Why and how to communicate your research

A Guide for Scientists, Engineers and Technologists

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This guide will help any expert think through the issues that arise when they want to talk about their work to non-experts. It is principally targeted at scientists, engineers and technologists.

The major topics covered are how to:

* play a role in building bridges between expert and non-expert communities, and why it is necessary.

* devise the most effective ways of communicating your expertise to different audiences

* interact with audiences effectively in informal settings

* work with the media

Why communicate science?

The three main reasons for researchers communicating what they do to the public are that:

* too few young people are choosing to study Science, Engineering and Technology [from now on called SET] with the consequence that there is a shortage of individuals with the right skills to develop wealth creating innovations

* only 54% of the citizens of the EU currently believe that the benefits brought to society by SET research outweigh the risks it generates.

* science needs to rejoin the arts and literature as proud intellectual achievements of humanity.

Who wants you to communicate science?

Science communication is sponsored and encouraged by several different kinds of organisation and institution. Each has their own mix of motives for investing their

resources in this way and examining these provides another way of exploring why science is communicated.

Key players are:

- <u>Universities,</u> who are major funders of science communication world-wide, even in countries that make no other kind of investment in taking science to their citizens. Their main motivator is the difficulty many have in recruiting students into science and engineering degree programmes.

- <u>Government Agencies</u> who combine a concern to ensure the ability of their country to compete with other knowledge based economies with, in the developed world, a strong motivation to ensure that their citizens feel that they play a central role in deciding which science based innovations are appropriate for use in their society. This driver has increased in power since a number of innovations, like for example the use of genetically modified organisms in food production, were not accepted in some countries with a consequential impact on the companies that invested in developing them and knock on effects on national economies.

- <u>Funding agencies</u> that distribute public money to researchers are principally interested in assuring support for their investment decisions and therefore have a strong reason for ensuring that the scientists they fund communicate the results of their research to the public as well as to their colleagues. They also need to convince their political masters that the work they fund will have a positive impact on the health of the economy

- <u>Businesses</u> are mainly motivated by both their need to recruit skilled workers and, like government agencies, have a strong interest in ensuring that new technologies are accepted by the public. They also would very much like to encourage successful capitalisation of knowledge generated within Universities.

- <u>Learned societies and professional bodies</u> are motivated by both the need to maintain the flow of new members into the discipline which they exist to promote and by wanting to ensure that the activities of their members are valued by wider society, an essential pre-requisite for attracting funds from the government.

  It is not the case that all these players are active in any one country, although Universities are the most likely to be active globally and there is a definite trend for Government and Funding Agencies, which are often closely linked, to be more pro-active in seeking to ensure that research findings are disseminated to the public. However, it is the case that many scientists do not feel that they have

the time, skills, and possibly most importantly the motivation to spend time engaging with the public.

To summarise, strong reasons for giving the public opportunities to discuss science with scientists include:

- they pay for most of the research and have therefore a right to know what they are getting for their money

- public acceptance of innovation is economically important

- as citizens / voters the public need to make informed choices on science based issues

- they need to know the potential consequences of their actions /lifestyles

What can you gain by improving your communication skills?

However, in addition to these general reasons for meeting the public, you can also benefit personally from becoming a better communicator because it enables you to:

- work more effectively in interdisciplinary teams in which not all members have the same expertise.

- see your research in contexts you might not have considered

- become better at writing applications for funding for your research

- increase the effectiveness of your communication with the private sector, and by doing so enhance the likelihood of your research leading to innovations used by society

- feed the outcomes of your research to policy makers and decision makers

How to win the time and resources you need

If you do decide that you want to communicate your research you may need to argue the case for doing so with your colleagues, points that might be worth making include:

- the value to the organisation of increasing your own skills profile, for all the reasons given in the previous paragraph

- the existence of increasing external pressure on publically funded institutions to engage more with broader publics

- the role of local "champions" like yourself in bringing about cultural change within your institution.

