

Enabling Scientific Dissent

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Scientists sometimes come under attack for doing research or making public comment that is unwelcome by powerful groups. Understanding the standard methods used by attackers enables more effective resistance.

In recent years, there has been increased attention to political attacks on scientists, especially in the United States [1]. In a typical case, a scientist does research, presents a paper or makes a public statement and subsequently encounters censorship, personal abuse, threats, withdrawal of grants, difficulty in obtaining jobs or promotions, reprimands, punitive transfers, demotion or dismissal. Such cases can be described as instances of suppression of dissent, about which there is a sizeable literature [2].

There are many cases in repressive regimes such as the former Soviet Union [3], in areas related to national security [4], and in fields such as environmental research [5]. Scientists can also come under attack from their superiors [6]. Another target is research data, which can be suppressed by being censored, discredited or misrepresented [7].

Most cases of alleged suppression are incredibly complex, with different participants holding divergent perspectives. A detailed examination of a huge amount of evidence may be needed to form a judgement.

Nevertheless, there are several characteristic signatures for suppression. Often the scientist has had excellent performance but is subject to disproportionate reprisals shortly after doing something threatening to government, industry or other powerful interests.

To judge whether suppression is occurring, then, it is worth checking the scientist's track record, the timing of adverse actions, and whether other scientists, with similar records but who pose no threat to a powerful group, have received the same treatment. It is also useful to observe whether there is a pattern of attacks in a particular area.

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Despite extensive documentation of attacks on scientists, there has been surprisingly little investigation into how to be effective in resisting. Guidance is available from studies of unjust attacks in a range of areas apparently unrelated to science, for example censorship, violent assaults on peaceful protesters, torture and war [8].

Powerful perpetrators regularly use one or more of these techniques:

1. cover-up
2. devaluation of the target
3. reinterpretation of the events
4. official channels that give an appearance of justice
5. intimidation and bribery

These techniques reduce the risk of outrage from the perpetrator's actions. Sometimes a single technique, such as cover-up, may be sufficient, but if not the full gamut of techniques may be deployed.

If these techniques fail, the perpetrator's act can backfire. Examples include the beating of Rodney King by Los Angeles police in 1991, the massacre of peaceful protesters in Dili, East Timor by Indonesian troops in 1991, and the torture and abuse of Iraqi prisoners at Abu Ghraib by US prison guards, revealed in 2004. In each of these cases, the perpetrators used all five techniques to reduce outrage, but the actions nevertheless backfired due to vivid documentation: a videotape of King's beating, photos and videotape of the Dili massacre and digital photos from Abu Ghraib prison.

If targets of attacks know these five techniques are likely to be deployed, they can prepare to counter them. This provides the basis for a strategy of resistance. The resulting advice is entirely compatible with recommendations made by experienced whistleblower advisers [9].

I outline here how this analysis applies to dissent in science, going through each of the five techniques, suggesting ways of responding. Examples at least a decade old are used because the controversies are more played out.

Cover-up and exposure

Attacks on scientific dissent commonly take place out of the public eye. Researchers may encounter petty harassment on the job, ostracism, and assignment to un-

welcome duties. The reasons for rejecting scientific papers and job applications are often hidden. Companies may refuse to publish unwelcome findings. Many whistleblower laws aid in cover-up: protection is removed if the matter is initially taken to the media.

Many scientists are so embarrassed and humiliated by what is happening to them that they acquiesce in the process of cover-up. Colleagues may also remain silent out of a sense that to reveal problems is to betray their organisation or profession. Among doctors, the rule is “Thou shalt not tell” about deaths caused by medical treatment [10].

Taking matters to wider audiences is essential in challenging unjust actions. For dissidents, publicity is an incredibly powerful tool.

For decades, tobacco companies covered up their own research showing the adverse health effects of smoking and second-hand smoke. An insider leaked large numbers of damning documents to tobacco industry critics, who put the documents on the web [11].

Devaluation and validation

Dissident scientists frequently come under personal attack. They are criticised as being incompetent, difficult personalities, attention-seeking, even corrupt. Rumours may be spread about their mental state or private lives. The point of this is that if a scientist is seen as personally unworthy, then what is done to them doesn't seem so bad.

Many Soviet dissidents were sent to psychiatric facilities, a form of attack that served to discredit them [12]. Whistleblowers in the West are frequently sent to psychiatrists for evaluation, an exercise in humiliation and devaluation.

Three nuclear engineers who resigned from General Electric in 1976 and spoke out about problems with nuclear safety had their motives questioned in Congressional hearings [13]. Rachel Carson, after publication of *Silent Spring*, was personally attacked by pesticide companies [14].

To challenge devaluation, it is important to document one's good work, for example by having copies of favourable performance reviews. It is worthwhile obtaining endorsements from others who have standing, such as leading figures in one's field. It is helpful to dress respectfully and behave impeccably.

Dissidents, under unrelenting stress, sometimes bite back at critics. This is unwise: it is best to offer little pretext for adverse comments. Documenting one's good performance and behaving in a dignified way increase the chance that attempts at devaluation will seem unfair and will fail.

Interpretation struggles

Actions against dissidents are typically explained as legitimate or innocuous. Rejected papers or grants are said to be poor. Reprimands are justified as due to poor performance. Dismissal may be explained by a shortage of funds or a restructure of positions.

