How Scientists Can Protect and Restore Their Reputations

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Scientists whose work and reputation come under fire may adopt strategic practices to protect and restore their status and identity. Some of these tactics are illustrated through the case of an Australian scientist who became targeted when he began researching the biological effects of mobile telephone radiation. While the strategies used by controversial scientists could be seen as primarily self-serving they can also be viewed as means to creating a more democratic, open-minded and less politically naïve scientific world that encourages innovation for the benefit of society.

Introduction

The traditional view of science is an apolitical one. Scientific knowledge is produced by trustworthy individuals and groups who undertake research in ways that keep subjective values, theoretical prejudices, secrecy and self-serving interests from distorting results (Merton 1973). Scientists whose work or reputation come under fire may therefore feel surprised and overwhelmed, particularly if they are following the rules of good scientific practice, such as experiments using respected techniques that can falsify deductions and presenting results to peer review scrutiny in academic journals.

Scientists who become the centre of controversy may find their formal status, reputation and research are undermined through a variety of tactics:

- *Degradation rituals* are practices used by critics to redefine the target as a 'polluted' or 'polluting' person in science (e.g. as pseudo-scientific, fraudulent, incompetent, magical thinker, crazy). They often involve demotion or dismissal and can lead to docility, depression and suicide in the target, as well as fear and compliance in observers (Thérèse and Martin 2010);
- Dissident research and researchers may be *ignored* or *rendered invisible* in scientific discourse as if they do not exist;
- Critics may strategically *upgrade uncertainty* about dissident theories, research methods and data whilst bolstering certainty in orthodox equivalents;
- Dissidents may be *denied mainstream research funding* and *blocked from publishing* in mainstream or prestigious scientific journals;
- Dissidents may have *difficulties forging collaborations* because their reputation has been tarnished so that other scientists do not trust them or fear they will be 'polluted' by association if they work with dissidents.

In response, targeted scientists can wield an array of tactics aimed at restoring their blemished reputations (Goffman 1961) and protecting themselves from future attacks. To illustrate some of these tactics, I explore the case of an Australian scientist which shows how researchers following their curiosity about nature may find their reputations and their work unfairly attacked, prompting increasingly self-conscious strategies to remediate their status and identity in response.

The mobile phone radiation research controversy
Using the media

I first became aware of Dr Peter French, an Australian cellular biologist researching the effects of mobile phone radiation (MPR), through media coverage. Only later did I realise that this coverage demonstrated a key tactic scientists may turn to when they experience suppression and denigration. (See Thérèse (2003) for details of the French case and one other.)

In a television documentary on the controversy over the health effects of mobile phone radiation (*Insight*, 6 April 2000), French, then Principal Scientist and Manager of the Centre for Immunology at Sydney's St Vincent Hospital, divulged that he and his research team (French *et al*. hereafter) had found it difficult to secure funds for their research. This was despite being one of the few groups in Australia to have published experimental results on the effects of MPR on human and animal cells. French suggested the government's standard setting body had been 'dominated for years by industry and continues to be dominated by industry' and that the National Health & Medical Research Council (NH&MRC) and the Australian Radiation Protection and Nuclear Safety Agency

(ARPANSA) 'may be unduly influenced by industry' (*Insight*, SBS, 6 April 2000).

Media coverage framing scientific heretics as cultural heroes fighting a dogmatic establishment can be a powerful means to win over new audiences and supporters and to contest slurs upon scientific credibility. Such exposure may also counteract an often-used tactic by critics of ignoring the existence of dissident research and researchers, thereby masking the controversy and exaggerating consensus on the orthodox view.

However, media use by scientists, especially amidst controversy, is also risky. Talking to the media, particularly before your research has been published in a peer-reviewed journal, may be frowned upon by other scientists, prompting suspicion or envy, as well as accusations of self-promotion and whingeing. French's televised admission that he was unable to secure grant funding was cast by some elite scientists I interviewed as denoting potential zealousness, shameful admission of failure and bad sportsmanship (Thérèse 2003, 197, 208). French's earlier media appearances, where he described his team's experiments showing harmful effects on cells from radiation exposure similar to mobile phone emissions, attracted attention and criticism from more powerful, orthodox players. The research arm of a major telecommunications company (Telstra Research Laboratories) sent employees to check on French *et al.'s* radiation exposure chamber, which French allowed. The exposure system and the results French *et al*. published in their early articles were subsequently damned in a report prepared by the company, later circulated at a key scientific conference on the topic.