Once you have the opportunity to do something your next step is going to be getting your hands on the necessary resources to proceed. This could be money, but in the first instance it is also likely to be your time and the time of anyone in your immediate circle who can persuade to help you.

Possible places to start searching for leads are:

- your Press and PR office who should be good sources of information about who is doing what locally, and have useful contacts with the media.

- the staff with responsibility for the recruitment of students who often have budgets dedicated to making links with the local community

- your Learned Society or Professional Body will be likely to have someone with funds to be used for promotion of your discipline.

What are the main ways in which you can take science to the public?

Two main channels have been traditionally available to communicate science to people. The first has been events and initiatives within the community that take science directly to more or less targeted groups; the second has been through the mass media.

Both channels have strengths and weaknesses.

A strength of direct communication is that it provides an opportunity for the public to meet you face-to-face rather than learn of your work through a media piece that often reveals no more about you than your age and academic title. It could be argued that, given this treatment of science stories by the media, it is unsurprising that many members of the public do not think they have ever talked to a scientist and when children are asked to draw one they almost always produce a wild looking bespectacled man in a white coat. It can also be argued that creating circumstances under which the

public can meet real scientists is important because it challenges that stereotype one which is likely to increase people's fear of science itself being beyond their control.

The traditional media do not generally provide good opportunities for scientists to interact with the public on equal terms although the least prestigious, the internet, is the best suited for two way communication and used intensively to do so. In fact, it is rapidly becoming a third channel through which science is shared and discussed by individuals and communities.

However, the strengths of direct communication with the public have be balanced against the weaknesses which are that it is easy to waste resources devising events that are rarely repeated or attended almost exclusively by people who are already very engaged with science and technology, and therefore arguably the least in need of further input

By contrast the mass media offer opportunities to reach a wide spectrum of the public and in much larger numbers. They also can play a central role in framing the policies and agendas of policy makers and politicians.

How to take science directly to the public

If you decide to do some direct communicating you enter a world which has its own philosophy and history dating back to Davy and Faraday at the beginning of the 19th century and given a strong stimulus in the last century by a report published by the Royal Society of London that launched the Public Understanding of Science [PUS] movement: Now seen as a Bad Thing because its model of the public was that they would come to love science if they just knew more about it. So the job of experts, like yourself was to tell the public about the wonders of science. By about 2000, it was agreed that the public showed little sign of falling in love with science , in fact, courtesy of GMOs they seemed to be heading in the opposite direction so……

Public Engagement: took over as the new kid on the block and has remained so to this day. It's all about talking and listening to the public and consequently all about discussion of issues raised by SET for society. So out went the trusty talk and hard to read poster [one way communication] and in came debates, consultations and, of course, train loads of consultants [two way communication]

Who are the Public?

It is important that you have some understanding of the public and its attitudes to science and scientists before devising an event or exhibition

They are not a single homogeneous audience but many different audiences linked more or less closely to each other. Consequently, it is impossible to devise an initiative that is equally effective across all citizens and consequently your science communication initiatives will have to be tailored to match the characteristics of a specific audience.

You can use many ways to segment the audience, a very common way is by age, a practice that seems self-evident when working with children, since it is obvious that an activity that gets a specific message across to a five year old is unlikely to enthral a teenager. However, when working with audiences who have left formal education there is a tendency to assume that a single initiative will work for all, even though it is obviously unlikely that an activity designed for young adult males will be very attractive to female pensioners. Examples of other characteristics of individuals or groups, in addition to age and gender, that might define them as a distinct audience are; ethnicity; educational achievements; occupation; leisure interests; and marital status.

The public audience can also be segmented on the basis of attitudes to science and technology. For example, *Science and the Public* a UK wide survey jointly commissioned by the Wellcome Trust and the Office of Science and Technology [OST] in 1999 asked questions designed to discover aspects of people's views. The results reveal an intriguing mixture of standpoints including:

Fascination: 75% of those questioned agreed with the statement
> "I am amazed by science"

Gratitude: 68% agreed that
> "Science and technology are making our lives healthier, easier and more comfortable"

Distrust: 70% agreed that:

> "Rules will not stop researchers doing what they want behind closed doors"

Ignorance and Indifference: 66% agreed that:

> "Science and technology is too specialised for most people to understand it"

An important finding of the survey was, as is demonstrated above, that any one individual can be both amazed by science and acknowledge its positive impact on their quality of life whilst at the same time lacking trust in the regulatory processes relating to the conduct of scientists. Insights of this kind can be very useful in helping you devise effective ways of taking science to the public.