For example, Dr John Coulter, a medical researcher at the Institute of Medical and Veterinary Science in Adelaide, had spoken out about the health and environmental hazards of chemicals; companies complained to the institute director. After Coulter was dismissed in 1980, initially no reasons were given. At subsequent court hearings, the director offered several different justifications, for example that Coulter was not publishing enough and had been photocopying inappropriate materials [15].

It is exceedingly rare for dissent to be openly acknowledged and condemned. Administrators almost never say “Dr D spoke out about serious health concerns, so we are dismissing her.” Far more common is a rhetorical commitment to scientific freedom while taking action against dissenters, justified on other grounds.

Dissenters need to be prepared to counter official explanations and to focus on the key issues. Defenders of John Coulter repeatedly emphasised that he had been doing satisfactory work comparable to his colleagues, was outspoken on health and environmental issues and had been dismissed without due process.

Official channels

Victimised scientists can turn to a host of official processes, including grievance procedures, professional bodies and courts. A scientist whose employers refuse to allow publication of findings can appeal to senior management. A scientist whose job is terminated may appeal to a governing council or perhaps go to court alleging unfair dismissal.

There are several disadvantages in using official channels. They are slow, so the issue gradually loses saliency. They are procedural, focusing on technicalities rather than matters of principle and public interest [16]. They require a large investment of time and sometimes money. Finally, they give the appearance of dispensing justice

but are heavily weighted towards the side with more money and power. Some agencies become compromised by the industries they are supposed to regulate [17].

Although the US Congress has repeatedly strengthened whistleblower laws, federal courts continue to find in favour of employers, interpreting the laws in exceedingly narrow ways [18]. In the only major study of its kind, whistleblowers reported being helped by official bodies in less than one out of ten approaches, and often they were worse off [19].

Melvin Reuber, author of over 100 publications on cancer and environmental health, was a critic of pesticides. At the Frederick Cancer Research Center, he received promotions, raises and favourable reports until, suddenly, in 1981 he came under attack in a chemical industry trade journal and was reprimanded by his boss.

Reuber sued the trade journal for libel, won large damages, but then lost after the case was appealed. The whole process took a decade. Reuber's reputation and career were shattered [20]. The final court decision gave an implicit stamp of approval to his treatment.

Even when dissidents win their cases, usually the most they receive is a settlement. The problem they spoke out about often continues unabated. Official channels occasionally redress individual grievances; hardly ever do they challenge patterns of abuse.

The instinct of many dissident scientists is to trust in official processes, or at least give them a chance. However, this usually plays into the hands of attackers. It is far more effective to take the issues to wider audiences.

Intimidation, bribery and resistance

All sorts of methods are used to attack scientists, including threats, harassment, reprimands, punitive transfers, subpoenas, and claims of fraud [21].

Many scientists are easily frightened, often quite reasonably so, by the possibility of losing funding, promotions, reputation or even their jobs — or just being seen to come under attack, with colleagues assuming they must have done something wrong. Many are intimidated even in the absence of threats or overt actions. When a dissident scientist suffers reprisals, this sends a powerful message to others: acquiesce or you might be next.

Polio pioneer Hilary Koprowski sued for libel after a magazine published an article linking his vaccine to the origin of AIDS. The legal action, eventually settled, had

a silencing effect on further investigation and reporting on the topic [22].

Complementing intimidation are incentives for cooperation such as grants, publications, and accolades. These can operate as a form of bribery, reducing the willingness of many scientists to take risks in the public interest. When companies give large grants to scientists for investigations into proprietary products, there is a strong incentive to keep quiet about problems.

To challenge abuses, scientists and their allies need to resist intimidation. A potent way to do this is to document and expose the tactics used, which can serve to discredit the attacker.

Jeff Schmidt, who worked at *Physics Today* for 19 years, was fired in 2000 upon publication of his book *Disciplined Minds*. Schmidt's supporters organised a massive protest against the American Institute of Physics.

The eventual outcome was a settlement favourable to Schmidt, who refused to accept it until the Institute agreed to allow the settlement document to be public. Schmidt has posted the details of the dispute on the web.

In some cases, perpetrators use all five of these techniques of inhibiting outrage from their actions. Grünenthal, the company marketing the drug thalidomide in the 1960s, covered up evidence of adverse health effects, smeared doctors who reported problems, explained side effects as due to other causes, avoided responsibility in the later court case and threatened its critics with lawsuits while lavishing acquiescent doctors with funding. The problems with thalidomide were exposed by medical researchers and journal editors willing to publish adverse findings and by journalists and newspapers willing to publicise the issue [23].

Conclusion

For those few scientists who challenge powerful interests through their research or public statements, the risks are great. Many of them suffer enormously. Hence it is vital to learn from previous experience.

It is predictable that those who attack scientists will use one or more of the techniques of cover-up, devaluation, reinterpretation, official channels, and intimidation and bribery. Hence it is sensible to be prepared.

Before acting, it is wise to collect large amounts of persuasive documentation, consult with friends and family, build alliances, prepare arguments, consider options, wait

for the right opportunity, and be prepared for reprisals. Extensive planning and preparation are keys to success.

Many scientists, like most people, believe the system works and trust official channels. Contrary to this, many who have studied whistleblowing and dissent are sceptical about official channels and believe that mobilising support, especially through publicity, is far more likely to be effective. The public interest would be better served by training scientists about the dynamics of dissent and techniques of resistance rather than assuming that more laws and procedures will provide the solution.

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Notes

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