

RESEARCH ARTICLE

The state of science communication in the Philippines: An interview with Dr. Elaine DC. Llarena of the University of the Philippines Los Baños

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As we navigate our path towards recovery from one of the greatest health crises in history, it is important to emphasize the critical role of communication in managing the COVID-19 pandemic. This interview aims to unearth the roots of Science Communication in the Philippines and how the field paved opportunities for scholars to better understand complex human behaviors through the lens of communication research. It also hopes to provide readers with a clear understanding of how communication can be integrated into the whole research process in the sciences.

In this interview, I invited Dr. Elaine DC. Llarena to shed light on the current issues and trends in Science Communication. Dr. Llarena is a Professor from the College of Development Communication at the University of the Philippines Los Baños (UPLB). She is currently the Chair of the Department of Science Communication. Dr. Llarena graduated from UPLB with a bachelor's degree in Development Communication at UPLB and a master's degree in Communication Research from the University of the Philippines Diliman (UPD). Her involvement in veterinary public health sparked her interest in pursuing a Doctor of Philosophy by Research degree, which she completed at the Murdoch University in Perth, Western Australia.

CHRISTIAN: Thank you so much, Dr. Llarena for accommodating our request for an interview. To give you a short background of this year's PCS review, the board decided to publish works that tackle communication in the context of the pandemic. As we continue to deal with one of the world's most serious crises, it is critical to highlight how the various sub-fields of communication played a role in managing the pandemic. Given that, I believe that you can share with us the importance of Science Communication in managing this pandemic. To begin, you are the current chair of the Department of Science Communication at UPLB College of Development Communication, right?

DR. LLARENA: Yeah, sure! So basically, I am the current chair of the Department of Science Communication here in UP Los Baños. So, before joining the academe in 2013, I worked as a Development Communication practitioner as a communication consultant, I've managed communication research on a variety of projects. Particularly, my interests were on veterinary public health. I've worked with the National Foot and Mouth Disease Project here in the Philippines. I was also a member of the public awareness team that developed the national communication plan to eradicate foot and mouth disease in the Philippines. I have also worked on projects on Avian Influenza in Lao PDR. Also, prior to joining UPLB, I was the Asia Community Education head of the Global Alliance for Rabies Control. I'm also interested in WASH (Water, Sanitation & Hygiene).

My background in Science Communication roots back to my bachelor's in Development Communication, which was amplified upon when I completed my Master's in Communication Research at UPD. Then I went on to complete my Ph.D. in Murdoch University in Perth, Western Australia. So, it's Ph.D. by research where I focus my dissertation on integrated communication framework to address Zoonotic Infectious Diseases. I remember when I first started my Ph.D., I was on and off for personal reasons. I began in 2006, during which time there was an outbreak of Avian Influenza. So I was exposed to managing zoonotic diseases. Zoonotic diseases ay ibig sabihin nanggaling siya sa animals and is transmissible to humans; however, zoonosis diseases can also come from humans na nahahawa sa mga animals.

CHRISTIAN: I am fascinated with how you learned all the complexities of science despite your highly grounded experiences is within the communication field. So, Doctor Llarena, how do you define Science

Communication? This question is essential because, as you know, in the Philippines, the notion of communication research as a field is sometimes boxed into understanding how the media organization works. While all other aspects of communication, including Science Communication, are neglected. I think that the popularity of Science Comm dito satin ay mas na boost nalang nitong pandemic eh.

DR. LLARENA: Well, literature would say that it's public understanding of science. But I want to share how we define science communication in development context or in Development Communication here at UPLB. So, you will see even before when DevCom was conceptualized or even when Dr. Quebral coined DevCom, in 1970s, nagsimula talaga ito in the 1950s. So nagsimula siya na parang communication is sort of a service unit na para macommunicate yung mga agricultural research, agricultural science. So kung titignan mo during that time, hindi man na-aarticulate pa yung term na Science Communication, we have already been doing it here in UP Los Banos.

