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Abstract

In April and May of 2007, the authors participated in running a deliberative public engagement event that sought to narrow deficits of democracy related to the governance of biobanks. The participants of the event were asked to continue viewing popular media reports (i.e., television, newspaper, radio) of the deliberation topic before the event and were encouraged to research and discuss the controversial concept of biobanking with friends and family. The objective of this paper was to track and analyze if and how popular media reports, in this case, primarily news media, influenced participant deliberations on biobanks.

Keywords: democracy, mass media effects, conversation analysis

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1.0 Introduction

The active participation of citizens in policy discussions is a growing trend that seeks to address criticisms of traditional, often expert-driven, methods of policy-making. This “public engagement” model (Rowe and Frewer, 2005) of policy-making attempts to close democratic deficits (i.e., unequal access to shape public policy decisions) and is in contrast to predominant methods in representative democracy where citizens often participate only by voting or joining stakeholder groups that vie for political influence. With this latter method, decisions and policies are made by elected officials often with the support of “neutral” unelected experts (Jasanoff, 1990). However, there is a growing recognition that the values and beliefs of officials and experts do not necessarily match those of the public, leading to problematic issues of representation, trust, and legitimacy in government policies, as well as difficulties in broaching controversies such as the management of risks (Burgess and Tansey, forthcoming).

In April and May of 2007, the authors participated in running a deliberative public engagement event that sought to narrow deficits of democracy related to the governance of biobanks (i.e. collections of human tissues and blood that can be used for research). Our team was particularly interested in informed and deliberative input from a range of perspectives within the citizenry. To achieve informed and deliberative participant perspectives, it is necessary to find a way to enhance representation in biobanking policy in ways that challenge whether the appropriate values are being considered and how different publics would rank them (Burgess and Tansey, forthcoming). We consider this important because, while some proponents argue that biobank research will help untangle the links between disease, genetics and public health, others are convinced that biobanks may foster risks of genetic discrimination, breaches of privacy, and troubling relationships concerning intellectual property (Corrigan, 2006).

The 2007 event involved a random-digit dialed demographically stratified sample of twenty-one British Columbians and was conducted over two weekends with an intervening weekend. The topic for this event was ‘Biobanking in British Columbia (BC)’ and the purpose was to identify the range of values and interests that should be respected when determining the roles and operations of biobanks generally. The first weekend included five speakers and an introduction to a physical model that provided a graphic illustration of biobanks and their connection to research, health care, and communities. The goal of the second weekend was the design of a BC biobank. Participants’ time during the second weekend was largely split between facilitated large and small group discussions. The small groups were constituted to support the ability of every participant to contribute, and facilitated with an emphasis on clear identification of diversity and disagreement (Burgess and O’Doherty, 2007).

The ‘Biobanking in BC’ event drew theoretical and practical guidance from the field of deliberative democracy, whose proponents often call for a shift in political decision making from mere votes to “communicative processes of opinion and will-formation” (Chambers, 2003). This ideal requires the creation of processes where free and equal citizens *deliberate* together on important public issues. In such a deliberative setting, citizens are asked to reflect on the issues at hand, give reasons for their position, work to understand the perspectives of others, and be willing to change their initial preferences. It is hoped that fostering discourse that explicitly emphasizes reasons for participants’ positions can correct for the status quo of typical political symbology, where powerful symbols are employed to influence the behaviour of citizens (Dryzek, 1990; Bohman, 1998; and Gutmann and Thompson, 1996).

However, a deliberative event does not divorce participants from their political views and the influence of symbols. Political views are influenced by information and interactions in both the private and public spheres (how and to what extent is largely an open question). Today, the mass media, long seen as crucial to the function of democracy, dominates the production and distribution of information. The media is also a public agenda setter, by both giving attention to political personalities and by being the target of vast public relations efforts (McNair, 2000). Extensive research has focussed on exploring how the media influences public attitudes (Gavin and Sanders, 2003), however to our knowledge, little is known about how these influences play out in a deliberative setting of a public engagement event. With deliberative events continuing to grow in popularity in Canada,¹ this is an important gap in need of investigation.

The participants of the ‘Biobanking in BC’ 2007 event were asked to continue viewing popular media reports (i.e., television, newspaper, radio) of the deliberation topic before the event and were encouraged to research and discuss the controversial concept of biobanking with friends and family. Risk research suggests that the perceptions of laypeople are heavily influenced by the ways in which popular media characterizes risk topics such as biobanks (see Section 2.1). Therefore, the objective of this paper was to track and analyze if and how popular media, in this case, primarily news media, influenced participant deliberations on biobanks.

