Barriers to the public communication of science: Commercial constraints versus public understanding

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Abstract

Many governments, including New Zealand's, strive to increase public engagement with science and science policy making. Positive public engagement in science policy relies on the public having access to science information. The news media are a primary source of science information for the public. Public relations or communication advisors are often the first contact for journalists reporting scientific developments. The following paper reports a series of semi-structured interviews with public relations practitioners and scientists employed in New Zealand science research organisations and a number of metropolitan press journalists. It examines and discusses barriers these individuals face to openly communicating science information to the news media and/or wider public. The paper suggests that increasing amounts of commercially funded science research threaten the ideal of increased public understanding and engagement with science and science policymaking.

Introduction

Since the 1980s funding for science has moved from "national-public funding to global-private funding" (Bauer & Gregory, 2007, p. 44), changing how science is communicated to the public. Rather than scientists communicating science in an effort to educate the public, science communication is increasingly managed by public relations practitioners or communication advisors who organise a series of media events (Bauer & Gregory, 2007). As a result, increasing numbers of public relations practitioners have been employed in scientific organisations since the late 1980s (Bauer & Gregory, 2007). These individuals are often the first point of contact for journalists seeking scientific sources for stories. Yet, despite the important role they have in the science communication process, their involvement has received little attention. This paper reports a series of interviews with scientists and communication advisors or public relations practitioners working for New Zealand science research institutes and metropolitan newspaper journalists in order to understand their perceptions of one another and how their interactions may impact the process of science communication.

The Public Understanding of Science (PUS) has been a matter of concern for many governments including New Zealand's. PUS is seen as a tool for raising the prosperity of a nation and enhancing the quality of life for individuals by giving them skills and knowledge to make better decisions about the use of science and technology (Bodmer, 1985). Government initiatives have been implemented to increase PUS, for example the United Kingdom's Public Understanding of Science (PUS) initiative (Bodmer, 1985). This resulted in the launch of a new journal, *Public Understanding of Science*, the establishment of two chairs in PUS at Oxford University and Imperial College, as well as annual PUS events. The initiative actively encouraged scientists to increase their engagement in science communication to the wider public (Broks, 2006). While New Zealand's response was more modest, according to the Ministry of Science, Research and Technology (MoRST):

> the government is committed to lifting the recognition of research, science and technology (RS&T) and of scientists and technologists, the value they contribute to New Zealand, and improving the quality and quantity of engagement between the RS&T sector

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and New Zealand communities. (1990, p.4)

To achieve these aims MoRST, in conjunction with the Royal Society, established the Science Media Centre in 2008 and also funded projects designed to test new approaches to dialogue between the public and scientists (for example see Cronin & Jackson, 2004). These projects were designed to "enhance capacity in New Zealand's science communication" (Cronin & Jackson, 2004). While there is debate over the meaning of science communication (see Burns, O'Connor & Stocklmayer, 2003; Lewenstein, 1991), it does provide "the public with information essential to forming opinions about public policy and about the costs and benefits of governmental expenditures on science" (Treise & Weigold, 2002, p. 311).

Much of the science information the public becomes aware of after leaving the formal education system comes from the news media (Gschmeidler & Seiringer, 2011; Hijmans, Pleijter, & Wester, 2003; Nelkin, 1995; Nisbet & Lewenstein, 2002). Yet, the coverage of science by the mass media is often criticised as being inaccurate, sensationalist and having an overtly negative and anti-science attitude (Bucchi & Mazzolini, 2007). Also, concerns have been raised about the amount of influence public relations is having on science news media content (Gopfert, 2007). Using Germany as an example, Gopfert (2007) argues that public relations has an increasing influence on the content of science journalism, due to increasing pressures in newsrooms brought about by decreases in editorial staff and closure of specialised editorial departments. Gopfert (2007) argues this influence will lead to independent news coverage being replaced with interest-driven coverage or an information subsidy, resulting in the reporting of a distorted view of science. Concerns over the influence of public relations practitioners are not limited to Germany, with a recent survey of New Zealand journalists illustrating a love-hate relationship between journalists and public relations (Tilley & Hollings, 2008). Journalists surveyed argued that public relations or communication professionals had too much influence because they acted as gatekeepers, often "impeding communication rather than facilitating it" (Tilley & Hollings, 2008, p. 11). While this study did not specifically examine science journalism, it is likely that the trends identified would also be found there. Ideally public relations should be a two-way communication process developing mutual understanding and change both in organisations and their target audiences (Wilcox, Ault, Agee & Cameron, 2000).