A further survey commissioned by the OST and conducted by MORI in 2004 included some of the earlier questions and revealed that the public's awareness of the

significance of science and technology in their everyday lives had increased over the five year period, with increased numbers of them declaring that they see and hear too little about it and also an increase in the numbers declaring the importance of knowing about science's role in their daily lives. This could be used to argue that science communication had a big impact over the period, or that it had too little impact, leaving the public feeling under-informed.

What does seem to be clear is that scientists have failed to increase the extent that the public think they are consulted over the period. Despite this being a major objective of the bodies that represent them at the science and society interface. It is also clear that the public's concerns about possible negative impacts of science on society and the ability of the UK government to control the situation were unchanged.

The overall picture, therefore, is that there are many publics and their attitudes to science and technology are subtle and complex. A very significant percent combine being both fascinated by scientific phenomena and the natural world with considerable distrust of the motives of scientists. It does not appear to be the case that greater knowledge of science equates to increased public sympathy for science and scientists as was pointed out by Jon Turney in *To know science is to love it?* and little evidence to suggest that knowing the science behind say genetic engineering, re-assures the public that it will be responsibly applied in society.

Given what is now known it could be seen as surprising that a very substantial amount of the effort to communicate science is still focused on convincing people that science is amazing, something which the great majority already believe. However, the fact that so much of the communicating is done by Universities as part of recruitment activity may go some way to explaining this apparent paradox.

 <u>What sort of initiative might you devise and how would you start?</u>

Some key questions to consider as you begin are:

- What aspect of your work will be accessible to a non-expert

- Who are my target audience [s]?

- What are the key messages I want to get to this/these audience [s]?

- What kind of event or experience will get my message across most effectively to my selected audience [s]?

- How will I know your audience received and understood your message?

How to choose the right medium for communicating your message

In many cases the starting point for an attempt to target a specific audience is the communication of a particular message to that group and the mainstream media are skilled at devising formats that appeal to particular audiences. However, as any adult who has had to watch an hour of kids' TV will tell you, one audience's favoured format is unlikely to hold the attention of another one. Consequently it's important when devising ways of taking specific messages to an identified target audience to:

- take care to ensure that your chosen medium and format will catch and hold the attention of that audience

- realise that in tailoring your message for one audience you are inevitably "turning off" non target audiences.

- have only one message and keep it simple

Although these guidelines hold for the use of any medium, they are particularly easy to illustrate using poster design as an example.

First, it is crucial that you allow for the fact that the advertising and publishing industries use conventions that allow us to receive and understand their message with the minimum of effort. So, for example, we can all work out at a glance whether a particular poster is selling L'Oreal perfume rather than the latest version of Play Station.

Failure to obey these conventions can mean that your message is never received by the target audience you intend. Strategies for avoiding this problem could include:

- involving members of your intended audience in the devising process for your initiative

- testing the effectiveness of prototypes/drafts in getting your message to your target audience [not proxies for it, so avoid for example using teachers' opinions to test what will engage their pupils]

- working with collaborators who are making everyday use of different techniques to reach particular audiences [your organisation/institution's graphics department may not employ people with this depth of commercial experience]

- evaluating the extent to which your key messages reach both target and non-target audiences in a live campaign

It is difficult to find data that compares the effectiveness of different advertising campaigns, in part because such information is often regarded as commercially sensitive by those who gather it, but also because the measure of success or failure is usually simply the impact on the sales of the product featured. This yard stick is rarely relevant in science communication where the deviser's desired outcome is usually some kind of attitudinal change in their audience. However, some characteristics of commercial advertising campaigns that are designed to increase their impact are worth noting:

- keep your message short and snappy [the optimal number of words on a poster for a public space is below twelve; events need to be fast moving and absorbing]

- use humour to increase memorability

- ensure that every element of your activity is re-enforcing your message

- avoid multiple or layered messages.

