

Nanotechnology and News Production: A Report on Key Findings

Alan Petersen, Alison Anderson and Clare
Wilkinson (University of Plymouth)

Stuart Allan (University of West of
England, Bristol)



The Emerging Nanotechnology Debate in the UK

- Funding, promotion and 'hype' - £90m nanotechnology (July 2003) , *'Too little, too late ? Government Investment in Nanotechnology'* (House of Commons Select Committee on Science and Technology March 2004).
- Increasing media attention – the intervention of Prince Charles.
- The lessons from GM controversy in the UK – 'the real issues became obscured in a fog of panic and confusion' (Gibson 2003).
- Joint study by The Royal Society and Royal Academy of Engineering (July 2004).
- Public Engagement – Smalltalk, Nanodialogues, Nanojury UK, NEG.

Aims of Study

Seeks to get behind the news to examine production and coverage of news about nano

Key Questions

- What factors do scientists and journalists identify as shaping news coverage?
- How do they see their communication with each other?
- Whom do they believe determines what issues are covered, how they are reported and why?

Methods of Study

- Phase One: Content Analysis of UK National Press Coverage 1st April 2003 to 30th June 2004
- Phase Two: Questionnaire survey of scientists, journalists and editors (cited and non-cited)
- Phase Three: Semi-structured interviews with sub-sample of scientists, journalists and editors

Nanotechnology and News Production Study

Content Analysis
1st April 2003
– 30th June 2004
(n=344)

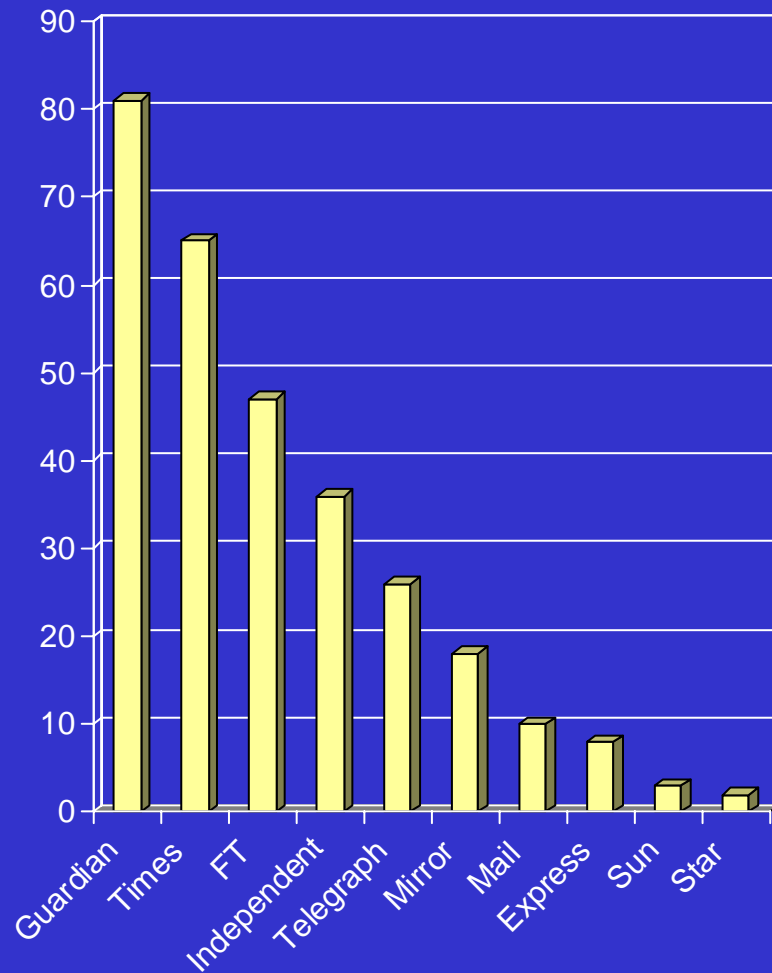
Email Survey
Scientists (n=37)
Journalists
and Editors
(n=8)