The communication described by the New Zealand journalists appears to be at odds with this ideal and this apparent discrepancy gives rise to the current research. Also, despite their apparent increasing influence, there has been a paucity of research into the role of public relations or communications staff in science research institutes. This paper, therefore, examines the perceptions of a small group of New Zealand science CAs, journalists and scientists. The term communication advisor (CA) will be used throughout the paper, as this was the job title given to those interviewed involved in public relations activities. The research examines the perceptions of these individuals with regard to their interactions with one another and their perceptions of the science communication process as a whole and the barriers faced to open science communication. The investigation addresses three research questions:

What perceived barriers exist to the open communication of science to the public?

Do science CAs act as gatekeepers, impeding rather than facilitating communication between scientists and journalists?

Do science CAs act as a source of information subsidy for journalists?

Methodology

A series of 24 investigative interviews face-to-face and telephone interviews was conducted. According to Rubin and Rubin (2005), investigative interviews are narrowly focused and well suited to examine events and processes and are, therefore, suitable for

investigating the interactions of CAs, journalists and scientists in the process of reporting science. While some researchers have concern that the quality of telephone interviews is qualitatively different due to the inability of the researcher to observe the interviewees' nonverbal communication (Novick, 2008; Sturges & Hanrahan, 2004), recent studies show no significant difference between data obtained from telephone interviews or face-to-face interviews (Novick, 2008; Sturges & Hanrahan, 2004).

The interviewees were 10 science CAs, five metropolitan newspaper science journalists and nine scientists. Seven of the science CAs worked for Crown Research Institutes (CRIs). Eight CRIs, government-owned businesses conducting scientific research into particular natural resources or productive sectors of the economy, were established in 1992; these businesses investigate agriculture, plants and foods, forestry, the environment, water and atmosphere, land care, industry, and nuclear and physical sciences (MoRST, 2008). Of the other three CA interviewees, one worked for a university, another for an independent medical research organisation and the final interviewee was from the Science Media Centre. Perusing their organisation's websites identified the CA interviewees. Once identified the individuals were contacted to arrange an interview by phone and/or email.

Five science or science/environment journalists (J) were selected from four of the five largest circulation daily newspapers and one national Sunday newspaper. These papers cover the largest metropolitan areas of New Zealand and have a combined circulation of 402,799 (New Zealand Audit Bureau of Circulation Inc, 2011).

Finally, interviews with nine scientists (SC), eight from CRIs and one from a university, were conducted. The scientists were identified by asking the communication manager of each CRI and the university for the names of prospective interviewees. Each manager gave a list of prospective interviewees from which a small number were randomly selected. These individuals were contacted by phone and/or email to arrange an interview. All individuals contacted for the study agreed to an interview. The relative experience of the interviewees in their positions is illustrated in Table 2 below.

Table 2: Interviewee experience

Interviewee type	Average time in position	Shortest time in position	Longest time in position
PR/CAs (n=10)	5 years	7 months	18 years part and full-time
Journalist (n=5)	17 years	3.5 years	26 years
Scientist (n=9)	16 years	3 years	31 years

Interviews ranged from 16 minutes to 90 minutes and were transcribed and analysed using the HyperResearch qualitative data analysis package. Following Patton (2002), a cross-case analysis was conducted by grouping the answers to the interview questions together. Using a "grounded" approach (Miles & Huberman, 1994) and following Owen's (1984) criteria of recurrence, repetition and forcefulness, a number of consistent themes were identified. Following the order of the research questions posed above, these themes are now examined.

Barriers to communication

The commercialisation of research

The commercialisation of science research does appear to be resulting in barriers to the public dissemination and ultimately the public understanding or even awareness of science. The commercial sensitivity of science research was of particular concern for CAs working for CRIs that conducted a large amount of research for outside clients. This research could not be made public without the permission of client organisations. One participant stated, "about 80% of the work we do is not ours to

disseminate" (CA1, 2009). The particular CRI in question also had a number of legal obligations with regard to the research it conducted, making it difficult for them to publicise their science. The participant felt other CRIs who were given bulk government research funding had more freedom to speak about the science they conducted. However, a CA working for another CRI said "there are situations where we don't talk about things we have done in commercial confidence" (CA3, 2011). Commercial sensitivity was a source of frustration to another CA who described attempts to get stories for the media as a "constant battle" with business development colleagues "who don't want to upset their commercial partners" (CA5, 2010).