- events and posters in public spaces and places tend to be only one part of the campaign and often have the sole purpose of pointing the audience to another medium, like the internet, for more detailed information / opportunities for discussion

- repetition is crucial to message reception. Financial considerations usually make this difficult for science communication campaigns, although coverage of a campaign as news or feature material by local and national media can sometimes be achieved. It is a mistake to see this as having any more than a very transient effect on the public's awareness of your message. As advertisers demonstrate continually, people need to hear or see things on several occasions before they are likely to react.

Finally, the focus of the advice so far has been the devising of events and posters for public spaces where they compete to attract the attention of the public alongside many equivalents, most of which are selling goods and services. However, many science communication activities and materials are produced for schools and colleges which contain two kinds of space:

- classrooms, which have a specific ethos controlled by teachers and they need to be closely involved in the devising of your activity or materials for use in class or for display on the walls.
[Posters for classrooms usually have an explanatory purpose, like say an annotated diagram of a biological cell, and will often include considerable amounts of text. These posters are mini text books and do therefore have a distinct style that suits

them to the space in which they are intended to be displayed, but which is quite different from those that would be effective in a public place].

- corridors / common rooms, which are public spaces and anything devised for them, like for example an advertisement for a University Open Day or a Science Festival will only have a significant impact if created using the guidelines given earlier.

Effective ways of taking science to the public

What follows are annotated notes about some of the most effective ways that have been developed to take science directly to the public gathered from around the world. You might find them useful starting points for your own initiative.

Role Models

Several types of initiative exist that seek to reach a specified target audience through use of positive role models of scientists including:

- the use of undergraduate and postgraduate students as tutors/ mentors working with pupils in schools which do not have a tradition of sending their students into higher education, a highly contagious initiative started as the Pimlico Project which became the UK-wide *Science and Engineering Ambassadors* scheme.

- the selection of a group of young scientists of both genders who are young and funky for a mix of personal appearances and PR and media purposes mainly targeted at children, but also at those who influence them. Two examples are from the UK the EPSRC funded *NOISE* initiative and from Australia the *Shell Questacon Science Circus*

- the featuring within specific events or campaigns of celebrities with science degrees who are known to broad cross section of the public. A favourite is TV weather forecasters like Lisa Burke [UK] and also pop stars, like Alex James of Blur.

Targeting adults through children

Possibilities include:

- development of initiatives that offer opportunities for parents to learn about the science being taught to their children. The incentive being that they can then better support their child's learning at home.

- creation of schemes that encourage children who visit a science event or centre as part of a school group to return subsequently with their family

- featuring within science events of interactive experiences of science billed as being targeted at children but often also involving their parents and grandparents.

Involving people in "live" data gathering or processing

Examples include:

- the *Breeding Birds Survey* organised annually by the RSPB and the British Trust for Ornithology since 1994 which uses thousands of trained amateurs as its data gatherers.

- the *Search for Extra-terrestial Intelligence* project involving computer operators in using their equipment to analyse cosmic radio traffic.

- mass experiments like those devised by Richard Wiseman for broadcasting in the UK by the now defunct Tomorrows World. Topics included, criminal stereotypes, eyewitness testimony and suggestion, and memory. These Megalabs were broadcast to coincide with National Science Week.

