APPLIED COGNITIVE PSYCHOLOGY
*Appl. Cognit. Psychol.* **21**: 981–993 (2007)
Published online in Wiley InterScience
(www.interscience.wiley.com) DOI: 10.1002/acp.1393

# Reality Monitoring and the Media

MARCIA K. JOHNSON*

*Department of Psychology, Yale University, USA*

SUMMARY

The study of reality monitoring is concerned with the factors and processes that influence the veridicality of memories and knowledge, and the reasonableness of beliefs. In thinking about the mass media and reality monitoring, there are intriguing and challenging issues at multiple levels of analysis. At the individual level, we can ask how the media influence individuals' memories, knowledge and beliefs, and what determines whether individuals are able to identify and mitigate or benefit from the media's effects. At the institutional level, we can ask about the factors that determine the veridicality of the information presented, for example, the institutional procedures and criteria used for assessing and controlling the quality of the products produced. At the inter-institutional level we can consider the role that the media play in monitoring the products and actions of other institutions (e.g. government) and, in turn, how other institutions monitor the media. Interaction across these levels is also important, for example, how does individuals' trust in, or cynicism about, the media's institutional reality monitoring mechanisms affect how individuals process the media and, in turn, how the media engages in intra- and inter-institutional reality monitoring. The media are interesting not only as an important source of individuals' cognitions and emotions, but for the key role the media play in a critical web of social/cultural reality monitoring mechanisms. Copyright © 2007 John Wiley & Sons, Ltd.

The information, stories and advertisements we experience through the mass media (e.g. books, newspapers, magazines, movies, television, radio, the Internet) contribute to our memories, knowledge and beliefs, just as do the other experiences in our lives. It is unlikely that there is one set of scientific principles that govern the processing of non-media information and another that govern the processing of information derived from the media (collectively referred to here as *public narratives*, Green, Strange, & Brock, 2002). Why then should psychologists be interested in the media, in particular? The media constitute a large repertoire of techniques for presenting information and engaging emotions about an infinite variety of topics, and have a potential for reaching vast numbers of people from many different populations. Thus, public narratives potentially have a profound and far-reaching influence on what we remember, know and believe about personally and socially important topics, as well as less vital matters. Furthermore, media exposure can have both intended and unintended effects, both from the perspective of the producer and the consumer. In the future, the influence of public narratives will likely increase as more people have access to more media and the world becomes even more interconnected via television, movies, radio and the Internet. Systematic research focusing on the impact of

*Correspondence to: Marcia K. Johnson, Department of Psychology, Yale University, P.O. Box 208205, New Haven, CT 06520-8205, USA E-mail: marcia.johnson@yale.edu

Copyright © 2007 John Wiley & Sons, Ltd.

the media will contribute to our understanding of cognition, emotion and social processes by expanding the questions we entertain as well as testing the generality of our theoretical ideas and findings. Conversely, our understanding of cognition, emotion and social processes can and should contribute to the clarification of applied and socially important issues concerning the impact of the media on individuals, social groups and cultures. Generally, we expect the events in our lives to create memories, knowledge and beliefs. We count on the persisting effects of our life experiences, our education and our on-the-job training. Increasingly, people worldwide are exposed to and/or depend on information derived from media sources. The impact of these public narratives on individuals is of interest from both applied and theoretical perspectives. For example, investigators are examining how narratives influence education, health behaviour and political judgments, and are considering the cognitive and social processes involved (e.g. see chapters in Green et al., 2002). Sometimes the educational or persuasive content is explicitly sought or recognized by the recipient, and sometimes it is not recognized, but is implicit or incidental, for example, to entertainment. The relative effectiveness of educational/ persuasive narratives versus entertainment narratives is particularly interesting (e.g. Slater, 2002). Such comparisons raise questions, for example, about the impact of involvement (i.e. absorption, being transported, identification) on the kind of systematic processing and counterarguments (e.g. Chaiken, Wood, & Eagly, 1996; Petty & Cacioppo, 1986) that might affect the impact of a narrative.

One of the potentially most important pro-social uses of the popular media is in reducing prejudice and intergroup conflict, either through explicitly educational narratives (e.g. documentaries) or entertainment narratives (e.g. novels, serialized stories or telenovelas). Interestingly, among hundreds of studies on prejudice, few have evaluated media effects using randomized assignment of participants to conditions and/or behavioural outcome measures rather than self-report questionnaires (Paluck & Green, 2008).

