Can we communicate with society if we can’t talk to each other?

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The task of communicating science to society seems a daunting one when we realize how difficult it is to share our research with fellow scientists outside our field. Here I discuss what may be a root of the problem and the start point towards a solution.

Versatile at Parties

**THE SCENARIO IS SIMPLE AND FAMILIAR:** you’re at a party, trying to wind down and have a good time, when some stranger pops the dreaded question… “So, what do you do?” After many years you’re somewhat prepared and start mentally weighing your options: “I investigate the genetic underpinnings of developmental cell fate choices” is normally a little extreme and too forthcoming, precisely the type of stuff that feeds the commonplace perception that we, scientists, can at times be socially awkward. A simpler “I do research” sounds too vague, and it opens the door for your interlocutor to suspect that you are a corporate spy or government double agent (and that whichever the case may be, this is something that you don’t want to discuss). “I’m a molecular biologist”, more often than not, leads to explaining that no, your research has nothing to do with marine biology. I can’t speak for all of my colleagues, but I normally settle for “I’m a scientist”. It’s vague enough that it can quickly sort out people who may be genuinely interested from the rest, while immediately covering you with a veil of respect and social acceptance.

Now picture this less frequent scenario: the person you’re conversing with shows clear signs of interest and exclaims, “hey, that’s cool! – what field are you in?” Now your tone of voice enlivens and you proceed through the whole, “I’m a molecular biologist doing research on the genetic underpinnings of cell fate decisions using fruit flies as a model system…” and beyond. A couple of minutes into the conversation and you realize that, while your new acquaintance really wants to understand what you do, you’re not being followed in the least. So you decide to ask “And what do you do?” expecting to hear anything but “I’m a scientist too”.

Moreover, our surprise will be inversely proportional to the distance between our specialties within science. To a molecular biologist, a theoretical astrophysicist may seem as detached as a historian; but you’re in for a real shock when you find it hard to explain your research to an ecologist.

So how can we expect to communicate effectively with a layperson when we find it hard to discuss our work with other scientists? In what follows, I will argue not only that we can,
but also that we can learn valuable lessons from our failures to communicate with colleagues.

My Grandma is a Theoretical Astrophysicist
In my opinion, part of the problem resides in the way we phrase the above stated question. The trouble begins when we make a distinction between a scientist and a layperson. Such distinctions immediately create a false scale of cognitive capacities: we overestimate the scientist (who should of course, in our estimation, know exactly how qPCR works) and, clearly, underestimate the layperson (for whom we've tellingly chosen a word that conveys how bare and flat they are). It is often said that you can learn to communicate your science to the rest of society by pretending to explain what you do to your grandma. What I'm saying is that, for all intents and purposes, my grandma may very well be a theoretical astrophysicist.

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of society by pretending to explain what you do? One very important first step is to tone it down, but not dumb it down. It is a common mistake, in an effort to simplify things, to shave important concepts off your message. But that's shooting oneself on the foot. I don't know if you've ever tried it (for surely I have), but there's nothing harder than trying to communicate a complex biological process by omitting key mechanisms, “to keep it simple”! People don't need simple, and they certainly don't want simple if they're making an effort to listen to your story. We shouldn't assume that people will get bored or confused if we take a step back and walk them through all the complexities of a natural process as we understand it; if anything we should be certain that they will be bored and confused if we don't.

Geeks Just Don’t Get It
At the other end of our false range of cognitive capacities, we tend to assume that a very, very smart person should know, without having ever come across its definition, what qPCR is. My grandma, being a theoretical astrophysicist, has two options when I say “qPCR”: she either dares to ask (but I thought she was smart!), or she tries a mental permutation of all the molecular biology terms she knows starting with those letters and tries to figure out which one makes most sense (by which point, of course, I've lost her).

As part of our graduate training, my fellow molecular biologists and I had to present our research, once a year, to physicists and engineers in our department (and vice versa). Never before had I seen a full house of some of the smartest people in the planet looking so dazed and confused. And, from what I recall, it always came down to the audience from the opposite camp getting hung on a simple term or concept that went undefined.

Talking to other scientists is a double-edged sword. It can make you despair, for if you can't make another nerd understand your stuff, what hope is there left with non-scientists? But it can also show that one size fits all: take the time to step back, define key terms, and don't try to hide complexity under the rug. We'll be ready to communicate our science to society when we can finally start talking to each other.

After the Party
There is more than a purely altruistic social service and a selfish massage of ego in talking to persons outside of our immediate field of expertise. There are at least two other benefits, one of which is more easily appreciated
Get the Word Out

So how do we implement all of this? One idea is to go to one party after another; party everyday for the rest of our natural existence. Not a bad one from the perspective of social standing, but somewhat impractical. Seriously, it’s all about embracing the notion that communicating your science to the layperson (whether they are an ecologist, an astrophysicist or a historian) is not a waste of time. Actually, I’d argue it’s our professional responsibility and a civic obligation that is often overlooked. Once we shift our way of thinking, once we stop seeing it as distractions that are detrimental to progress in our research, we will likely realize that it is actually more work to avoid opening up to science communication than to exploit all the opportunities out there. There are the parties, yes. But there are also seminars outside of our field of expertise, from which some colleagues shy away for “how does it benefit my research?” There are interdisciplinary symposia in most, if not all, graduate programs. And if not, there are often departmental seminar series that cover a very broad spectrum of disciplines. There are discussion forums, blogs and, as of late, tons of social networking platforms to choose from online.

And last, but not least, there’s Hypothesis, a journal of which I am a proud co-founder and that was born from the conviction that science communication among scientists from diverse disciplines is a first step towards effective communication, one of the most important tools in our quest for scientific progress.