This paper begins with a discussion of media influence (Section 2.0). This section considers both the influence of media on risk perceptions (as biobanking is a topic that is often viewed through the lens of benefits versus risks) and the connection between media influence and deliberative democracy. Section 3.0 includes an overview of database and literature review findings that the authors used to prepare for the 2007 event. Quantitative and qualitative analyses of participant transcripts are provided in Section 4.0 and conclusions are offered in Section 5.0.

2.0 Media influence

2.1 Media influence on risk perceptions

It is well documented that the media has a strong influence on risk perceptions (Kasperson, Renn, Slovic, Brown, Emel, Goble, Kasperson, and Ratick, 1987), although the extent of media influence on these perceptions remains contested (Corner, 2000). In addition, the media is a major source of scientific information for non-specialists (Best and Kellner, 2001; Rogers, 1999; Nelkin, 1995, and Gavin and Sanders, 2003). Lay citizens often find it helpful to draw on expert information while making complex decisions across a range of topics (i.e., medical, safety, food purchasing decisions, and others (Croyle and Lerman, 1999)). This information, in addition to cultural values, worldviews, shared ethical principles, and the outrage dimensions of riskⁱⁱ can be used as an input for decision making at both the community level (Will this proposed industrial plant negatively impact the health of our community members?) and personal level (Should I follow a low carbohydrate diet?) (Nelkin, 1994). The 2003 General Social Survey (GSS) on social engagement confirms that almost 9 out of 10 Canadians (89%) follow popular media reports either daily or weekly, with TV news sited as a popular source of information for 91% of frequent users followed by print journalism for 70% of this same cohort (Keown, 2007). Those who follow media reports can receive information either through written articles or pictures (Nelkin, 1994). Boholm, uses symbolic anthropology and semiotics to study visual media representations of the Chernobyl disaster. He states that these “forceful symbolical messages” are a key component in understanding how “risk messages are socially and culturally construed in modern society” (Boholm, 1998). In addition, media coverage of risks and public response to those stories can sometimes spur new scientific studies.

2.2 Challenges facing media coverage

Yet media coverage of risk can be problematic. For example, while most media stories do not include false statements, they can include omissions or changes in emphasis (Singer, 1990). In some cases, miscommunications of science findings can lead to public outrage and the stigmatization of products, organizations, or behaviours. Singer, discusses an extensive empirical analysis of media coverage and accuracy (Singer, 1990). Major findings from this study include overstating generalizability of results, omitting qualifying statements, and overrepresenting extreme positions. Overrepresentation of small risks occurs when risk problems are discussed in the typical dichotomous journalistic format (Morgan and Lave, 1990). Arguments of those supporting a controversy may be given equal weight where none may be warranted. This is often observed in politically motivated global climate change “debates” in the United States where little or no debate exists within the scientific community.

Those who track media influence should also be aware of the impact that the media and other amplification stations can have on an individual’s or group’s decision making processes. Risks can become amplified through what is commonly referred to as the “ripple effect”. Ripple effects occur when risks are inappropriately applied to outwardly “similar” hazards (Canadian Food Inspection Agency, 2001). This often occurs when

risks of consuming rapeseed (a non edible industrial lubricant) are transposed to canola products. Risk amplification can also lead to misperceptions in the frequency of an event. As a result, citizens fear less likely risks and fail to prepare for more common ones. An event, especially if it is rare or dramatic, can act as a risk signal that triggers other public responses such as demands for additional regulations or research. These signals are amplified or reduced when they are processed or contextualized by individuals and social amplification stations like the media or activist groups (Kasperson et al, 1987). High signal events that trigger outrage factors in the public's perception of risk (i.e., Chernobyl, Three Mile Island, Bhopal) can stigmatize an entire industry (Slovic, Lichtenstein, and Fischhoff, 1984). Such events may have very few actual deaths associated with them but will nevertheless have high social impact (Slovic, 1987).

Amplification of high signal events can hinder our ability to manage risk. For example, risk amplification of strangers perpetrating violence on women or children may impair our risk management strategies for these sub populations. According to The Missing Children's Network Canada, non-family abductions are the rarest of all kidnapping cases despite extensive coverage by the television media (The Missing Children's Network Canada, September 2006). In addition, Status of Women Canada reports that in 2000, over three quarters (77%) of victimized women were harmed by someone they knew. Nearly one fourth (37%) of those women were harmed by a "close friend or acquaintance", just under a third (29%) by "a current or past partner", and the remaining (11%) by "other family members including parents" (Status of Women Canada, 2005). It is important that we communicate actual risks to the public in ways that help citizens craft effective risk management strategies. Benefit cost analyses, health risk assessments, and other "objective" methods of measuring risk sometimes fail to predict risk perceptions because they cannot account for the ways in which risks signals may become amplified (Slovic, 1992).