## INDIVIDUAL REALITY MONITORING AND THE MEDIA

Of course, not all effects of the media are positive. The popular media could reinforce stereotypes, lead viewers to have false beliefs about products or give potential voters misinformation about public events or political candidates. For example, in 1998, a Washington State Court ruled it was unconstitutional to ban false political advertising (*New York Times*, 1998). Political advertising often is explicitly designed to induce false beliefs. It involves vivid advertisements, repetition, encourages people to see relations that may not exist and encourages us to process information with lax criteria. The possibility of unintended negative effects or of people being manipulated in various ways without their consent suggests that it is important to educate individuals about both potential positive and negative effects of the media (i.e. educate for 'media literacy'). And, as Potter (2004) notes, media literacy programmes should be more effective if grounded in cognitive theory about how the human mind works.

The fact that some experiences may have incidental or unwanted effects on cognition, emotion and action, raises the question of the conditions under which people are able to segregate wanted from unwanted influences. *Reality monitoring* refers to the processes involved in attributing our mental experiences to memories, knowledge or beliefs that we take to be veridical or not (e.g. Johnson, 1998, 2006; Johnson & Raye, 1981, 2000; Johnson & Sherman, 1990). The source monitoring framework is a theoretical context for

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp

summarizing and exploring the factors operating during encoding and later use of information that affect the degree to which various sources are differentiated and weighted in making attributions about mental experiences (Johnson, Hashtroudi, & Lindsay, 1993; Mitchell & Johnson, 2000). In the context of investigating the impact of public narratives on thought and behaviour, from the reality/source monitoring point of view, fundamental questions include assessing how people identify and misidentify the sources of influence or potential influence on their memories, knowledge and beliefs, and their ability to 'correct' for influence (e.g. when they learn that a political advertisement included false information). We behave as if we control whether or not public narratives affect us. Otherwise, would we read some of the novels or see some of the movies that we do? What is the nature of and limits of that control (e.g. Gilbert, Tafarodi, & Malone, 1993)? In the United States, the unregulated production of, and free access to, media products is highly valued. We believe that the truth arises from the expression of many voices (e.g. ACLU, #10). We might think that we should not be too concerned about the effects of media content because each individual brings to any event a unique combination of past experiences that will influence how it affects them. Therefore, should anyone be held accountable for producing or consuming narratives whose impact cannot be predicted? In response, we might argue that, like other types of communication, the power of media narratives comes in part from the fact that there is some consensus in what individuals or groups derive from them. From this perspective, it makes sense to ask how public narratives contribute to: gender, ethnic, racial, and age stereotypes; our beliefs about the causes of psychological problems; our expectations about the behaviour of people in different professions (e.g. doctors, lawyers, police officers); the extent to which we trust or do not trust public institutions; our understanding of current events and history; our beliefs about science, about paranormal phenomena and so on.

Exploring the conditions that promote and prevent the positive and negative impact of media on memories, knowledge and beliefs should enrich our thinking about basic cognitive and emotional processes. Of course, a particular challenge is defining positive and negative outcomes. For example, is inaccurate information that produces positive outcomes (e.g. promotes trust and communication) ever a good thing?

Findings and theoretical ideas from basic research are not necessarily easily available or obviously relevant to those who might be in the best position to apply them. This is why explicit efforts to create bridges between theoretical ideas and empirical findings from basic research and various applied domains are especially important, as has been done, for example, in education (Bransford, Brown, & Cocking, 2000), eyewitness testimony (Loftus, 1996), jury decision-making (Hastie, Penrod, & Pennington, 1983), questioning of suspects (Henkel & Coffman, 2004; Wrightsman & Kassin, 1993) and psychotherapy (Lindsay & Read, 1994). Such efforts help teachers, police, lawyers, judges, clinicians and social workers see the relation between basic research and the way information is presented to students or juries, lineups are conducted, suspects questioned, children interviewed or adults' early childhood memories explored.

Just as a broader distribution of scientific findings regarding cognition has likely affected the understanding and practices of teachers, lawyers and therapists, the creators and consumers of public narratives should have an interest in and knowledge about the potential impact of public narratives. However, the applications of empirical facts and theoretical ideas will seem most relevant and be most persuasive when the situations involve naturalistic or real-world conditions (e.g. finding that sewing machine sales increased after a soap opera character succeeds in a clothing business, or visits to a family

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp

planning clinic increased after a series in which family planning was central to the plot, Slater, 2002). Interestingly, media effects are not necessarily easy to demonstrate and may be surprisingly small (McGuire, 1986). For manipulations to be practically useful, they have to work in natural contexts. Hence, the use of randomized field trials is a particularly promising direction for work on narrative impact and other media effects (e.g. Cappella & Jamieson, 1997; Paluck, submitted for publication; Paluck & Green, 2008).