Interviews
Scientists (n=22)
Journalists
and Editors
(n=5)
(Still in progress)

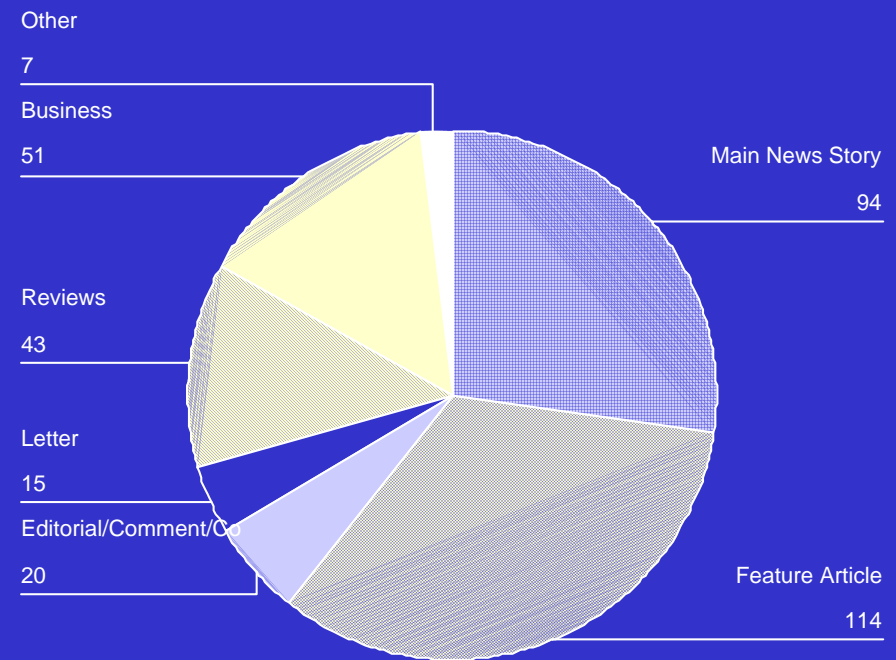
News Media Coverage of Nanotechnology 2003 to 2004

- 344 articles featuring keywords 'nano' (n=341), 'nanotechnology/ies' (n=275), 'grey goo' (n=77) and 'nanobot/nanorobot' (n=47).
- 86 per cent (n=296) Daily newspapers
- 14 per cent (n=48) Sunday newspapers