In contrast, the CAs from the university and independent science institute did not raise the issue of commercial ownership. The university CA noted "academics were free to speak about their own areas of expertise and comment to the media" (CA2, 2010). This freedom was reiterated by the university scientist interviewed, who stated the university "don't have a corporate view of the world" and therefore they were free to express their views (SC1, 2011). The issue of ownership was not really raised by the scientists and journalists interviewed. However, one journalist gave an example where scientists working on a particular project "weren't prepared to say or talk about anything until they had all the consents in because they were worried that the story might jeopardise the consents and the whole project" (J1, 2010).

Although no scientists brought up the commercial nature of research as an issue, one did state that their organisation was very "risk adverse" in terms of the information they released, due to its confidential nature (SC2, 2011). The research conducted by the organisation meant much of it could not be publicly discussed due to legal and/or commercial restrictions. Legal responsibilities were also a consideration for another organisation, which felt it inappropriate to comment on a particularly tragic event. The decision was made firstly because "it was much more important for the families involved to be grieving…than to have random scientists all over telly" commenting on the causes (CA3, 2011). Secondly, the organisation believed it highly likely that one or more of their scientists would be called as expert witnesses in the upcoming enquiry into the tragedy, and therefore felt it better to refuse comment at the time.

Scientist reluctance

Many CRI communication advisors suggested that a number of their scientists were very reluctant to interact with the news media. A number of reasons were given for this. Some scientists simply wished to remain anonymous to maintain their privacy. One respondent said, "many of them do not want to be identified…and we totally and utterly respect that" (CA1, 2009).

Another strong reason given by CAs for scientist reluctance was the latters' apparent fear of the media. This factor was raised by a number of participants. In talking about scientist's reactions to the news media and journalists, one CA stated that some scientists were "terrified of the media" (CA3, 2010). Another said, "a lot of scientists are really scared of journalists and don't like talking to them" (CA1, 2009). One CRI CA noted that if the news media made direct contact with scientists in their organisation it would generally result in the scientists "deflecting them on to us" (CA4, 2010). However, this may also point to scientists following organisational procedure.

The scientists' fear appeared to arise from negative past experiences or concern about their science being misrepresented. One participant recalled a recent occasion where "one of our very experienced, but reticent scientists, agreed to talk to the media but then felt he was trashed and he has said he will never talk to the media again" (CA1, 2009). Another participant suggested that the scientists in their organisation were cautious because they did not want their science "blown out of proportion or misrepresented" (CA6, 2010).

In contrast to these comments the scientists interviewed appeared happy with their interactions and treatment by the news media. One scientist stated, "I'm quite happy to work

with people, you know press, radio…most of them are very professional" (SC3, 2011). Another said "generally they have been very good…in the main people have really tried to understand what I do" (SC4, 2011). The apparent contradiction between the positive attitude towards the media by the scientists interviewed and the picture painted by CAs of scientists being reluctant to engage with the media may be explained by how the scientists were selected. Their CAs recommended the scientists as interviewees and these scientists often acted as media spokespersons for their organisations and were therefore very experienced and apparently comfortable dealing with the media.

Despite the positive comments made by the scientists, most interviewed could relate occasions where they had been misquoted or the slant of an article was different from their intention. For example, one scientist said, "there are aspects that have not gone so well and generally it relates to the disaster sensationalism side of things" (SC4, 2011). They went on to say that being misquoted "reflects badly back on me and it makes me shy about talking about that area" (SC4, 2011). Another scientist keenly read stories after publication saying "I don't like being misquoted" because in "my last interaction…they published half of what I said in a sentence and it was almost complete…well, not nonsense, but it didn't make sense" (SC8, 2011). Other scientists' words were taken out of context; for example one said, "throughout the interview we had stressed this was a really theoretical thing and they took something and stitched it together with dot, dot, dot and it was something completely different from what I'd actually said" (SC2, 2011). These examples illustrate why particular scientists may have a reluctance to speak to the media.

