer. and M. Bucchi, eds.)., 2007, pp.143-156, Routledge, New York, USA.
7. E. Pernia, R. Clarete, and G. Concepcion,. The Role of Science, Technology and Research in Economic Development, 2014, Available at http://ovpaa.up.edu.ph/wp-content/uploads/2015/05/The-Role-of-Science-and-Technology-in-Economic Development_rev_30June-2014-01-1.pdf
8. T. Radford, . Sheheradade: Telling stories, not educating people. In *Journalism, Science and Society: Science Communication between News and Public Relations*. (M. Bauer. and M. Bucchi, eds.)., 2007, 95-99, Routledge, . New York, USA..
9. B. Fjaestad, B.,. Why journalism report science as they do. In *Journalism, Science and Society: Science Communication between News and Public Relations*. (M. Bauer. and M. Bucchi, eds.)., 2007, 123-131, Routledge, New York, USA..
10. B. Trench, How the Internet changed science journalism. In *Journalism, Science and Society: Science Communication between News and Public Relations*. (M. Bauer. and M. Bucchi, eds.)., 2007,.133-141, Rouledge, New York: USA.
11. B. Kovach, B. and T. Rosentiel,. *The Elements of Journalism*., 2001, Crown Publishing