The Mobile Laboratory

A contagious idea which has been realised in many parts of the world, examples include:

the Institute of Physic's [UK] *Lab in a Lorry* project initiated in 2005 during Einstein year and involving three different specially equipped Pantechnicon scale lorries trundling to virtually every part of the country

the Indian *Science Jahtas* initiative that involves groups of artists, scientists and students taking small travelling shows into rural communities.

the Chemistry Dept of the University of Edinburgh's award wiinning *Chemical Connection* taking chemistry around Scotland.

and, once again, the *Shell Questacon Science Circus*

Responding to the needs or concerns of a local community

An approach that builds on the observation that a personal or local angle can turn a non-scientist into an expert in a particular field like, say, leukemia clusters. An initiative of this type is *Science Shops* invented by the Dutch in the 1960s and now found in many parts of the world, their general mission is to " *provide(s) independent, participatory research support in response to concerns experienced by civil society".* and they vary considerably in how they operate, some having "real" premises while others appear to work as virtual clearing houses based at a University and offering student and staff expertise to the community at no or low cost.

Partnering science with the arts

An example is what has become known as SciArt which has been extensively promoted and were until 2006 supported in the UK by the Wellcome Trust and NESTA and the Calouste Gulbenkian Foundation

Reasons for this include:

- an expectation that you are targeting people who, for example, would use their leisure time to visit an art gallery or watch a play but not to go to a science centre

- a view that figurative and performance art can do more than just sweeten the science pill, they can actually provide a cultural and emotional context for science which has been eroded by its professionalisation.

Linking science to everyday activities

Examples of such activities include:

Cooking, whose links with science have been the subject of many books and TV programmes, popular examples include :

- *On Food and Cooking: The Science and Lore of the Kitchen*, Harold McGee, Scrivner, 2004

- *The Science of Cooking*: Peter Barham, Springer- Verlag 2001

- *Science Experiments You Can Eat*: Vikki Cobb and David Cain, Harper Collins, 1994

- *Kitchen Science* [Discovery]

- *Science of Cooking* [BBC]

Drinking, the subject of events like *Pub Genius* and also demonstration lectures at events, as well as books and articles about the science of wine and beer.

Other topics that regularly get the Science of…… treatment include sex and sport

Specific issues and approaches

How to target hard to reach groups

The hardest of all audiences to target are those who rarely leave their immediate neighbourhood to attend events and have a low level of interest in SET. To be successful in targeting them you need to devise and run entertaining and informative events in venues that your audience visit and spend significant amounts of time as part of their everyday routine. Places where they feel comfortable and relaxed.

Such venues are present in almost any centre of population in the developed and developing world. Examples from European culture include bars/pubs, supermarkets, shopping malls, public transport and motorway service stations.

It is important that the activities designed for a particular venue type fit the public's expectations of what they might encounter there.

Factors to consider in choosing a particular venue are:

- Significant dwell times – Members of the audience have to be in the venue long enough to get involved in the proposed activity. If your audience is in a rush you may annoy them if you attempt to distract them.
- Sufficient space appropriately laid out – Don't try to perform your activity in a cramped location or a long distance from your audience
- Good relationships with the managers/owners of the space. This can be crucial if, as will sometimes happen, you need assistance during the event. It's worth investing the time to visit the venue in advance and get to know the staff.

Other venues, used by self-selecting audiences may also offer opportunities to target harder to reach groups examples include:

- Topic Enthusiasts – Garden Centres, Do-it-yourself outlets, Race Courses, Gliding Clubs

- Parental status – school playgrounds, antenatal clinics, holiday villages, 18-30 singles resorts

- Gender – beauty salons, sports clubs

Other ways of reaching specific audiences might involve organisations that represent or support them:

- Gender – Women's Institutes, Working Men's Clubs

- Ethnic background – religious groupings, community centres, cultural organisations

Using a representative organisation provides some clues about the likely attitudes of audience members to a particular topic and places you within a pre-existing community. However, the audience will differ along many other possible dimensions, like for example age or educational background and an active champion within the community is a vital starting point.

<u>Getting noticed in crowded spaces</u>

Many opportunities to take science to the public involve events at which you will be one of a considerable number of exhibitors/stall holders jostling for the visitor's attention.

Some tips that may help get you noticed are:

- If you are given a choice, choose a "pitch" that is close to the entrance to the exhibition hall or generic venue. This will mean that you can't be missed by potential audience members. If you do end up in a corner and suspect it will be little visited, find some way of drawing attention to yourselves. Using some members of the team as human signposts can be quite effective, but they need to be distinctively dressed or equipped, and that requires advance planning.