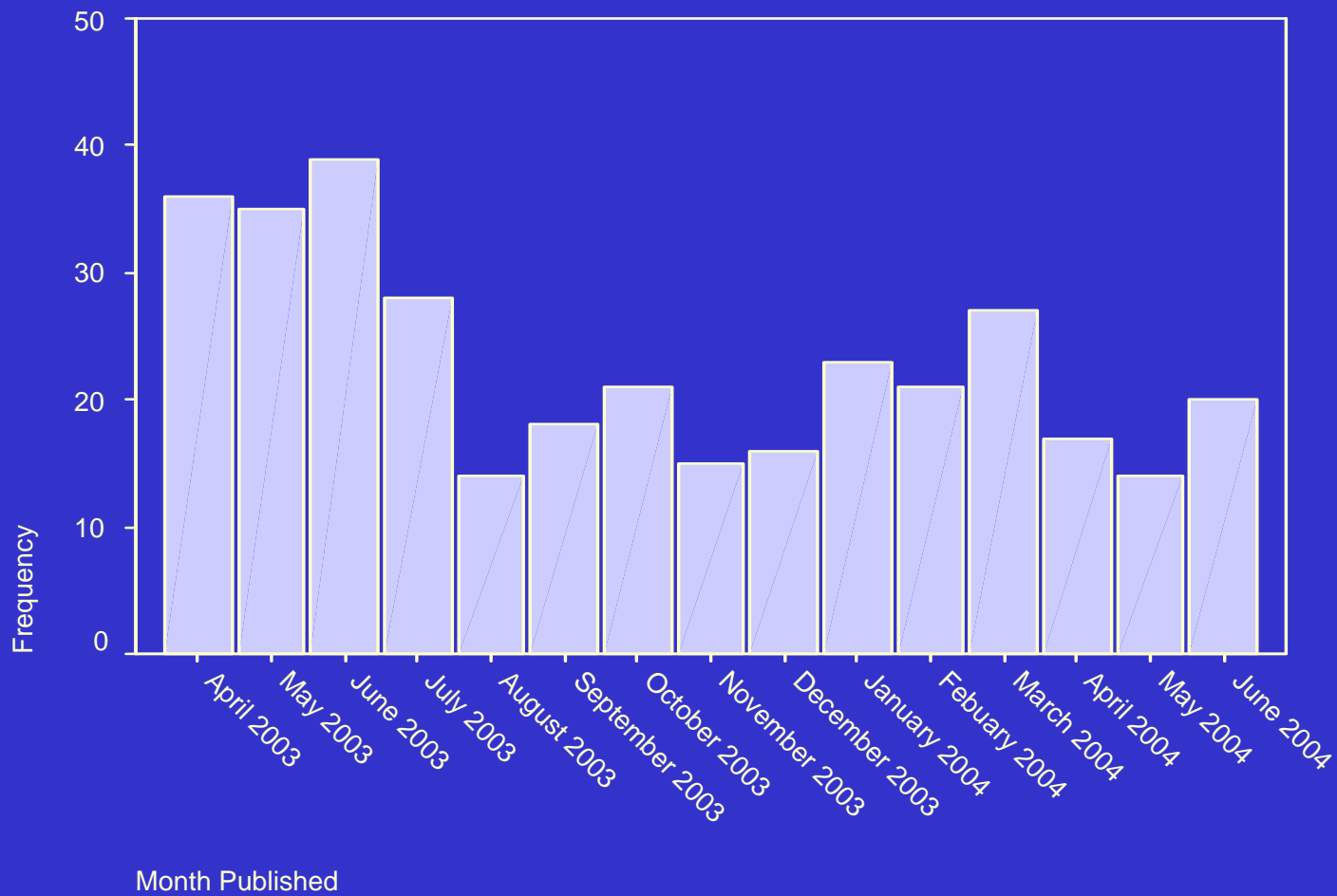
Daily Newspapers



Newspaper Sections



All coverage by date



- Authors – 57 per cent (n=196) authored by general/other correspondents, 13 per cent (n=43) science correspondent/editors, 12 per cent (n=40) external figures (e.g. politicians, academics etc.), 4 per cent (n=13) technology correspondent/editors, 3 per cent (n=9) health correspondent/editors.
- Sources – 18 per cent (n=63) book, tv or radio programme, 9 per cent (n=31) research reports, 6 per cent (n=21) scientific or medical journal.

Examples of sources; 'Prey' appeared in 22 news items, Royal Society/Royal Academy report in 16 news items, 'Agent Cody Banks' generated 6 articles.

Fantastic voyage or 'hype'?

The breakthrough...offers the strongest indication yet that it will eventually be possible to build tiny medical 'nanosubs' that hunt down tumours and germs before delivering their drugs. Although such a 'smart drug' or 'doctor in a cell' is decades away, the prospect is considered among the most exciting of all the medical applications of nanotechnology. It would allow doctors to target disease much more precisely and completely than before (Henderson, M. 'A very, very small step to beating the big C' *The Times* April 29th 2004:3).

Science fiction imagery: utopian and dystopian

IT SOUNDS like the stuff of science fiction but microscopic hunter-killer machines designed to find and destroy cancer cells could be just decades away...Scientists believe it will eventually be possible to build tiny medical 'nanosubmarines' that hunt down tumours and germs before delivering their drugs. If cancer is detected, the computer orders the release of a single-strand DNA designed to induce cancer cells to self-destruct (Roper, M. 'Hi-tech healing; how microscopic machines may open the way to a cancer-free and ageless future' *The Mirror* May 10th 2004:6).