A famous example illustrating some of the above concepts is the 1989 Alarⁱⁱⁱ saga. This case began with a questionable scientific study that linked the apple ripening chemical to tumor production in mice.^{iv} The EPA (and a British review) initially found too many errors in the study to justify a ban of Alar. However, subsequent internal studies appeared to indicate increased cancer risk and the chemical was consequently banned. The results of the second study were later found to be caused by excessive toxicity in the mice and not necessarily due to Alar applications. The Alar saga was aired through the "60 Minutes" story "A is for Apple," which contained a number of significant misunderstandings regarding how risk is modeled (i.e., actual risk became confused with worst case scenario risk). The topic had extremely high signal value as children are leading consumers of apple products. As a result, citizens were outraged, apple products became stigmatized, and apple producers were financially devastated (Rosen, 1990).^v A bill allowing Florida growers to sue those who publicly claim that their products are unsafe without substantiation was eventually established to prevent similar events in the future (Gregory, Flynn, and Slovic, 2001).

2.3 Media influence and deliberative democracy

From a deliberative democracy perspective, the media is often viewed as an intrinsic, perhaps inescapable, part of the world that has long been associated with the functioning of politics and the ability of citizens to self-govern (Craig, 2004). This democratic role of the media, which is most often discussed with reference to journalism and the news media, is linked to the hope that adequate and equal information will better enable people to exercise citizenship and participate in the governance of society. Information produced by the media in this regard should be accurate, contextualized, and free from distortion or manipulation by powerful vested interests (Kovach and Rosenstiel, 2001).

Extensive criticism has been laid against the media for its inability to perform its democratic function. Such criticisms range from discussions of media bias and ownership convergence to a general distrust of media (Kovach and Rosenstiel, 2001; Schudson, 1999; Skinner, Compton, and Gasher, 2005). Parkinson usefully characterizes media criticism into two general types: “input” complaints and “structural” complaints (Parkinson, 2005). Input complaints refer to the information that is being interjected into media production, which for example, may come from a limited set of viewpoints or be put forward by powerful interests. In contrast, structural complaints refer to the media itself and their choices, training, and organizational features, which may be framing information in particular ways as it is produced. For those interested in deliberative democracy and public engagement, the concern with both input and structural complaints of the media is that they may unduly undermine or bias the ‘communicatively rational’ discourse that is sought.

Despite such criticism, many scholars have suggested that media and public life are closely linked. Habermas (1991) defines the public sphere, the social domain where public opinion is formed, as in part needing “certain means of dissemination and influence” that is carried out by newspapers, periodicals, radio and television (Habermas, 1991 p398). Dewey has also written about society as being linked together by such communication (Dewey, 1928). This seems to suggest that media use comes before, or at least during, opinion formation, and indeed for Bryce (1888/1973), the linkage between media and public life moves a citizen through four stages: from reading a newspaper, to having a political conversation, to forming an opinion, to actively participating in political activities (Bryce, 1973). More empirically, Koch (1994) has found in an experimental group asked to read *The New York Times* daily, that newspaper reading is associated with the level of comfort people have in expressing political opinions (Koch, 1994). Extending this with a survey of 1,029 U.S. adults, Kim, Wyatt and Katz (1999) argue that people with higher media use are more inclined to argue with those that have different opinions (Kim, Wyatt, and Katz, 1999). None of the above guarantees that media use will affect political activity, but does strongly point to media as one trigger of political conversation.

3.0 Anticipating the influence of media on deliberants

To anticipate the impact that media had on participants, team members kept track of media reports on biobanks and relevant events for approximately five months before the 2007 event. In addition, systematic broad key word searches (genetic, health) were performed on the ProQuest “Canadian newsstand” and “CBCA current events” databases, which includes small papers such as the Trail Times and large distributors such as the Vancouver Sun, the biggest newspaper in BC. These searches were performed to identify and analyse how (or if) major themes from various news reports may be influencing participants’ views or conversations during deliberations. After the news articles were compiled and reviewed, they were then coded as focussing primarily on hopes or concerns. Common themes were also tracked, which would be compared against major themes that emerged from event transcripts. An overview of these news stories is provided in Section 3.1 below.

