Role-play "Poor Professor Faraway" – Author: Andrew Moore

The following role-play can be enacted simply as stimulus for discussing causes of and solutions to common communication problems between scientists and journalists. It can also be used as a prelude to interviews with a journalist at a communication training workshop. In this context, it can help to get the audience loosened up: nobody can make as many mistakes as the scientist in the role-play!! The dialogue takes about 6 minutes to speak.

The scenario is a TV or radio programme on current affairs for the generally interested viewer/listener. It is pre-recorded before transmission. Tracy is a youngish presenter, upbeat but not trivial. Faraway is a scientist with some problems in presentation, communication and expression. He behaves rather awkwardly, and has bad eye contact with his host… Although the scenario, and the research described, are fictional, it represents errors and failings in communication that scientists sometimes make when interviewed by a journalists. Some theatrical emphasis is introduced in certain passages, but merely to make the point more memorable. Faraway is questioned on the solving of the X-ray structure of a viral protein in complex with its cell-surface receptor. The failings in communication that he makes are coded in the margin with numbers, and explained after the dialogue.

Scene and props: The two role-players should sit in chairs opposing each other, slightly angled towards the audience, and ideally with a low coffee table between them.

Dialogue:

Tracy: Welcome to Tracy's Topics. Today we have with us Professor Faraway, a structural biologist who has recently made a discovery of major importance to medicine. Welcome to the programme Professor Faraway [pronounced like "Faraday"], or is it Far-away?

Faraway (not registering the question, and gazing at the floor): Hmmm…

Tracy: I see. Now, tell us a bit about your new work.

1

Faraway: Well, it's not really new; it's a culmination of years of research.

Tracy (looking a bit puzzled): Aha?

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Faraway: Also, I'd just like to point out that it wasn't me who made this discovery – well, not on my own: it was a team effort, and it's very important that I credit everyone involved… (starts to take a piece of paper from his pocket)

Tracy: Er, perhaps we could simply say that we should acknowledge your co-workers at (looking quickly at her briefing papers) Imperial College, London, right?

Faraway: Yeees (grins sheepishly, and puts paper back into his pocket)

Tracy: So what would you say your most important progress or result has been?

4

Faraway: Well, we've been working on this project for 10 years, and we finally have a Nature paper describing the structure at 2.3 Ångström of the major transmembrane protein GH-95 of *Bloggovirus imaginae* complexed with the host-cell trans-membrane receptor TFP-6. That, of course gives insights into the binding mechanism.

Tracy (pensively): Mechanism…

Faraway (gesticulating wildly and thinking he's done a good job of explaining): Yes, you know, *molecular* mechanism.

Tracy (bemused, but polite): Aha… now, while we're on the topic of viruses, how do they manage to reproduce inside our cells and then get out again? That's what they do, isn't it?

5

Faraway: Well, yes, but I wouldn't really like to go into that; I'm not a virologist or cell biologist you know [chuckling].

Tracy: Now… I understand – though I'm not a scientist – [Faraway interjects "ah", and briefly looks at Tracy] that your work represents a major medical advance.

Faraway: Yes, the viral GH-95 protein exists in a number of polymorphisms, some of which are manifested in different antigenic epitopes, others of which modulate binding affinity to the receptor. The crystal structure of GH-95 on its own can tell us exactly where, for instance, the monoclonal antibodies bind, but to know how GH-95 interacts with its receptor, you really need to co-crystallise the two, and solve the structure by X-ray crystallography. And that's what we've done.

Tracy: [slowly and drawn out] I seeeee… so really what you're saying is that there are different, well, "variants" or "shapes"(?) of this protein and you can use antibodies to detect them, and even diagnose an infection, yes? And also, depending on the shape, the virus is more or less dangerous for us, correct?

6

Faraway: Well, there are several *classes* of polymorphism – encoded at the level of the DNA – depending on the localisation of the amino acid substitution in the polypeptide chain. And these classes seem to correlate with species preferences as well as differences in infectivity.

Tracy (with hand next to mouth, cupped towards the audience): Just for our audience, who *might* not understand, amino acids are the building blocks of DNA.

7

Faraway (indignant and perplexed): No, no, no. That's not right. Amino acids are the building blocks of proteins.

Long pause… Tracy smiles in an annoyed way at Faraway.

Tracy (embarrassed and exasperated): Well, OK, can you at least tell us something about what it's like to do research and make a discovery? [sarcastically] I mean, you're obviously really *fascinated* by what you're doing.

8

Faraway: Well, doing research these days is all about big machines, big money and asking the right questions.

Tracy (irritated): Yes… yes…

Faraway (a little timidly): Er, there are so many unknowns and areas still to be researched and understood: we can look at biological molecules in atomic detail…

Tracy (losing her self-control a bit): Oh God, I don't believe it.

Faraway: Hmm? But we desperately need more interdisciplinary approaches to correlating molecular function with organismal significance…

Tracy (cutting Faraway off in mid-sentence): I'm afraid we don't have much time left, so to finish on, how would you summarise your contribution to medicine?