- Even if ideally placed, you will need some kind of attractor that works close to the visitor. A simple demonstration is often very effective in this role, ideally something intriguing that the visitor can learn to do in real time [like how to stick skewers into balloons without bursting them, twenty of these can be found in *Physics to Go*].

- Your display needs to be visible or audible from a significant distance.

- Plan the distribution of activities within the space so that it invites visitors to enter it, rather than walk past, for example, by placing something that will catch their attention against the back wall of your stand.

- Limit the textual content of your exhibit as much as possible, using demonstrations, animations and cartoons to make your key points and placing more detailed material in a booklet or on a website to which you can refer visitors that seek deeper levels of information.

- Have something to give visitors to your stall that carries your organisations name or logo. Many organisations have stocks of these give-aways used in recruitment and marketing activity. If you need your own they are not prohibitively expensive.

- Offering on the spot prizes can be a very effective way of attracting and holding the attention of visitors, particularly young people. These inducements need not be large; any item bearing your logo works well, particularly overseas where they have greater curiosity value.

- In many settings it will be children who engage first with your activities, with the accompanying adults only getting involved subsequently, so be sure that what ever you offer is accessible to as wide an age range as possible

- Do not assume that your audience has a long attention span. A visitor's initial dwell time in front of your exhibit will be a few seconds.

- if you decide to include a quiz element in your event, take care to ensure that the average member of the audience will get most of it correct, otherwise you may risk re-enforcing their feeling that your subject is intrinsically difficult and inaccessible to lay people

- be sure to include opportunities for the public to say how they think something works.

Did the audience get your message?

Evaluation, as distinct from meeting numerical targets, can have two distinct functions.

1. To pre-test materials and approaches during the devising process and before final versions are produced, this usually involves working with a small representative sample of the target audience, either individually or as a group [formative evaluation, or if you want to sound erudite "research led practice"].

2. To discover whether the objectives of the project have been achieved [summative evaluation].

Most evaluation is focused on assessing the immediate impact on the audience, by for example getting them to fill in exit questionnaires, it may also be possible if carefully pre-planned to discover whether audience members know or think things after the event which they did not before it, by using pre and post event questionnaires or interviews. However, it is much more difficult to establish whether a specific experience changed either the longer term behaviour or performance of members of an audience. Principally because there are too many other uncontrolled variables operating that might influence these outcomes for an individual, like for example whether their learning or thinking was or was not subsequently re-enforced by subsequent experiences.

Effective Communication

<u>How to prepare a Presentation</u>

One popular option for public events is a presentation followed by discussion. It is likely that you will have made many presentations before to your colleagues and important to remember that they are not your audience on this occasion. So do whatever ever you can to understand your audience BEFORE you prepare your talk :

- Think of your presentation from the audience's point of view, you may need help from friends or relatives who are not experts to do this

- Plan, prepare and deliver your talk always with the audience in mind.

- Ask yourself:

  What kind of people are they?

  What do they already know?

  What do they need from me?

  What is likely to interest them?

Preparing your talk

- Begin by creating a structure for your presentation. Think of it as a journey you are going to make with the audience. Remember, the audience is at its most alert for the first few minutes of your talk, after that you only have a fraction of their attention until you announce you are reaching the presentation's end. So put your key points at the beginning and the end of your presentation

- Once you have sorted out the itinerary for the journey, travel its whole length talking out loud. and THEN write notes to record your thoughts. This works better than writing a script or set of notes and then trying to turn it into a talk.

- A talk is designed to be seen and heard, not read. So start as you mean to go on and let any notes grow out of your talking to an imaginary audience

Use of Audio-visual aids

Remember that audio-visual aids are there to serve your message and not the other way around.

- Don't use powerpoint as an autocue

- Don't overwhelm your audience with material.   Give them information they are ready to understand at a pace they can absorb it.