After the event, transcripts of the small and large group deliberations underwent both quantitative and qualitative analysis for media references, influence, and uptake. We were particularly interested in points of convergence and divergence between database results and transcript data. An overview of these findings is provided in Section 4.0.

3.1 Overview of database results

News articles that appeared in ProQuest databases three months before the event were analysed using the keywords “genetic” and “health”. The aforementioned terms were used because the search parameters were sufficiently broad to include a number of significant articles while remaining narrow enough to avoid unrelated concepts.^{vi} Of the 80 total results, approximately 10% emerged from BC sources (see Table 1.0).

n=80				
Source	BC newspapers (i.e., Trail Times, The Vancouver Sun)	National or American news distributed in Canada (i.e., Globe and Mail, Newsweek, Time (Canadian edition))	Newswires (i.e., Canada Newswire, Canada Press Newswire, CCNMatthews Newswire)	Non BC newspapers (i.e., Winnipeg Free Press, Toronto Star)
Frequency (percent)	8 (10%)	17 (21.3%)	26 (32.5%)	29 (36.3%)
Note: percentages may not equal 100 due to rounding error				

For the purposes of this analysis, news articles^{vii} from the most likely viewed sources were combined (BC Newspapers, National or American news distributed in Canada, and Newswire contributions). These articles comprised some two thirds (n=51, 64%) of the

total articles shown in Table 1.0.^{viii} All the articles were first characterized as primarily hopeful (hope) or primarily pessimistic (concern) and were also coded by theme. Table 2.0 highlights some of the most common themes that emerged from the reviewed articles.

Table 2.0 Most likely read articles-characterizations and common themes		
Broad characterization	Frequency	Percent
Hopes	30	73.2%
Concerns	10	24.4%
N/A	1	2.4%
Themes		
1. Disease (new discovery, new treatment, gene environment interactions pandemic)	9	22%
2. Drug treatment/ new tests or therapies/pharmacogenetics/ personalized medicine /pharmaceuticals (disease, discovery)	9	22%
3. Paediatric medicine/prenatal testing /newborn screening/fertility treatment	6	14.6%
4. GM food /agriculture/animal research	4	9.8%
5. Public education (disease, health)	4	9.8%
6. Industry (research, information)	3	7.3%
7. Privacy (personal information)	2	4.9%
Other (correction, health an important topic for Canadians, misdirected research dollars, new employment opportunities)	4	9.8%
Note: percentages may not equal 100 due to rounding error		

Table 2.0 shows that nearly three quarters (73%) of reviewed articles that discussed topics related to genetics and health could be characterized as hopeful. There were also a number of shared themes that emerged from the database findings. The most common topic themes were (1) disease and (2) drug treatment, new tests or therapies, pharmacogenetics, personalized medicine, or pharmaceuticals, each claiming almost one fourth of the total articles. The second most common theme, appearing in about 15% of reviewed articles, addressed topics related to (3) paediatric medicine, prenatal testing, newborn screening, or fertility treatment.

Members of the research team also kept track of significant events that may not appear in a database search engine on an ad hoc basis. In some cases, these events may influence participants' views during the deliberative event or increase a citizen's desire to participate in conversations about health risk/benefit topics like biobanks and should therefore be addressed in our analysis. For example, our participants' interest in health research generally may have been peaked by a recent advertisement campaign organized

by the Cancer Research Society. This campaign includes slogans such as “Wanted”, “Fatal attraction”, and “Bloom of doom” superimposed over illustrations of large scale depictions of cancer cells on billboards or bus stops in BC (The Cancer Research Society, 2007). In addition, the BC government recently announced the initiative “BC conversations on Health”, intended to help set priorities and brainstorm improvements for the BC health care system. Interested citizens can participate in these conversations through a number of means including: regional forums to be held in all 16 health service delivery areas; email messages; letters directed to the Ministry of Health; and website dialogues (Government of BC, 2007). Citizens can also choose to contact MLA’s directly or call the toll free Conversations on Health phone number that offers translation in up to 130 languages (Office of the Premier Ministry of Health, 2006). American media reports on other nearby biobanks may also increase participants’ interest in this topic and as a result, the 2007 event. Examples include those at the Puget Sound Blood Centre, partially funded by the US Defence Department to improve knowledge of blood type identification methods (Ostrom, 2007) and the Kaiser Permanente biobank, which will seek out participation from half a million northern Californians to study gene environment interactions and their relation to diabetes, cancer, and asthma (Feder Ostrov, 2007).