If research goes unchecked, swarms of self-replicating robots the size of bacteria, or 'nanobots', could feed off natural matter and turn the planet into a 'grey goo' (Anon 'Charles caught in grey goo row' *The Daily Mail* June 12th 2003:32).

Prince Charles and the 'Grey Goo'

Science fiction is, it seems, about to become science fact. So where is the hero who can save the planet before it's too late? Step forward Prince Charles, who is now taking a stand against a billion-dollar industry, which has already created transistors the size of a molecule. The Prince fears that without regulation, playing with the building blocks of life could be catastrophic. His concerns were sparked by Zac Goldsmith, editor of *The Ecologist* magazine, who sent him a report, *The Big Down*, warning of the nano-nightmare (Edwards, D. 'Will the brave new nano world be a fantastic voyage or micro mayhem?' *The Mirror* May 1st 2003:28).

Investing in Nanotechnology

SOME hail it as the way to a Utopian, disease-free future. Some see it as a nightmare in which tiny robots take over the world. Both sides agree that good or bad nanotechnology is the next big thing... In Britain, the DTI plans 90m of public funding over five years. Several young companies have already had private funds. Some say the market for nano-products will be worth 600bn by 2010. That type of talk led investors in the internet to lose billions (O'Connor 'A long wait for nanotech' *The Daily Mail* August 2nd 2003:78 emphasis in original).

Email Survey of Scientists', Journalists' and Editors'.

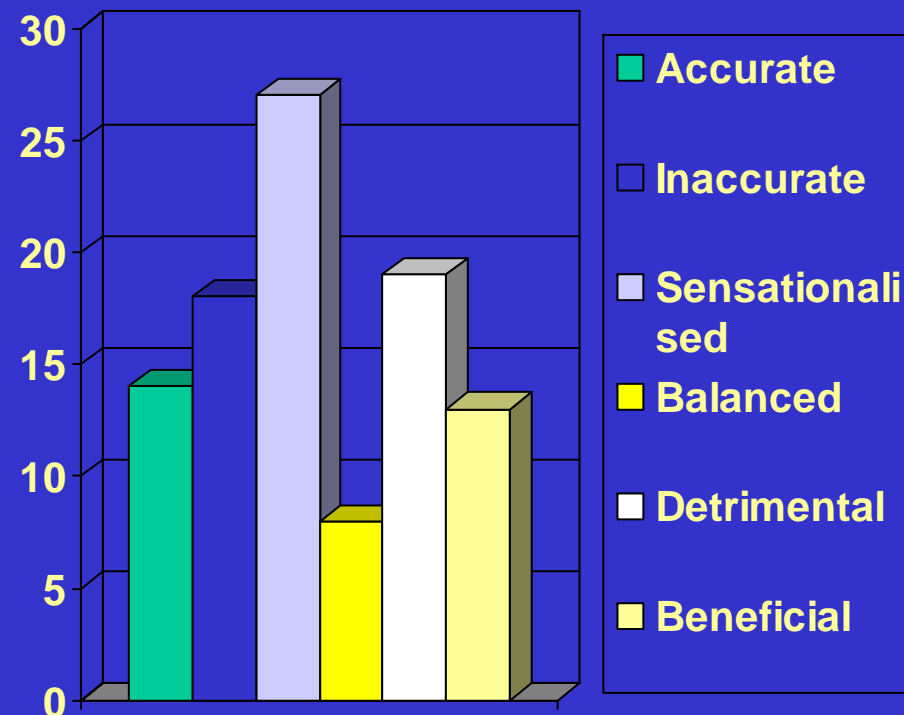
- Scientists sampled – Cited/referred to in news coverage/ Royal Society Study/ Based at UK University offering nanotechnology/nanoscience courses September 2006. (n=37 – 32% response rate)
- Journalists/Editors sampled – Authored news coverage/All other dedicated science/health/environment correspondents/editors. (n=8 – 13% response rate)

Email Survey of Scientists

Professors (n=21), Doctors (n=14), Research Student (n=1), CEO (n=1).

Under five years (n=9), six to ten years (n=11), eleven to fifteen years (n=8), over fifteen years (n=9)

Q: News coverage of nanotechnologies is?...