Alternatively, some CRI scientists may have been reluctant to speak to the media through fear of being censured or finding themselves subject to expensive lawsuits. In 2009 one scientist working for a CRI had been dismissed for consistently not complying with the organisation's media protocol. The dismissal of this scientist became highly newsworthy, as the scientist in question had appeared regularly on television speaking about their particular area of science. One journalist argued this incident had caused the relationship with the organisation in question to suffer, stating, "there was a bit of a rough patch there where everything had to be vetted by someone" (J2, 2011). Two of the scientists interviewed also mentioned the incident, with one saying that it resulted in the interface between journalists and scientists being "controlled through the comms team" (SC3, 2011). After the incident another scientist was often asked, "Do you have to get permission from your comms advisor before you open your mouth to a reporter?" (SC5, 2011).

A CA at another CRI stated, "scientists are very aware of the trouble that one scientist got into for speaking his mind…" and were therefore reluctant to talk to journalists (CA4, 2010). This scientist had faced a multi-million dollar lawsuit for comments made. This incident made scientists in that CRI quite happy with the apparent gatekeeping role played by their communications team.

Gatekeeping

Journalists often accuse communication advisers of being gatekeepers impeding access to sources (Tilley & Hollings, 2008). The journalists interviewed all said that the CAs working for CRIs and universities were good and their comments were best summed up by one journalist who said "they are generally pretty good…a lot of those organisations have very skilled comms people and they are all former journalists so they know what we are after" (J2, 2010).

However, when directly asked if public relations people acted as gatekeepers, some journalists agreed although it appeared to depend on whom individuals worked for. "I would say the ones who worked for CRIs have been the most helpful (J3, 2010). Another said "I do strike the gatekeeping thing with press secretaries definitely and comms advisors for government departments and councils but not so much with CRIs" (J1, 2010). This journalist was also frustrated by time delays, stating, "we have 14 reporters in our newsroom and yet

often you ring up government departments, CRIs or councils who have a comms staff that's not far off that and yet they won't get back to you for days". Speaking about CAs and gatekeeping, another journalist remarked "I hate them really. It happens a lot but much more in the health round rather than in science…" (J4, 2011).

The journalists also highlighted practices of some CAs they felt created barriers and frustrations with regard to the pursuit of stories. The first was the unavailability of people listed as contacts on press releases. One journalist stated "I would say that something like 25–30% of the people listed as contact people…are terminally unavailable, overseas, clinically or otherwise dead and totally unaware of the press release" (J5, 2010). Another said, "it's always frustrating when it says 'for more details contact so and so' and you ring them and you get a PA saying they're not available today and you think 'well, why is their name at the bottom of the press release!'" (J4, 2010).

Another interviewee talked about email, saying a "trend right across the communications/PR industry is they want questions emailed or requests emailed all the time. I find it very restricting because they tend to think this is it, that's all you want when you put it in an email. Some organisations go to such lengths that they apply written answers to your email saying you can quote this person. Which is highly unsatisfactory as I feel I can't interview someone directly" (J4, 2010). Another journalist agreed saying, "I want to talk to the source because inevitably if you are sitting there in the lab…you think about things on the spot that you don't think about if you are filing questions via email" (J2, 2011).

When CAs were asked about gatekeeping one participant cited an instance where they had been personally accused of gagging a particular scientist and that the organisation had "a very closed media policy" (CA3, 2010). In their view this was unfair and the participant challenged a journalist asking "have you ever experienced this, have you ever once found that I have said to you, 'you can't speak to a scientist'?" While the journalist acknowledged the openness of the organisation, the story still ran suggesting the organisation had a closed media policy. In the participant's view, journalists had simply "parked knowledge …and just created a wall between that knowledge and what they actually wrote" (CA3, 2010).

While the negative label of gatekeeper may have been unwarranted in this case, another policy followed by some CRIs does appear to impede media access to some of their scientists. Some CRIs have the policy of senior scientists having to approve media interactions. One CA participant said at times a senior scientist might say to them "I don't actually want X to speak on this can you get Y to do it" (CA3, 2010). The strategy is used to ensure the most senior and experienced scientists articulated the issue. Another CA stated that when discussing "some of the contentious issues we are involved in we have specific spokespeople and we send the media to them" (CA10, 2011). However, this could be misconstrued by some journalists as gatekeeping or gagging of particular scientists. One CA did note that there were some scientists in their organisation who they did not want to talk to journalists because they were "just scientists and you don't want them talking to journalists because they are just not really built for it" (CA8, 2010). This comment suggested that certain scientists were not trusted to talk to the media and were therefore discouraged or stopped from doing so.