Unfortunate occurrences such as the recent theft of a researcher’s laptop, which included personal health information of 2900 current and former patients of the Hospital for Sick Children in Toronto (Howlett, 2007) or the theft of 19 vials of HIV-infected blood that took place at St Paul’s hospital in Vancouver, BC, may also influence event conversations. Events such as these, which may not appear in database searches under key terms “genetic” and “health”, may nonetheless increase participants’ concerns over the security of biological samples in medical facilities generally despite the fact that in the St Paul’s case, all vials were eventually returned by individual(s) unknown to a downtown drop box for used syringes (CBC News, 2006).

4.0 Analysis of participant transcripts

4.1 Media as a theme

The purpose of the transcript analysis was to code for aspects of small and large group deliberations that may be influenced by media reports. Transcript analysis was approached in two ways: (i) an overall close read of the transcripts for references to media sources and (ii) keyword searches using generic terms (e.g. media, television, read, heard) and specific terms derived from our news article database (Section 3.1; e.g. *Vancouver Sun*, *Globe and Mail*, pharmacogenetic, genetically-modified). Coding was supported by Atlas.ti 5.0 software.

Our analysis revealed that participants did in fact draw on media reports during discussions and further, small group discussions that included media as a theme were most likely to refer to pop culture media sources (see Table 3.0). The most frequently cited media source was movies followed by television references. Both large and small group discussions drew on specific news stories equally and media coverage of the

specific deliberation topic (biobanks) was only raised twice and only in small group discussions.

Sources	Times mentioned	
	Small group discussion	Large group discussion
Movies (medical horror, GATTACA, The Corporation, 1984, documentary, Terminator, Dr. Evil from Austin Powers)	7	----
Television (O.J. Simpson trial, Jeopardy, 24 television series, Cold Case Files, Quincy, talk shows, Boston legal)	6	1
Specific news story (blood transfusions and Jehovah witnesses, person be exonerated by DNA testing, tissue donation and consent, women living with AIDS, Moore case in California, Tainted blood scandal – blood samples stolen , Canadian Blood scandal)	4	4
Media coverage of biobanks	2	----

Participants spent some time deconstructing the media as a communication vehicle during small group discussions. On a few occasions, deliberants discussed the potential for media to inform and communicate with the public. One small group paid particular attention to this theme, suggesting that generic “media”, in the form of information centres, might be helpful for biobank organizations to incorporate into their design to create transparency, and foster trust and public support. Participants suggested that these centres could produce pamphlets and posters, hold press conferences, and address risks and benefits on a website or through a toll free telephone number. While this concept is broader than the role usually associated with independent or commercial media, it reflects this small group’s desire for additional, in-depth information on issues pertaining specifically to biobanks. As one participant stated:

The media is swamped with everything from news about sports to, you know, world events and some local stuff. It's hard to put stuff on there, I think.

Participants were also aware of some of the challenges facing media coverage (as discussed in Section 2.2) and discussed these issues on three separate occasions. Topics of particular importance during these conversations included the potential for media reports to be overly simplistic, overwhelming, and potentially unreliable, or to include conflicting results and overblown results, or to even skew results. The power of the media to inform citizens was also addressed on one occasion.

In large group discussions, a view of media coverage as potentially problematic based on the above challenges was contrasted with the view that the media was distinctly helpful in ensuring accountability in biobank policy. Interestingly, these different views on the role of the media arose independently in two different small groups. During large group discussions, some participants expressed surprise at how they had diverged on the topic of media:

...we were busy sort of looking at the media as being problematic and, you know, reporting on -- in erroneous or inaccurate ways on different studies, you know, that you did -- eat lots of peanuts, you'll live to a hundred or something, stuff like that. And you guys [another small group] brought in the media as being a very positive thing by being transparent...

4.2 Quantitative analysis

In this section we contrast and compare findings from small and large group transcripts against database and literature review results. The analysis indicates that the quantitative media database results were useful in predicting what topics would emerge during discussions and the general state of optimism for participants, but could not predict how participants used media sources in their discussions.

4.2.1 Hopeful media coverage

The database analysis revealed that nearly three quarters (73%) of reviewed articles that discussed topics related to genetics and health could be characterized as hopeful. Participants in the 2007 event were also hopeful about the potential benefits that biobanks could produce and most agreed that regulators should take measures to ensure their efficiency and success (Burgess and O'Doherty, 2007). Participants often equated their hopes to the search for cures to diseases. As different participants stated during small group discussions:

I'm most hopeful about is that the sample or samples can provide researchers with a means to treat or cure diseases.

I am most hopeful about is potential medical advances and breakthroughs, new cures, new medicines and new procedures, whatever.

My hope is actual cures, not just promises.