So eventually, when Dr. Quebral defined DevCom in the early 1970s, nandun na yung Science Communication in a way. Aside from Dr. Quebral, we have Dr. Juan F. Jamias siya talaga yung nagpasimula ng Science Communication dito sa Philippines. I think he did his post-doc sa Australia and you know, Science Communication is very strong in Australia. They're really organized there, may mga science communicator, science journalists talaga and programs on science communication ay nasa Australian universities talaga. Dito kasi sa Philippines sometimes, afterthought nalang yung communication when it comes to dealing with the sciences. That's why here in UPLB DevCom we don't view Science Communication as merely dissemination lang or communicating research results, we wanted people to take action on the information that they get or they received. We define Science Communication na hindi lang siya public understanding of science and technology but more in a development context, meaning, it is communicating science but with the premise that science is understood, appreciated, and applied to stir stakeholders engagement

CHRISTIAN: I would like to agree that communication is sometimes an afterthought when it comes to science. Correct me if I am wrong, but you mentioned that Science Communication should not be limited to Science Journalism but should be present throughout the scientific process. Could you elaborate on that?

DR. LLARENA: Yes. So here in UPLB we teach that science communication has four domains of science communication: communication among scientists, communication of research results, communicating science to the public, and communicating science with the aid of technology. So that's how we teach or how we try to practice science communication here. So hindi lang siya science journalism, but we look at science communication as a process of development. Yun ang unique sa Science Comm dito sa atin sa Philippines or for that, dito sa UPLB DevCom.

Also, siguro tama ka na naging mas popular yung SciComm especially when we had this pandemic. Pero kung titignan natin, yung presence ng Science Comm ay hindi lang siya siguro ganoon ka prominent pero talagang inevitable na siya eh. Noon kasi diba ang daming mga science issues—we have biotechnology, we have climate change, we have disasters—and lahat iyon need of Science Communication. Pero siguro mas naging prominent lang siya or inevitable-- hindi mo na siya maipagkakaila o hindi mo na mai-de-deny na kailangan natin siya sa country lalo na nitong nagkaroon ng pandemya. Siguro din at our end, dito sa DevCom-- for one, in my view, we really needed to have that paradigm shift na ang pagtingin sa communication ay hindi lang siya isang service unit, na hindi lang afterthought ang communication even in communicating science.

When you're trying to do something like a program, a research project, science research or even handling a pandemic dapat kasama na yung communication or social science in general. I think ito yung nakikita ko na kagandahan lang na nangyayari ngayon. Mas na-strengthen yung realization na—although Science Communication has been there, sinasabi na siya, nasa discourse na siya, yung multi, inter, and transdisciplinary collaboration. Pero ngayon kasi mas nagiging apparent siya, na you don't provide solutions with just one discipline in mind talaga or you're just bringing your own discipline. So tayo, as communication specialists, we must learn how to work hand in hand with other specialist from other fields or at least ma-appreciate yung perspective ng ibang discipline.

CHRISTIAN: Having said that, do you believe we communicated the COVID-19 pandemic effectively to the public?

DR. LLARENA: Alam mo kasi kaya nagiging problematic minsan on how we address the pandemic, you would find na mababa yung science literacy

natin. Kasi yung science literacy, ang tingin ko nakikita ito when you make everyday decisions, paano ka ba nagde-decide? Halimbawa sa usapin na magpabakuna ka or not, anong nag-i-influence sa'yo para magpabakuna ka o hindi. Parang diba, kung mataas ang science literacy, you would research on bakit ba kailangan magpabakuna, ano yung nilalaman ng bakuna, kasi that's part of considering the scientific process. Ayun yung part ng everyday decision-making mo. However, kung hindi ganoon kataas yung science literacy natin, we can easily be swayed ng mga influencers na nakikita natin sa social media or even by our family members and not being critical to base our decisions from science or evidence-based findings. So dito, nagiging apparent talaga yung ang dami pa nating kailangan gawin, trabahuhin on that aspect of Science Communication. So, the challenge is not only for the public to decide based on science, but I've said this before, I think the policymakers also need to appreciate science and they must apply science sa pag gawa nila ng policies.