French's scientific reputation also suffered a degradation ritual through circulation of a damaging document amongst a group of key researchers, advisors and industry representatives in the field. Prepared by an employee of an industry standards setting agency, the document analysed submissions to the Australian Senate Inquiry into Electromagnetic Radiation (see SECITARC 2001) and explicitly identified French in terms that undermined his scientific credibility and impugned his motivation for engaging in the research. French had made a submission to the Inquiry, describing his group's peer-reviewed published hypothesis for a mechanism by which MPR might lead to diseases, such as cancer, and citing other published studies showing MPR effects on cells, organisms, animals and human subjects. In French's opinion the document was defamatory and he sought legal advice on the matter. The issue was settled out-of-court and the organisation formally apologised to French.

Faced with potentially defamatory representations, scientists may be tempted to consider legal recourse. However, positive legal outcomes do not necessarily repair scientific status as damaging representations may continue to circulate within and beyond scientific circles, irrespective of a court finding. Scientists who are defamed should carefully consider whether to enter into legal proceedings and should assess whether they have the material, social and emotional or psychological resources to pursue this avenue.

The French case demonstrates the importance of choosing the right forum in which to highlight the controversy surrounding your research. Despite the risks, French's media exposure of difficulties he faced in continuing his research, and specific degradation rituals he was subjected to, led to some benefits. After coverage of his experiences in a weekend newspaper magazine (Linell 2000), French was contacted by a wealthy philanthropist who had been struck by the story and offered the funds necessary to perform cutting edge experiments. Media representation of struggles dissident scientists face may help secure material resources to continue research (when mainstream funding seems blocked) and social or symbolic resources to counter some of the damage done to their reputations.

Dissident scientists should also consider using forums beyond science, such as popular print, broadcast or web media, to show how their critics are protecting their own reputations or other vested interests, as demonstrated by French's comments in the documentary mentioned above and in his use of the Centre for Immunology's website to critique the scientific reasoning of his orthodox detractors. This tactic does double duty by alerting audiences to the inherently political nature of scientific research and undermining simplistic acceptance of critics' views on dissident scientists. As I observed in the French case, it may also prove highly persuasive for dissident scientists to show how their own interests lie in furthering scientific knowledge and that their media appearance is driven by the public interest.

In my first interview with him, French explained that he initially approached the media about his early experimental results because he felt the public had a right to know about a potential health risk from mobile phone radiation. However, as his experiences of intellectual suppression and degradation grew, French appeared to use exposure in the print and broadcast media and in other forums, such as the website mentioned above, in more self-consciously strategic ways.

Learning more about media framing may, therefore, be useful for dissident scientists to help 'package' their stories in ways that attract media interest and reporting. Developing contacts with a range of investigative journalists in print, broadcast or web media may also help

to avoid the pitfalls of tabloid clichés in the representation of conflict, lead to more sophisticated coverage of the issues and capture the attention, and potentially the support, of demographically diverse audiences.

In arenas such as popular media, highlighting the controversy that surrounds you might lead to a remediation of your reputation amongst non-scientific audiences or even amongst fellow scientists who may perceive your treatment as unfair or be encouraged to collaborate with you. The same cannot be said for mainstream or elite forums of science where depoliticised representations of research appear far more effective, as I consider below.

Attracting influential allies

Another useful tactic may be to attract influential allies from the world of politics. While the scientific legitimacy of French's submission to the Senate Inquiry on Electromagnetic Radiation was derided by one group of powerful players, a presentation by French and his physicist colleague, Professor David McKenzie, to the Senate Inquiry panel led to a Senator suggesting their research was groundbreaking and possibly worthy of a Nobel Prize in the future (Tape Transcript, Hearings of Senate Inquiry on Electromagnetic Radiation, Sydney, 16th November 2000). This was also an important forum in which French and McKenzie asserted the scientific superiority of controlled cellular studies their team used in ways which sidelined the utility of epidemiological studies, often held up by critics as the only means to determine whether MPR might cause harm.