It is important to note that participants also voiced many concerns about the risks biobanks may pose during the event. These included concerns over whether their privacy would be protected, that biobanking would be solely a profit-oriented endeavor or mismanaged altogether, about how consent procedures for giving samples would function, and who would own the biobank and control access to its materials. However, it was in the context of hopeful results that references to the media over-blowing the reporting of scientific results arose. This concern was related to the fact that participants genuinely craved information on scientific advancements related to disease, but also recognized that people experiencing diseases are often desperate for hopeful avenues of treatment and that they themselves can, and have been, misled. One participant put it this way:

...the latest drug that comes out and then people pick up on that and develop unrealistic cults, or they go off on what may prove to be a negative course as a

result of what they read. Because they don't go to the study itself, they just take what was read or what was written in the media.

Comments such as this, which the deliberative setting encouraged, fueled some of the scrutiny that references to the media (Table 3.0) were given during the event. In fact, as mentioned above, one small group spent a significant amount of time discussing the potential negative impact that media reports could have on their risk perceptions concerning biobanks. For example, participants made comments such as:

I agree with what [she] said, that the media will take information, and they can skew it the way they feel, or their sponsorship wants them to do it.

...about overblown hopes result in cures, it can lead into - what was the word I was thinking? - misinformation to the media.

In raising such topics, this group of participants set the boundaries for how media references would be assessed, and ultimately influence, their deliberations. Likewise the deliberations of another small group that saw the media more positively were influenced by the media in a different fashion. We discuss this further below.

4.2.2 Convergent topics

The most common topic themes that emerged from the database review were (1) disease and (2) drug treatment, new tests or therapies, pharmacogenetics, personalized medicine, or pharmaceuticals, each (1 & 2) claiming almost one fourth of the total articles. The second most common theme addressed topics related to (3) paediatric medicine, prenatal testing, newborn screening, or fertility treatment. These themes also emerged in participant discussions concerning biobanks.^{ix} For example, as previously mentioned, disease was one of the more prominent themes discussed during the event and was often linked to the hope of finding new cures using the biological samples stored in biobanks (Section 4.2.1). The topics of personalized medicine and new therapies were raised at times:

What I'm most hopeful is breakthroughs in medicine and new designer drugs.

The primary benefits [of biobanks] must be the research laboratories using those samples and produce better drugs, better health care procedures, better diagnostics, better health care equipment.

Nobody knows how much profit the pharmaceutical companies are making. Just recently in Brazil, the Brazil government decided to go with generic drugs against AIDS, and they broke the American patent of some kind. So, the pharmaceutical company went from 1.70 for a pill to \$1.17 or something like this...

The topics of fertility treatment and newborn screening also arose:

I was thinking, just a little while ago there was this lady who had a boyfriend that fertilized some eggs. There was a big court case about who owns the eggs because it's both their genetic material.

Well, I mean, you know, right when a baby's born, they prick the bottom of its foot to take a sample to test it...

However, while the themes found in our database and those that emerged from the transcripts did converge and overlap, it was seldom the case that participants specifically referenced the media upon introducing the above topics for discussion. Specific references to the media as a source of knowledge on the three most common topic themes in our article database (Table 2.0) only occurred twice during the event. The first arose during a discussion over blanket consent and touched on the topic of disease. Interestingly, this reference does not refer to a news report or a pop culture depiction but instead, to an advertisement for research participants:

I really feel that biobanks probably would often want samples from people that have arthritis, or people that have that disease. And like, you see things in the newspapers often where UBC perhaps wants somebody...they just advertise in the paper, "Please phone if you have such and such and you would be willing to participate in the study." I mean, I think there would be lots and lots of cases where they would want your sample because you have X disease.

While the second reference was to prenatal and newborn screening:

I read something interesting and it's about these parents who had a baby so that they could donate some tissue to their already-born child to cure their disease.

Consequently, while it is a reasonable hypothesis that references to the Brazilian government deciding "to go with generic drugs against AIDS" and "a big court case" regarding who owns fertilized eggs are based on information garnered from media reports (especially with a body of research that the media is an important source of knowledge on scientific topics for non-specialists (Best and Kellner, 2001; Rogers, 1999; and Nelkin, 1995)), the transcripts of the event reveal that participants usually did not locate, or self-identify, their knowledge or interest in Table 2.0 topics as originating from the news media. However, participants did use media references in other unique ways, which we turn to in the forthcoming section below.