CHRISTIAN: You mentioned in one of your previous talks that Science Communication is an integral part of a nation's science literacy. Being science literate implies that people, will base their decisions on science, regardless of their socio-demographic profiles or psychographics. So, in an operationalized sense, how do you think the government and communication science scholars can boost science literacy in the Philippines?

DR. LLARENA: There are a lot of ways. Here in UPLB DevCom, we've been working with the Department of Science and Technology (DOST) agencies, and one of these agencies is the Science Education Institute (SEI). So, what they do is they have programs for the youth. For example, if you're aware of the NULab buses, these are mobile science learning facility which goes around the country to teach STEM concepts among high school students that can help boost students' interest in the sciences. We partnered these kinds of programs to boost student awareness on science communication. Another notable project of DOST-SEI is Indie-Siyensiya. This is a science-based filmmaking competition that assists in creatively communicating scientific information and stirring science interest among the young. So ako ang tingin ko, one of the things that we can do is that we try to think of ways on how science can be appreciated and understood at an early age. Kasi puwede rin nating ma-mainstream yung science. I mean, I think na-mention ko rin ito sa talk ko sa Far Eastern University

(FEU) na wala na tayo nung yung mga science programs na nakaka attract talaga sa mga bata diba? Ako kasi naniniwala ako na science can be combined or complemented with the arts and humanities.

I would like also to add na siguro hindi lang media literacy iyong kailangang ma-incorporate sa curriculum ng Senior Highschool, I think science literacy should be strenghtened as well para nandoon din sana siya at the onset ng education. Ako kasi ang pagtingin ko, lahat tayo pwedeng maging science communicator and if we introduce the concepts of science communication at an early age, I believe possible na ma-achieve natin ang mataas na science literacy.

Here in UPLB, we're trying to propose a center wherein we wanted to strengthen Science Communication research and capacity building. It's not the usual trainings lang pero we wanted to capacitate a lot of stakeholders- for example, scientists, they also must learn how to communicate their science to effectively popularize their research results. As Dr. Gelia Castillo said, science serves a human purpose. If you'll study the philosophy of science, the question is para saan nga ba ang science? Of course, kami sa DevCom, we uphold that science should be part of nation building, science is to make people's lives better, science should not just be for the scientists and elites, the marginalized communities should also be part of the science and technology discourse. So parang kung titignan mo, ang daming puwedeng gawin. Ang point ko lang is, siguro it's about time that we also explore Science Communication that is Philippines context-based.

CHRISTIAN: I would like to build on what you've said about the perspective in the sciences. For the longest time, when it came to science, most scientists in the Philippines took a top-down approach to understanding human behavior. In other words, most of the time, the target population would be like microbes in a petri dish, where the scientist would introduce interventions to record the changes in behavior. Would you say that, in your many years of experience in Science Communication, the field has evolved from a very expert-centric approach to a more consultative approach to understanding human complexities?

DR. LLARENA: I think, it has evolved. We have worked with scientists, with communities, with various stakeholders from the marginalized sectors. Meron namang mga move to explore consultative approach.

Siguro lang, alam lang natin na baka mas magandang i-encourage na mas damihan pa ang pag-adopt ng gabitong approach kasi I agree with you eh, that the science we follow comes from the western context na nagsimula din na pagtingin sa science ay deficit na ayun nga, top down ang approach. Ngayon palang nagsisimula to recognize yung lay expertise. Mayroon naman tayong mga scientists na they engage with the communities. Of course, parang hindi ang dating na, we know the science at ituturo namin sa inyo kasi you lack the knowledge to understand science, but it should be paano nga ba natin mapapa-apply sa mga sector yung science sa kanilang communities. However, kung titingnan natin, kulang pa rin siya kasi masyado din tayong nasanay dun sa top down na approach. I think it's high time to introduce natin iyong citizen science.