French counted the Senate Inquiry presentation as critical to a status turnaround amongst government and industry officials and a subsequent invitation to collaborate from Telstra Research Laboratories (TRL), which had previously been a source of damaging criticism. Impressed by their novel hypothesis for how MPR might trigger illness, an executive from TRL provided French et al. with a cutting edge (and expensive) radiation exposure system that accurately simulates microwave emissions from mobile phone handsets. Along with the funding provided by a wealthy benefactor, mentioned above, the donated exposure machine from TRL led to a widely publicised and scientifically lauded launch of experiments on human brain cells (see for example *The Australian and The Sydney Morning Herald*, 11 January 2002), with clear attributions of French and his team as groundbreaking researchers. The French case shows that the creation of a robust network of allies and resources (Latour 1987)¬ may be critical to build or repair scientific reputation. In French's case, winning over political figures, forming alliances with previous detractors, and deploying the best available experimental systems and methods were instrumental in undoing at least some of the damage his scientific reputation had suffered.

Forming alliances and camouflaging controversy

French revealed that, at first, promised collaborations with scientists from other research institutions failed to manifest. Despite these setbacks he continued to seek and successfully attract research collaborators from different disciplines and universities, forging a strong network of scientific alliances. This included a prestigious physicist, Professor David McKenzie, from the high-status University of Sydney, who helped him characterise the electromagnetic fields generated by the radiation exposure chamber used in early experiments. French's team also published a key article (French et al. 2001) on their hypothesis for how MPR might cause cancer in a top-ranking cellular biology journal with a recognised 'silverback' or elder researcher as co-author (Professor Ron Penny, a well-respected and distinguished biomedical scientist and head of the Centre for Immunology where French was Principal Researcher during the study period).

Controversial scientists should consider crossing disciplinary, institutional and even national boundaries to form alliances they may previously have not considered. Cultural diversity in the international world of science — such as disciplines, countries, research groups or specific journals more open to your research interests — should be sought out as part of a self-conscious strategy to form scientific alliances. A key means to strengthen the persuasiveness of your research, deflect potential future attacks and undo damage already done to your reputation is to represent your research as the fruits of a respected scientific collective rather than the work of a lone maverick. In this case, avoiding the potentially polluting effects of politics and controversy in elite forums of science is vital.

While highlighting controversy over your work in popular media may have some benefits, in mainstream and elite scientific domains, such as top-ranking peer-reviewed journals or scientific conferences, backstaging (Goffman 1959) or masking controversy seems more advisable. French et al.'s key article in Differentiation (French *et al*. 2001) did not allude to the controversy over French and his research, focussing instead on the group's innovative and testable theory for how MPR might cause cancer. Similarly, the media release announcing the launch of French et al.'s cellular experiments displayed a studious 'camouflaging' of the degradation rituals that French and his previous experiments had suffered, focussing on a 'world first' and 'crucial trial' which would test the 'ground-breaking theory published by St Vincent's researchers' (Thérèse 2003).

Knowing when to move on

It may also be fruitful for scientists to identify when it is time to move on to less debatable areas, or, at least to work in less contentious fields while pursuing controversial topics

on a part-time basis. After French et al.'s groundbreaking experiments on human cells showed none of the expected effects predicted in their published hypothesis, French left the Centre for Immunology to pursue a career in several biotechnology firms. Gaining an MBA during his time at the Centre for Immunology allowed French to make a successful sideways career move that saw him using his scientific credentials and experience in domains beyond academic science.

The bigger picture

It is unfortunate that scientists may find their reputation and work come under attack for doing what they are expected to do: investigate nature. Scientists may not be fully aware, particularly in the early stages of their career, that research often involves entering terrains already colonized by relatively powerful parties protecting interests related to commerce, the military, politics or even scientific reputations based on an established theory. The tactics that targeted scientists can use to retaliate against attacks and restore their reputation should not, however, be seen as simply self-serving. They also play a role in making wider society, and other scientists, more aware of the political, economic and cultural aspects of scientific research. Making the interests of all parties in science explicit contributes to a more open-minded and democratic scientific process that can acknowledge and encourage dissent as much as consensus. The suppression of diversity in science is a threat to the innovation so urgently needed for a liveable future.