4.3 Qualitative analysis of participant transcripts

This section provides an overview of findings from the qualitative media analysis that was performed on the small and large group transcripts. In this section we discuss the unique, and unexpected, role that media references played during deliberations for the 2007 event. We pay particular attention to the ways in which media was used (1) as a

source of new discussion topics; (2) to rally and reinforce discussions; and (3) as a source of comfort for deliberants.

4.3.1 Media as a source of new discussion topics

On several occasions during the 2007 event, new discussion topics were introduced based on what people had read or watched in the media. For example, during a small group conversation regarding drug company profits, a participant raised the issue of whether individuals can be forced to participate in research if they have a unique phenotype (in this case, an African woman who is resistant to AIDS). This topic is interjected based on what the participant read in the news, as evidenced by the individual stating “yeah, I think I heard it on the news or something.” Two other participants responded that they also saw the media stories, with one recalling: “oh yeah, she was on TV.” This sparked a conversation on the ethical use of research subjects that included only these three participants. Others in the group were initially excluded until the facilitator broadened the topic and asked for input from the excluded participants. This highlights an interesting twofold effect that news media had on deliberations. Although news media references were used successfully by participants to interject new information and thereby new topics for discussion, it was sometimes performed at the expense of creating in-groups of those who were familiar with the media story. Facilitation that is sensitive to the ways in which news media references can create in-groups that may polarize deliberations can work to minimize this effect (Luskin, Fishkin, and Iyengar, 2006).

4.3.2 Media references to rally and reinforce

Media references also played an important role as a rallying point for group discussions when they were used as a source of common ground or shared knowledge by deliberants. During these instances, popular critiques of media were sometimes used to garner support of new discussion topics. For example, participants drew on their shared frustration with media reports that include oversimplifications of or conflicting scientific information to introduce the topic of overblown hopes in scientific research.

I don't know where this fits in, but I was thinking about -- you know, when they do a study on something -- okay, egg yolks are bad for you, all right?...another study comes up that says, "Well, no, it doesn't make any difference." You know, like it's very confusing when you're doing similar kinds of studies, but (end up with) different results.

In another small group discussion, the topic of cloning, a special interest to one participant in particular, was introduced by equating concerns over potentially negative downstream uses of biobank materials with potentially negative uses of information passed on by the media. Using this comparison, the participant gathered support for his concern about cloning humans, a topic that was not originally of particular interest to the other deliberants. As explained by the participant:

Information now can be spread all over the world very quickly, within minutes. What if some of this information is used other than for research or health, and so forth?...what if some people start cloning using the information...start changing the genetics of people.

Since media references emerged as a source of shared knowledge for most participants, they were often used to reinforce deliberants' arguments. In one case, participants in one small group discussion raised concerns about privacy and the potential for biobanking to be used for criminal investigations. As one participant stated:

Wouldn't that cause a problem? Like say I'm a criminal and I got stabbed or something. I have to go to the hospital. Maybe I won't go because the police will have a sample -- will have access to my DNA and I'll get caught.

Others in the group disagreed with this participant stating that catching criminals by testing old rape kits, for example, was in fact a public service that biobanks could perform, and that this outcome trumped the privacy concerns introduced earlier in the discussion. One participant then referred to an episode of a popular television program to garner support from the group for this point of view.

So, like, that would put rapists behind bars and -- I was watching TV yesterday and there was a guy who was just released, innocent, 25 years. Because of DNA testing they found the real criminals instead of two eyewitnesses who put him in jail in the first place.

Although participants frequently used media references to explain their line of reasoning and reinforce more controversial arguments, such as blood transfusions for children of Jehovah Witnesses, this was not always a successful strategy. In the example shown below, controversial claims were refuted when participants referred to the facts of the case as reported by the media.

I don't really like that idea, because I don't know how people -- how religious you guys are, but a Jehovah that I read on the news recently, about they have like six children -- six children was born, and then they needed some blood transfusion, but because of their religion, they won't allow it. Even they have like really good chances of survival, they won't allow it, because it's against their religion. I think that's something that I cannot...

Well, there is a (policy) mechanism in place that went into gear on that, too.

You know, three of those children were apprehended by the court and were given treatment, and then handed back to the parents' jurisdiction.

Those who are interested in conducting deliberative events in the future should track how media references are used by participants to persuade others. They should also be aware of the ways in which media references can be effectively used to foster lively group discussion that draws on the shared knowledge and experiences of a wide range of citizens. Participants of the 2007 event suggested that the public would enjoy reviewing a wide range of materials on biobanking including books and DVDs and suggested that TV shows like CSI and Cold Case Files would be preferred formats since, in the participants' eyes, they are more inclined to spark the interest of the general public.