Citizen science kasi, yung locals yung nakakarecognize sa concerns and issues ng communities nila. So ikaw, as a communication scholar you need to facilitate that discourse for them. This effort will probably help the community to address their issues by bringing in scientists or technical experts who will listen to them. Isa ito siguro sa insight ko na napakahalaga rin ituro ang listening because even sa Science Communication kasi kailangan nating pakinggan kung ano ba talaga yung issues or ano ba talaga yung experiences nung communities.

I think, na-mention ko rin ito in one of my talks yung kahalagahan din ng enabling environment in behavior change, in communicating science. Kasi if we're conveying these messages, kung wala namang silang enabling environment to really change their practice or to adapt that technology, parang futile din siya. Kung iisipin natin, hindi kasi siya isolated na mga factors lang, kaya nga nandun din yung importance ng collaboration, nandun yung importance ng interdisciplinary, multidisciplinary, at tsaka multistakeholder kasi that's the way to go now if you wanted to address the complex scientific issues.

CHRISTIAN: If I recall correctly, you stressed the importance of acknowledging uncertainty in the field of sciences in one of your interviews with Inquirer. That's an interesting topic to discuss because there's a common misconception that science is absolute because scientists adhere to scientific processes, scientific methodologies, and place a premium on accuracy. So, hearing from you that science by nature is also uncertain might be new to others. Could you elaborate on that?

DR. LLARENA: Siguro ito nalaman ko while I'm studying risk and doing science communication. The issue is about Bt Talong, a genetically modified eggplant that contains a protein which makes it resistant to eggplant fruit and shoot borer (EFSB). Scientists here from UPLB attempted to apply for permit for field testing of BT Talong as part of their ongoing research. Of course, iyong mga anti-GMO rallied against it kasi sa side nila hindi maganda ang naidudulot ng GMO sa kalikasan and sa health natin. This issue actually escalated to the Supreme Court wherein the justices, instead na yung the usual na paglilitis sa isang korte, they ask the experts to explain the science behind the Bt Talong and they will base their decision on the issue according to the statements (or arguments) of the experts. So I analyzed the court transcripts since it's a public document naman. In my analysis, talagang mababa yung science literacy even among the supreme court justices. This led to my conclusion that there is a need to educate ang mga lawyers on biotechnology for that specific context. Kasi makikita mo doon na the way they asked their questions, hindi rin nila naiintindihan fully ang nature ng science that we deal with. I remember isa sa mga questions na naitanong ay "How sure are you that this is safe?" referring to Bt Talong. Unfortunately, you could not answer that with great certainty. Kaya nga tayo magfi-field testing kasi sa ngayon hindi natin sya masasagot pa dahil kulang pa sa pag-aaral. So we must understand that science is evolving, there is no certainty or absoluteness in science. Kasi nga with science there is evolving knowledge generation because we have to acknowledge na what you know today maybe different five years from now. So going back to that question of uncertainty, kailangan kasi ma-recognize natin na science by nature is uncertain. Pero ang importante as science communicators, despite these uncertainties, we must communicate the very nature of science in a manner that would not affect its credibility.

CHRISTIAN: I'd like to focus on what you've mentioned about the current complexities of societal concerns we face on a daily basis. You stated in one of your interviews that the rise of uncertainties that we encounter every waking moment comes with these complexities. Given this, what are the usual setbacks or struggles you encounter in the complex field of science communication? Kasi sabi niyo nga napaka complex ng mundo na ginagalawan natin eh and what we know today might be different from ten years from now.