Would you describe newspaper coverage of nanotechnologies and nanoscience as *generally*...?

A sample of scientists' further comments:

'The newspaper coverage with which I've been involved [Guardian, The Times] over the last couple of years has generally been well-balanced and I've largely been impressed with the journalists' writing....However, nanobots always feature highly in press coverage, as do artists' renditions of Fantastic Voyage-like nanosubs hunting down viruses in the bloodstream....'

'The broadsheets are generally fairly accurate though not necessarily balanced in my view.'

'Depends on the newspaper, and the quality of the journalists. But most newspaper coverage is sensationalist and negative as this sells papers.'

'Unqualified people making incorrect observations and predictions regarding potential nanotechnology applications.'

'I would not say that this is a particular problem related to nanotechnology. Reporting of other areas of chemistry and science is similarly often inaccurate and sensationalised.'



Where the reporting of nanotechnology is concerned, what sort of responsibilities do journalists have to the public?

A sample of scientists' views:

'My experience is that some journalists – the science press – want to try to present work responsibly, saying what the science is really like, but that others, mainly non-specialist journalists (including in my experience the BBC) just want to titillate the public.'

'In all situations not just nanotechnology, journalists should make effort to be correct and clear in the messages they are giving the public. When articles are more entertainment than information they should be clearly identified as such....'

'To report accurately and to point out the beneficial aspects of nanotechnology especially in the life sciences. Most of the media discussion seems to be focused on self-replicating nanobots which most of us don't believe in and virtually no-one is working on.'

'Journalists have a responsibility to convey facts. The scientific literature has all the source material for balanced reporting.'

'The press needs to address real issues, not science fiction. There are areas of nanotechnology that need to be addressed, notably the potential use of some nanoparticles in an uncontrolled way. However, the real issues are not being discussed because of laziness and lack of scientific comprehension by the press and a desire to push the sensational story.'



Do you think nanoscience and nanotechnologies have the potential to generate public concern and media controversy similar to that which surrounded GM crops and food?:

A sample of scientists' views:

'It's a much broader field than GM which makes public backlash less likely. I am not sure the GM controversy was only about science...the question of why move to GM food, who controls it, who benefits were central to the debate...'

'No, because it happens in the lab and a product appears on the shelves of the supermarket. There is no obvious change to our environment; though this is not true.'

'Not yet. If it were actually feasible, on the short time scale, to produce self-replicating nanoscale objects, then nanotechnology would endure greater publicity and concern. It is largely the application of science that causes most concern for the public, so it will be down to the individual researcher or organisation to bare the brunt of condemnation for their chosen application of the research; e.g. the Manhattan Project versus nuclear energy.'

'Yes, that is why we need to stress that nanotechnology has been going on for centuries....'

'Yes, and it will be the scientists' fault if this happens, just as the overstretch of Monsanto brought the GM debate on the way it came.'



How much influence do non-government organisations and pressure groups have on news stories on nanotechnologies?

A sample of scientists' views:

'Quite a lot, as the business hasn't started talking about it. The more extreme the better. ETC is after all a small group. I am happy that Greenpeace gets a lot of coverage: they have an interesting and balanced view.'

'Quite a lot because they have the people, experience and time to use the media to get their views disseminated.'

'I believe that pressure groups are exerting a growing influence on news coverage, particularly in promoting an anti-nano viewpoint.'

'A lot: governments and government scientists (this does not include university scientists) are quite rightly not trusted.'

'They can have considerable influence if they can create a good story to get the media interested. But this will depend on many other factors and I don't think they can force an issue which does not capture the media/the public's interest.'