For scientists and non-scientists alike, becoming aware of and adept in using techniques to protect and restore scientific reputations can be critical for producing knowledge and practices that ensure public health and deliver ecological and social sustainability. Shedding political naiveté about scientific practice is a key step in achieving Francis Bacon's vision of science as the liberator of humankind's estate.

Learning more

Scientists should familiarise themselves with cases of controversy and intellectual suppression in science (Martin 1999), preferably before they encounter problems themselves. It is equally important to be familiar with how scientists who have come under attack work to repair their blemished status and identity while also undermining the legitimacy of their attackers' claims, motivations and methods. For instance, Simon (2002) shows how some cold fusion researchers are able to continue working in a thoroughly stigmatised field and still retain scientific credibility, while others fail spectacularly. Learning more about persuasive discursive techniques (Gilbert and Mulkay 1984), how the media represents scientific controversy (Dunwoody 1999) and building robust networks of scientific allies (Latour 1987, 108-121) are also good places to start.

Cases where scientific heretics are eventually exonerated in the most prestigious of ways — Nobel Laureates Leon Prusiner (who identified prions as the cause of Creutzfeldt-Jakob disease) and Barry Marshall and J. Robin Warren (who showed the link between *Helicobacter pylori* bacteria and gastric and duodenal ulcers) are excellent examples — are both instructive and inspirational.

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Endnotes:

1. These tactics are clearly discernible in the field of mobile phone radiation research. At the time of writing there is ongoing controversy over the interpretation of studies suggesting potential MPR health effects, such as the long-running Interphone Study which showed an increased risk of glioma at the highest exposure levels and the need for more research on long-term and intensive mobile phone use (Interphone Study Group 2010, http://ije.oxfordjournals.org/cgi/content/abstract/dyq079, accessed 8 July 2010). Despite this, ARPANSA's website, for example, suggests 'There is essentially no evidence that microwave exposure from mobile telephones causes cancer, and no clear evidence that such exposure accelerates the growth of an already-existing cancer,' (http://www.arpansa.gov.au/mobilephones/index.cfm#4, accessed 8 July 2010, emphasis added).

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Resurrection

I
Now green leaves and flowers unfurl,
float on the pond's skin, each bloom
satin-clean under the sky they sought rising.
Bees drink, dragon-flies hover, midges
rise to the sun. Unseen, below,
bedded in black ooze, the long stems rise.

II
So long under world, tunnelled in the dark,
feeding on silence. But now, urgent for the sun,
break for the soft night air, climb
blindly upwards, struggle for
new life. Burst the old husk,
leave the shell on the rough bark,
wait for dawn and the warm sun. Sing
to the sun, drummer!

III
Leaving the stones and the small wet world
whose sky meets air with water, turn
to the sun through the skin of the sky
and wait for the changing. Dragon no longer
but a prism of light shot across
the still pond. Quick, I'm gone!

John Knight,
Mt. Gravatt, QLD

The People You Leave Behind

So all day long you sat quietly in the sand dunes
under that summer sun watching
the clumsy pterodactyl pelicans
follow the fishing boats
seeing how they would wheel and bank
over the river then glide stiffly till
flaps lowered landing gear out
they'd skate the resisting water
to bob up and down in the boat's wake
or observing the gulls flock and squabble
over the food you threw them
with loud and ungracious cryings
like the people you left behind
but they could soar and turn free of the earth
touching forgotten longings
and in the evening the black shags settled
on the bare arms of the dead mangrove
and beyond the ti-tree and banksia
you could hear the surf calling
until at last on the monochrome water
the moon's light shone through long thin clouds
there were stars on the small ripples
it was so quiet you heard them lap the bank
and a tern calling as it fled up river
and after you swallowed the last pill
leaving the half-empty bottle of whisky
beside the bag and the blanket
you walked slowly and deliberately
into the cool water.

John Knight,
Mt. Gravatt, QLD