4.3.3 Media as a source of comfort

Biobanking is a difficult topic that draws on a great deal of complicated information concerning regulatory policy and cutting edge science. Unlike other health issues that have received substantial attention by Canadian citizens, participants in this event had little personal experience on biobanking from which to draw. Indeed, when challenged on how they knew drug companies might use biobanks to pursue drugs with high profit margins, one participant explained that it was because "I watch TV" and that his opinion was "certainly not from personal experience." The quote shown below was made by another participant after the first day of the event:

Everything I learned yesterday was pretty much new. I mean, you hear bits and pieces on the news and things like that, about all this stuff, but it is very interesting.

In this way, participants sometimes lacked confidence in the relevance of their opinions and had to be reminded that the deliberative event was set up to inform them on the intricacies of biobanking (this was approached by providing participants with expert presentations, an information booklet, a physical model of a biobank, and access to an annotated bibliography).^x Nevertheless, while analyzing the transcripts from the 2007 event, we found that media references were predominantly used by participants to foster confidence in their individual knowledge of the topic at hand. Deliberants frequently self identified as reading or watching media reports when preparing for the event. One participant worked deep into the night:

So I was challenged by suddenly finding myself working quite deep into night reading dozens and dozens of web articles on all sorts of bio-bank-related subjects.

Another participant stated, "I've read about it [biobanks] and I've done research on the Internet" and because of this they hoped they could "come up maybe with something new." Participants explained that this type of background research increased their confidence levels and helped them to feel comfortable when engaging in group discussions as demonstrated by the quotation shown below.

But I did some research and some reading, and I trust that I could contribute something without being an expert.

5.0 Conclusions

The objective of this paper was to track and analyze if and how the popular media, in this case primarily newspaper reports, influenced deliberations during the 'Biobanking in BC' 2007 event. Our analysis revealed that participants did in fact draw on media reports during discussions and further, small group discussions that included media as a theme were most likely to refer to pop culture media sources such as television and movies. Participants were also aware of some of the challenges facing media coverage such as those described in Section 2.2 of this paper.

The analysis of participant transcripts revealed that frequency of topics in the quantitative media database had a strong association with topics that emerged in the discussions. The database results were also useful in predicting the general state of optimism for participants. However, they could not predict how participants used media references in their discussions as demonstrated through the qualitative analysis that was also performed on the participant transcripts. This latter analysis demonstrated that media references played an important function or role during deliberations. In particular, media references were used (1) as a source of new discussion topics; (2) to rally and reinforce discussions; and (3) as a source of comfort for deliberants.

Given the influence that media appears to have on deliberations, others who wish to conduct similar events in the future should be aware of certain challenges that media references may pose for deliberants. Although media references were used successfully by participants to interject new information and thereby new topics for discussion, it was sometimes performed at the expense of creating out-groups of those who were familiar with the media story. Facilitation that is sensitive to the ways in which media references can create sub-groups that may polarize deliberations can work to minimize this effect. Facilitators, researchers, and analysts should also be prepared to track how media references are used by participants to persuade others and should be aware of the ways in which media references can be effectively used to foster lively group discussion that draws on the shared knowledge and experiences of a wide range of citizens. Lastly, we would encourage other deliberative democrats to include media sources in the background materials they provide participants. Deliberants of the 2007 event stated that reviewing media sources on biobanking increased their confidence levels and helped them to feel more comfortable when engaging in group discussions.

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Notes

ⁱ See for example: BC Citizens Assembly on Electoral Reform, December 2004; Canadian Public Health Association, December 2001; and Ontario Citizens Assembly on Electoral Reform, May 2007.

ⁱⁱ The outrage dimensions of a risk are characterized by the degree to which they are unknown (observable, new, delayed) and the degree to which they incite feelings of dread (control over hazard, catastrophic potential). See Peters E, Slovic P, 1996.

ⁱⁱⁱ Alar is a chemical applied to apples that allows them to ripen longer.

^{iv} Study conducted by researcher Bela Toth of the Eppley Institute for Research in Cancer.

^v These growers went on to sue CBS. See Gregory, Flynn, and Slovic, 2001.

^{vi} Other key words such as “biobank” produced an insufficient amount of hits. However, the terms used can be modified if necessary.

^{vii} Some television news media reports also appeared in the database results.

^{viii} Please note that after doubles and American only editions were excluded, this number was reduced to 41.

^{ix} However, we cannot draw a causal relation based solely on the association of similar frequencies in media database and deliberation analyses.

^x See the background reading list on <http://biobanktalk.ca/>.

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