- Rehearse [but not for ever]

   For an important talk a rehearsal is essential. A rehearsal is not a read through of the notes. It's giving the talk in every detail without the audience, but with some people who you trust to give useful feedback . This way you sort out your message content as well as issues like whether the audience can see and hear you properly or whether you can easily cue your slides etc.

Delivering your presentation

- Be yourself – your uniqueness is what makes you interesting

- Be prepared to do something about any distracting habits (ear scratching, hair fiddling, pen juggling etc)

- Use your body. Be expressive with your face, your hands, your voice and your eyes

- Constantly scan the whole audience - (but at a leisurely pace). Don't just talk to one person

- Talk in a natural voice, as if you were chatting enthusiastically to a friend

- Keep it varied

   Audiences are in a constant state of losing interest. This isn't personal. It's natural. So vary your pace use a variety of ways of explaining things like pictures, cartoons, sound, physical objects and personal stories

- Make points using analogies and metaphors.

- End definitely, clearly and on time

- When designing the end of a talk ask yourself "What do I want them to do next?" or What is the message I want them to leave with?

Stimulating discussion and debate

Discussion events need to be held in venues that have been chosen and organized in ways that make the audience feel that their views will be listened to and valued.

Formats which have passed this test are:

- An informal gathering in a Cafe or Bar [Science Cafes/Café Scientifique] , these happen once a month in 40 cities across the UK [www.cafescientifique.org] and also in the majority of European countries

- A panel discussion in a public space [like a town hall] that includes inputs from experts and non-experts with different points of view

- A discussion triggered by a piece of drama or film clips relevant to the topic.

To get the most out of events of this kind, it is worth bearing the following Do's and Dont's in mind.

- Don't set out to convert people to your point of view

- ✓ Do listen to people and convey that their views matter

- Don't talk over peoples' heads

- ✓ Do prepare for discussion by finding ways of explaining things that involve the minimum amount of jargon, acronyms etc

- Don't sound distant or detached

- ✓ Do emphasise why you are a researcher

- Don't include too many related but different topics in your contribution

✓ Do keep your message simple, and relevant to the discussion topic

- Don't expect your audience to read large amounts of text

✓ Do use demonstrations, animations and cartoons to make your key points and put more detailed material in a booklet or on a website to which you can refer people

If you are planning an event of your own

- Use spaces owned by the public rather than by science

- Select spaces in which people have significant amounts of uncommitted time [dwell time]

- Crowding a small space works better than giving people too much room.

- Discussion is livelier if the speakers are at the same floor level as the audience.

- Use of AV support by speakers should be discouraged because it tends to distance the audience

- a greater buzz can often be created if the Chair / Facilitator is moving amongst the audience

- Discussions work better when the audience is seated around tables rather than in rows

- avoid being separated from your audience by tables, chairs etc

- Select a chair / facilitator who combines authority with accessibility

- Choose panel members with different viewpoints

- Strictly limit the amount of time allocated for each speaker's presentation

- Be sure the chair/facilitator has pre-prepared questions they can ask the speakers or audience that will prompt further debate

Working with the Media

Most people's interaction with the Media is through a journalist and it is useful to understand how they work. All journalists base their stories on answers to the following questions.

- What? [.... is the story about]

- Who? [.....is the person making the news]

- Where? [....is the news being made]

- When? [.....was the news made]

- Why? [....is it news]

- How? [.... did it happen]

Their stories consequently therefore have a fairly rigid structure as is illustrated in the entirely fictional example below.

*Prof Smith [**who**] today [**when**] announced that eating seaweed can make you live longer [**what**]. She was speaking in London [**where**] during a conference that has brought together experts from across the world to discuss how best to improve the quality of life of elderly people.. She said "We are very excited about the possible applications of our discovery in helping people have long and happy retirements" [**quote from Newsmaker**]. However, a leading Cambridge gerontologist Prof Jones commented " I have heard many claims of this kind in the past. We need more direct evidence of an effect"*
*The finding, if corroborated, may explain why seaweed eating cultures around the world have longer life spans and launch a new seaweed harvesting industry in Greece.[**why**]*
The active ingredient in the seaweed has yet to be identified but is thought to be one of the pigments that gives some seaweeds their distinctive brown colour.