The scientists interviewed did not agree that their CAs acted as gatekeepers. As noted, the university scientist was free to speak to the media and did not have to uphold a position dictated by the university. Another CRI scientist said, "I would say the opposite is true. The communications group is really keen for some of the scientists, people who are identified as media spokespeople, to get out there" (SC5, 2011). One CRI scientist argued the policy of gaining clearance from senior scientists or CAs before responding to media requests was a useful strategy for the public because it avoided "having conflicts of scientific opinion coming from within the organisation" (SC4, 2011). Another scientist saw the policy "not necessarily as gatekeeping, it's just making sure that our communication

with the wider public is kept very consistent so they're not getting a mixed message" (SC8, 2011). Another scientist agreed and added that the policy protected scientists from too much media contact, stating, "us poor scientists sometimes actually have to get some work done and…we've got deadlines and workloads and don't really need to have 55 phone-calls about something…" (SC3, 2011). One CRI scientist did note an occasion where they had been subject to "corporate choking" where it appeared the government had put pressure on the organisation to remain quiet about a particular issue. "So the throttle was put on and nobody was allowed to talk …and that really made it difficult for the media and some elements of the media became suspicious and thought the organisation must be suppressing information…" (SC9, 2011). Apart from this instance most scientists felt they were free to talk and that organisational policies were justified. However, one scientist did suggest there could be a case for gatekeeping "if somebody could be regarded as a loose cannon…if you've got someone in your organisation with extreme views, they are unlikely to speak to the media" (SC7, 2011).

These comments appear to indicate that the scientists interviewed, particularly those working for CRIs, have bought into the media management practices of their organisations. While they reject the negative connotations of gatekeeping, they appear to accept the need for media management and rationalise this in terms of the need for clear and consistent messages being given to the public. Again, this finding may be the result of fact that these scientists are spokespeople for their particular organisations.

Information subsidy and press releases

Some researchers are concerned that the declining number of journalists and resources in newsrooms may lead to public relations material becoming a form of information subsidy for journalists (Gopfert, 2007). Journalists were therefore asked how often they used press releases. All of the journalists said that press releases were used "always as a first step" (J1, 2010) or as "a springboard but my story would be based on one-on-one interviews with the people listed in the press release" (J3, 2010). Another journalist said they would not trust press releases on their own but they did "know regional newspapers, dailies and specialist publications use them all the time" (J4, 2010). Despite this, two of the journalists did say that sometimes press releases were used with little or no alteration. For example, "if all I've done is just reword a press release for a three paragraph down-pager I just say no by-line please, this is not really my work all I have done is tidy it up a bit" (J2, 2010).

The CAs reiterated these comments, saying "I'm seeing the media wanting to do their own thing, from their own angle. They may use a third or two-thirds of our stuff and they would re-angle it, rewrite it a bit" (CA7, 2010). Another stated, "trade magazines have always taken the stuff verbatim and still are, but the dailies never do and the regional papers use a reasonable amount and do a bit of their own leg work as well" (CA6, 2010). This was confirmed by another CA person who said, "they are using press releases to follow up with scientists…especially at Radio New Zealand, the New Zealand Herald and The Dominion" (CA5, 2010).

Discussion

The findings appear to indicate that the commercially funded scientific research model is creating some barriers to the communication of that science to the public. Bauer and Gregory (2007) argue that since the late 1980s science research in most industrialised countries has been conducted by private companies or has been financed by corporate interests, a situation they label the Public Understanding of Science Incorporated (or PUS Inc.). In 2002, two-thirds of research conducted in Britain was by the private sector (Bauer & Gregory, 2007). In New Zealand in 2002, 36.8% of all research and development was conducted by the private sector, a figure well below the OECD average of 63.6% and one the government was urged to increase (MoRST, 2004). According to Bauer & Gregory (2007) this situation has also given rise to increasing numbers of public relations practitioners being employed by science research institutes. As noted, Gopfert (2007)

believes this has resulted in a shift in power in reporting science, away from journalists towards public relations practitioners working for science research institutions.

When examined in the light of PUS Inc., the findings appear to indicate that commercially funded scientific research may be affecting how science information is communicated to the public of New Zealand. This was illustrated by the number of CAs who stated that research conducted under contract to other organisations could not be made public unless those organisations gave their permission to do so.