DR. LLARENA: I think if you're asking me ano yung challenges? Ang daming aspects kapag iisipin natin and I think it really depends on the particular science that you are communicating. However, since were are communication scholars, we have to focus on understanding human behavior through the lens of communication. Kaya nga lagi kong sinasabi sa mga talks ko na more than understanding the nature of risk, you also have to learn the science that you are communicating. So kung ito ay tungkol sa pandemya, if you want to communicate COVID-19 pandemic, you really have to understand the science of COVID-19. You have to understand what is herd immunity all other scientific jargons that are related to COVID-19 lalo na for science journalists kasi sila yung nag rereport ng mga detalye nito in media. That is why it is important for the science journalists to also understand the science of the issues that they communicate at hindi lang iyong journalism principles. Kaya dalawang aspect siya na science and communication kasi dalawa yung kailangan mong aralin. I remember kapag titingnan mo yung science communication program sa ibang bansa, for example in Australia in Australian National University (ANU), those who are enrolled in their M.A. and Ph.D. in Science Communication must have a career in the sciences such as microbiologist, veterinary, physicist because that should be the science you must be able to communicate. Halimbawa ako iyong Ph.D. ko kasi, Ph.D. by research, and my supervisor was a veterinarian. I trained under the school of veterinary science in my university so I took epidemiology courses on animal health. So kahit ako ay communication major both for my undergraduate degree and master's degree, naiintindihan ko iyong concept ng herd immunity & epidemiology because of the training that I underwent.

CHRISTIAN: With all of your experiences Dr. Llarena, what do you believe is the most significant lesson that you can impart to researchers or students pursuing a degree in science communication?

DR. LLARENA: Siguro one is keep on learning. You should remain updated on the issues and trends of the particular science you are interested in. Also, you have to be very conscious doon sa stakeholders or audiences that you cater to. Their characteristics are highly important for you to be able to communicate to them efficiently. Pangatlo, sana holistic tayo mag-isip na hindi lang siya isang aspeto, holistic –at the same time we look also doon sa current medium term and long term effects on things. Kailangan na nating tumingin doon sa anong mangyayari in the future but we don't neglect or take into consideration yung natutunan

natin in the past. Kasi minsan yung mga na-experience natin sa past yun yung magbibigay din sa atin ng insights at inputs on how we should deal with the future, 'yon talaga. I think we should also learn diplomacy because when you do science communication there are various disciplines and various perspectives that you have to factor in. Another thing that I want to focus on my future research is the concept of mutual understanding. What exactly is mutual understanding? Do we really have to agree on a decision or can we engage in synergistic communication? It is another area in which we may agree to disagree, but even if we do, we provide solutions to the problems that we face as a society. Finally, as a science communicator, you must accept the reality that you must specialize in a specific science in which you are truly interested.

CHRISTIAN: Would you like to say anything else to the readers of this issue that can help in boosting the popularity of Science Communication in our country?

DR. LLARENA: I want to be optimistic, but I also recognize that there is still more work to be done to concretized the field of Science Communication in the Philippines. But I'm optimistic that science communication will be more valued in the coming years, even after the pandemic, because the pandemic has made us realize how important science communication is in managing this health crisis.

Ngayon naiisip ko rin na ang daming invitation dito sa amin sa science comm department for interviews and talks. Para saakin it means na people are starting to have an interest na in science communication and we hope that this will become mainstream na in the future. I have a colleague, Professor Garry Montemayor who's also doing scholarly work on the history of science communication in the Philippines and been working with DOST, hehas been presenting internationally, and just published a chapter in a book. Pero alam natin na kulang pa. I'm hoping that there would be support also sa science communication across educations institutions dito sa Pilipinas. Lastly, ito yung pinakaimportante, iyong science communication hindi lang dapat western ang approach, maganda na angkinin natin yung science communication. We should be able to incorporate the Filipino culture para mas maging fit yung approaches natin in dealing with issues related to science. Siguro yung last message ko lang, sabi nga ni Dr Castillo, science serves a human purpose. So for me, it's not science if it does not serve a human purpose.

CHRISTIAN: Thank you so much for a very insightful discussion about the state of Science Communication here in the Philippines, Professor Llarena.

DR. LLARENA: Thank you so much, Christian. I hope that this interview will ignite burning desires to communication scholars who want to pursue a career or scholarship in Science Communication.

ABOUT THE INTERVIEWER

Christian Jaycee Samonte is a full-time instructor at the Polytechnic University of the Philippines College of Communication. He obtained his bachelor's degree in communication from the Colegio de San Juan de Letran Manila. At present, he is writing his thesis under the M.A. in Speech Communication program of the University of the Philippines Diliman. His research interests include disaster and risk communication, crisis communication, mobile communication, and digital rhetoric.