*These pigments are used to capture light, instead of chlorophyll the green chemical that most plants use to capture it. [**how**]*

Things worth noting:

 The first points in a news story would be at the end of a scientific paper

A news story is edited from the end after it is submitted to the News Desk, so that is where journalists put the least important information.

It is common practice to include a quote from the person making the news and to seek the opinion of another expert [in this case Prof Jones] if someone is claiming a new discovery

Headlines are written by specialist sub-editors, not by journalists. Could be anything but might in this case be something like "Seaweed slows senility" [readers like alliteration] or "Eat up your Browns" [readers like plays on everyday words or phrases]

Writing a Press Release

A good press release is easy to turn into a news story so:

- Sort out your 5Ws and an H

- Identify your story's Angle. A good story angle must have the following three attributes: · It must be the most important fact in your story. · It must be timely. · It must be newsworthy

- Create a Catchy Headline. Keep the headline short and simple using less than ten words. It should convey the key point raised in the opening paragraph in a light-hearted manner that catches imagination and their attention

- Write in the Third-Person Voice. A press release must be presented objectively from a third person point of view so remove "you", "I", "we" and "us" and replace them with "he" and "they". · provide references to any statistics, facts and figures raised in the press release.

- Draw conclusions from facts and statistics only - not general opinion.

- Provide a quote from the newsmaker[s] that re-enforces your most important message. Journalists use such quotes to add an authoritative voice to their reports.

Being interviewed for film or television

Where to look

- normal approach is to look at the interviewer wherever they may be situated. They may be 'on camera' themselves or sitting or standing next to you. DON'T look at the camera and generally avoid moving your eyes in a horizontal direction. Looking up or down briefly looks fine. Looking directly at the camera breaks the illusion that the viewer is eves- dropping on the conversation. Looking across the camera makes you look untrustworthy.

- When doing a piece directly to camera, imagine the camera is a person. Preferably someone you know and like.

- Don't 'address' the audience – 'chat' to a person – TV and radio are intimate media. You may have 2 million people watching, but they are watching as one or two individuals.

- Your TV image is not like your real life image. The only way to see how you are coming over on TV is to watch yourself on TV via a camcorder.

Body Language

- Gesturing with your hands and being expressive with your face adds energy and interest...

- but don't be too wild with the arm movements – you'll look mad! The nearer you are to the camera, the closer your upper arms need to be to your body.

What to wear for TV

- Avoid tight stripes (horizontal or vertical) – you will 'strobe'

- Avoid too much white – cameras don't like it and you can look washed out

- Avoid distractions like huge earrings or gaudy ties – unless you are doing it deliberately.

- The key idea is to plan how you look, not to just let it happen

- If in doubt, dress like a news reader.

Getting comfortable

- A good sitting position for any interview is to push your bottom well back in the chair and then lean forward slightly.

- Before being filmed, you can ease facial tightness by exercising your face. Try making as many ugly faces as you can!

- Try looking down for a few seconds, looking up just before doing your piece to camera.

- Be careful not to move out of shot once the shot has been set up.

For Radio

- Use your hands and facial gestures, even though people can't see you.   It will make you sound more natural and more expressive.

- Avoid jewellery and clothing that makes a noise like a collection of bracelets and things like squeaky leather jackets.

- Try not to remember your lines exactly - just keep the sense and key information in mind.

- Often you will be asked to give some 'level'. This involves you talking for a bit so that the sound operators can set the equipment appropriately to match the

power of your voice. Keep talking – it doesn't matter about what – at the level you expect to use in the interview/ piece until someone asks you to stop.

That's the Guide which I hope you will inspire and encourage you to talk about your work with the public. If at any time you want further advice or to organize a workshop that gives you and your collaborators an opportunity to practice the skills I have featured contact me at Frank.Burnet@gmail.com