The media management policies evident in some organisations further illustrates how commercially funded science is influencing science communication. The insistence by some organisations that senior scientists first vet media contact or that only particular scientists act as spokespeople on controversial topics is part of an issues management strategy that blends "many faces" within the organisations into "one voice" (Crane, 2011, p.1). It appears that these strategies are followed to try and ensure the public maintains positive perceptions of these organisations (Bauer & Gregory, 2007). Those scientists interviewed who worked for CRIs appeared to buy into these strategies, arguing the policies protected them from undue media contact and, more importantly, ensured that a consistent scientific message was reported from their respective organisations, thus avoiding the public receiving mixed messages. In contrast, the university scientist and the university CA spoke of the right to academic freedom and the ability of university scientists to freely speak about the science they were conducting. This suggests that science conducted at universities may be more freely communicated to the public and this is an area for further research.

While journalists did note some instances where the institutions' approaches to media management had caused some minor problems, on the whole they did not feel this was a major problem. Rather they noted particular media management techniques they found frustrating. The first was the frequent inability to be able to locate people listed as contacts on press releases. According to Johnston (2007), press releases are a useful way to keep the public informed about an organisation. Given journalists interviewed mainly used press releases as a "springboard" to contact organisations, the frequent unavailability of those listed on news releases may result in these news releases being relegated to the trash rather than realising their potential as sources of information for the public. Another area of media management that concerned and frustrated journalists was the demand by some organisations for journalists to email their questions. While this strategy may be used by organisations to better manage issues, the interviews seem to suggest that this strategy may actually have a negative effect on relationships with the media.

Another barrier to the open communication of science information was the scientists' reluctance to speak to the media. Some of the reasons for this reluctance have often been found in previous research, for example, the fear of having science misrepresented or misquoted (see McIlwaine, 2001; Peters, 1995; Reed, 2001). Other reasons point to the influence of PUS Inc., with the interviews firstly suggesting some scientists may have been reluctant to speak for fear of facing lawsuits or being dismissed because they had broken their organisation's media protocol. Secondly, the media management strategies adopted by some organisations meant that only some scientists were given permission to act as spokespersons on particular issues. These points again indicate how commercial concerns may be influencing the process of science communication.

Some researchers have suggested that the increasing use of public relations by science organisations coupled with decreased resources for journalists will lead to public relations simply becoming a form of information subsidy for the media (Gopfert, 2007). The findings here suggest that for larger newspapers this does not occur, with CAs and journalists both suggesting that press releases were simply a starting point for stories. However, both groups recognised this was not the case for smaller media outlets that appeared to reprint press releases with little or no alteration. If

newsroom resources decrease in these larger newspapers it is unclear whether a similar trend might occur, and future research should monitor this situation.

The interviews recorded here do not include those with radio, television or alternative print journalists and this is a weakness of the study. It is recommended that future research include these types of journalists to explore whether the patterns and concerns raised by the newspaper science journalists also apply in these other areas of journalism.

Conclusions

The pressures of commercially funded science, combined with reluctant scientists and legal constraints on some organisations in disseminating science information, do raise some concerns for the public understanding of science in New Zealand. Rather than encouraging public engagement with science and science policy, these pressures may further remove science information from public scrutiny and understanding. Government moves to encourage more private sector investment in research and development will make it increasingly difficult for CAs and scientists to disseminate science information to the media and wider public. As Bauer & Gregory (2007) maintain, the public is already suspicious of the efforts of public relations efforts with regard to science. Furthermore, Hornig-Priest (2001) suggests the privatisation of science research will only lead to further protests and opposition to the fruits of science. Indeed, a MoRST survey conducted in 2002 into the public attitudes towards science found that respondents believed "strongly that it is important to have some scientists who are not linked to business (86 percent agreement) and/or to have scientist who are not linked to government interests (83 percent)" (Hipkins, Stockwell, Bolstad & Baker, 2002, pg. 31). Thus, the apparent freedom exercised by university scientists to speak about their science found in this study, may mean that the public may more readily accept that science.

Finally, as noted, MoRST wished to lift the profile of scientists and technologists and the contributions they make to New Zealand. However, the implications of PUS Inc. seem opposed to scientists becoming more involved and recognised in New Zealand. Rather, only a small minority of vetted spokespersons advocating the company line will be seen, leaving many scientists and their science hidden from public view. As society continues to grapple with the implications of scientific developments, the media-science nexus demands ongoing scrutiny.

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