9

Faraway: Well, that's difficult, but what I really wanted to say earlier is that my research could save thousands of… [Tracy cuts him off]

Tracy (interrupting): I'm sorry, that's all we have time for. That was Professor Faraway, whose ground-breaking research has led to some kind of significant medical advance that could save us thousands of Euros. Thank you Professor Faraway. [changing to an enthusiastic tone] And now we have Britney Spears and "Toxic"…

Faraway: But…

Tracy (looking round, angrily): Where's the producer? We can't use any of this…

Comments on the principles demonstrated:

The audience can first be asked to identify the failings. They are listed for discussion below. The most important failing is Faraway's inability to summarise his most important finding briefly, simply and early in the conversation. Furthermore, he simply has not though about how to express the relevance of his research for the lay public. What possible applications or implications does his science have? This point is dealt with in more detail in item 9 below.

1. **Diminishing the news value:** Although Faraway is truthful – the research took a long time, and the results came out slowly – the attractiveness of news is that it describes something that has *just* become known to us. He could have put it another, more positive, way: "We now know what a really important protein on the outside of an infectious virus looks like."
2. **Distancing himself personally from the research:** Scientists often distance themselves from their research in order to preserve the notion that it is the science that speaks for itself. In scientific circles that is accepted, but the media are interested in people and personalities.
3. **Acknowledging all contributors:** Scientists are generally very sensitive to the need to acknowledge all contributors in their research. Neither the public, nor the media, thinks that this is important. A brief mention of the fact that the research was done in a team, and/or in collaboration with another named laboratory is sufficient.
4. **Jargon, detail and scientific phraseology:** Faraway completely forgets his audience – in many places in the dialogue. Not all scientific terms have to be omitted, but ones that are easily described in normal language should be. Other terms perhaps just need explaining once, and can then be used. Certain scientific ways of saying things should be avoided – e.g. localisation = place or position. Faraway could have said the following instead: "Viruses get into our cells by recognising a particular protein on their surface. We now have a picture of how the virus sticks to our cells before entering." He could have gone one further and summarised his most significant finding, and its implication e.g. "We now understand exactly how the virus sticks to the cell that it infects, and that might allow researchers to develop drugs that stop the virus attaching to the cell." Details *always* detract from the understandability of the main message for a lay audience. It is not a crime to leave them out, but rather a service to the communication of science! Finally, the meaning of word 'mechanism' may be clear to molecular biologists, but many lay people will think of a clockwork mechanism with gears etc. It is much better to use 'the way in which…' or the 'manner in which…'
5. **Failure to comment superficially on a different field:** Often scientists feel that they risk the disapproval from their peers if they comment on an area of science outside their own research field. Clearly scientists should restrict their presentation of expert knowledge and opinion to their own field, but that should not prevent them from explaining basic facts about other fields. All molecular biologists should, for example, be able to explain the basic elements of the life-cycle of mammalian viruses, or why some researchers are studying yeast to understand more about cancer. Such minor field-crossing is often very useful to journalists. It can also contribute to their general education.
6. **Failure to accept a helpful suggestion:** Interviewers want their audience to understand the science being presented. They will generally help scientists to

rephrase or simplify things in the interest of understanding. Faraway should not have ignored this attempt. If he was unsure, he could have discussed the point in order to find a compromise with which he was happy. He should have trusted the interviewer to know the level of comprehension of the audience.

7. **Correcting someone else's mistake:** This was a bit exaggerated, it's true. Still, very basic errors are sometimes made in the media. Always be kind in the way you correct them. Every profession is "special" in some way – or has a special language – and the media also have plenty of terms among which lay people could get confused.
8. **But what is it like for *you* to do research?:** Yes, that is what Tracy wanted to know. Much of the public interest in science is really about the human side of research: the stories of adversity, hope, expectation, frustration, motivation, curiosity, uncertainty – all those feelings that almost everyone can relate to. Maybe Faraway is a machine himself, but probably he just hasn't thought about how to communicate his own motivations for, and experiences in, doing research.
9. **Inability to summarise the important point(s) briefly:** This is the most important point in the dialogue. The opportunity existed earlier (see points 1 and 4), but it was missed. It is always advisable to get the most important point in as early as possible. Also, it may sound ridiculous, but 15 seconds is often the length of material used to quote a scientist in a short news item. The interview itself may last 5 minutes or more. The scientist will have no knowledge of how the material will be cut, and that makes it extremely important to put across the main point in a strong way, briefly and early. Weak points – even if they are brief – are not attractive to journalists. Lengthy explanations – even if they are important – won't be used. Long, convoluted passages are a nightmare for journalists. Journalists often give up trying to find a bit to quote, and instead quote something else, or even nothing at all. Make the chances of success greater by understanding what the final product should look like! In preparation, practice saying your most important point over and over again in different ways, using simple language, without taking more than 20 seconds each time.

<u>Some general comments:</u>

- Prof. Faraway does not maintain good eye contact with the interviewer. Good eye contact is vital, because facial expressions communicate much about how a person receives and understands information.
- He speaks in long, convoluted sentences, which give the interviewer little chance for interjection.
- He mentions none of the contextualising background information related to his object of study: how many people are infected by or killed by the Bloggovirus, examples of real-life experiences of the virus. This makes it hard to build a communication bridge through concepts and emotions that everyone can relate to.