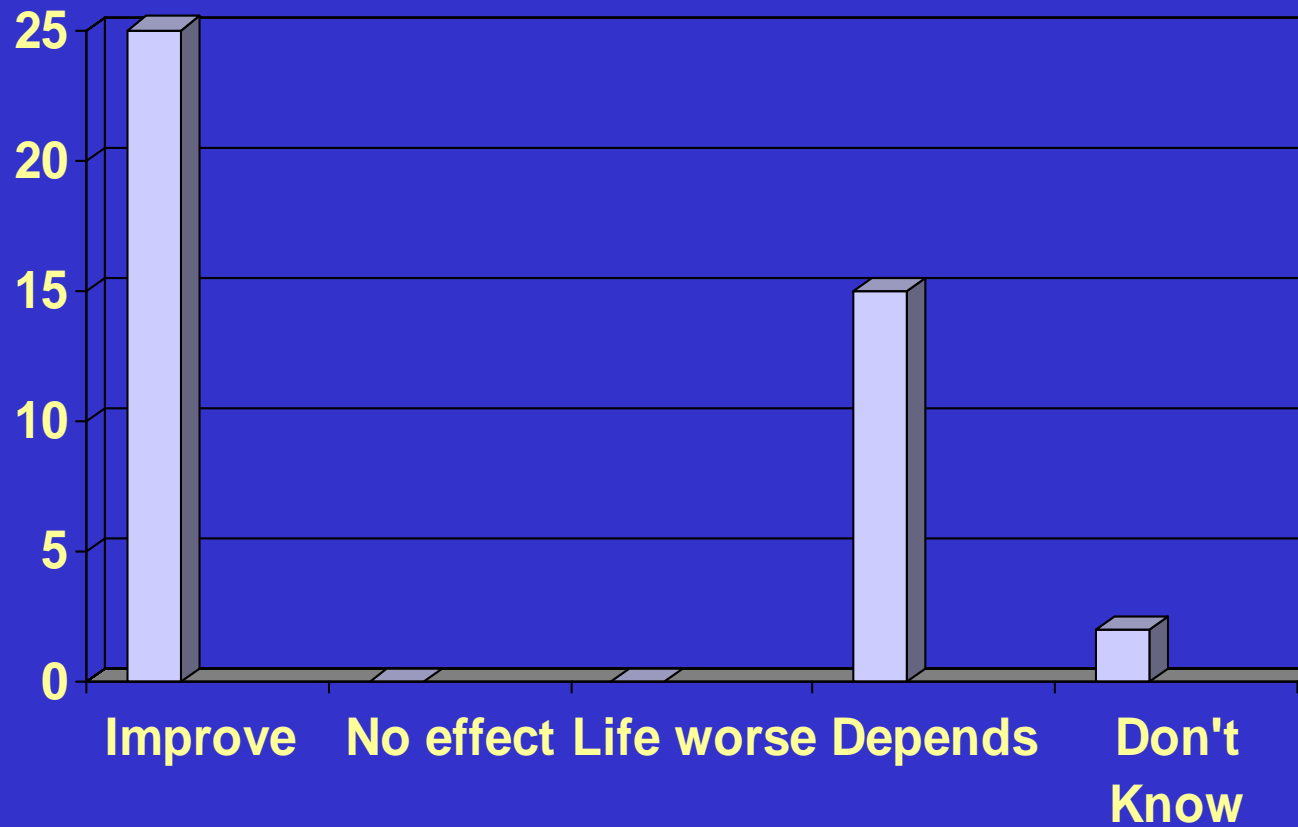
How informed do you think the public are about nanotechnologies?

Very Informed	0
Informed	1
Don't Know	1
Uninformed	26
Very Uninformed	10
Total	38

Is it realistic for scientists to engage with the public about nanotechnologies?

Very Realistic	17
Realistic	13
Don't Know	4
Unrealistic	2
Very Unrealistic	1
Total	37

What do you think the impact of nanotechnologies will be in the next twenty years?



Project Outputs

Website -

<http://www.research.plymouth.ac.uk/nanotechnology/>

Academic conferences –

4S/EASST, AAAS, SCARR, IAMCR etc.

Publications –

Science Communication, Public Understanding of Science, Special Issue of Health, Risk and Society

Engagement –

The Dana Centre, At-Bristol, Local media coverage

Future research....

Thank you

<http://www.research.plymouth.ac.uk/nanotechnology/>