## SOCIAL AND CULTURAL REALITY MONITORING AND THE MEDIA

The study of the media provides a fertile context for examining both individual reality monitoring and social/cultural reality monitoring (Johnson, 1996, 1998, 2002). Relevant questions include: What factors create shared narrative impact? Beyond the personal, what are the broader social and cultural consequences of various media: newspapers, magazines, radio, TV, movies, novels, video game worlds, the Internet and virtual reality experiences? To what extent do these sources help create or help maintain a shared cultural vision and, for example, prompt political actions? What do we think about that vision and those actions? Who decides (and how) which narratives and visions of reality should predominate? For example, what should be the relative influence (and in what areas) of the media (e.g. newspapers, producers of movies and TV programmes), of government, lawyers, scientists, religious groups, school boards and parents? Should we be more concerned about intentional or incidental effects? Can entertainment narratives be used to advance pro-social agendas without generating accusations of brainwashing? Given that cognition is constructive and reconstructive (e.g. Bransford & Johnson, 1973; Ross, 1989), and individual reality monitoring processes are not perfect (e.g. Johnson, 2006; Johnson & Raye, 1981; Zaragoza, Lane, Ackil, & Chambers, 1997), what mechanisms could help us protect ourselves and others from potential distortions of our memories, knowledge and beliefs? How should quality control be addressed without devolving into censorship?

The key role of the media in social/cultural reality monitoring of other institutions makes it an attractive target for influence and outright corruption. Like opposition parties and a court system, a free, diverse, and multiply owned media provides checks and balances on government. McMillan and Zoido (2004) attempted to quantify the importance of these institutions in Peru based on a remarkable set of records.

> Peru has in place the full set of democratic mechanisms. . ..In the 1990s, Peru was run . . . by its secret-police chief, Vladimiro Montesinos Torres. . ..Montesinos methodically bribed judges, politicians, and the news media [and] kept meticulous records of his transactions . . .. We use the bribe prices to quantify the checks and balances . . ..The typical bribe paid to a television-channel owner was about a hundred times larger than that paid to a politician, which was somewhat larger than that paid to a judge. One single television channel's bribe was five times larger than the total of the opposition politicians' bribes. The strongest of the checks and balances, by Montesinos's revealed preference, was television (p. 69).

Also consider an example from France. Chalaby (2004) noted that investigative reporting is a relatively recent development in France, where journalism historically has been primarily influenced by literature and politics (see also Carvajal & Bennhold, 2007). Only since the 1980s has the idea begun to catch on that journalism should be a

Copyright © 2007 John Wiley & Sons, Ltd. 
DOI: 10.1002/acp

'fact-centred' genre rather than (or in addition to) 'opinionated speculation' addressed at the 'interpretation of social and political events'. He also writes,

> . . . corruption of the French press before the Second World War is well documented. During most of the Third Republic, journalists received vast sums of money from four different sources: the government (including the key ministries), political parties, financial institutions and foreign embassies . . ..When Charles de Gaulle came to power in 1958, he was shown a three-page list of journalists on the secret payroll (McNeill, 1999) of the prime minister's office (pp. 1203-1204).

Of course, there are many dubious moments in the current practices and past history of the U.S. press. However, beliefs about what is normatively desirable in news reporting would probably be widely shared. High quality journalism has institutional, self-correcting, reality monitoring mechanisms. It has standards of openness to evidence, fairness, skepticism and clear writing. Notwithstanding the difficulty of defining or achieving objectivity or truth (e.g. Bok, 1978; Hausman, 1992), it attempts to convey differences between fact and opinion. It should include training in distinguishing between what is and is not important for people to know, that objective and fair does not mean giving equal voice to views regardless of the evidence supporting them, that there is a difference between skepticism and cynicism. It establishes and maintains procedures for quality control such as requiring corroboration from multiple, knowledgeable sources; the possibility of challenge and clarification from editors; responses or corrections from public editors (ombudsmen) or readers/listeners/viewers and from competing, independent news sources.

When individual reporters violate such norms they may be publicly exposed and punished. Famous cases include Janet Cooke, a reporter for the *Washington Post* who had a Pulitzer Prize taken away when it was discovered that her award-winning story that purportedly portrayed an individual and his experiences was actually a composite of people and events (Pippert, 1989). Stephan Glass was fired from the *New Republic* (Kurtz, 1998) and Jayson Blair from the *New York Times* (NY Times, 2003) for fabricating stories. The executive editor and managing editor responsible for overseeing Blair's work also resigned their positions, indicating that this was seen as a serious *system* failure rather than simply an individual failure in ethics.

Perhaps more disturbing than individual reporters who purposefully violate reporting norms to create a 'good' story are instances where other institutions inappropriately influence press coverage. For example, the U.S. government has paid columnists for favourable articles about government policies (cbsnews.com, 2005), and made 'news' videos and sent them to TV stations, which have broadcast them giving the impression they were independent news (Barstow & Stein, 2005). Such instances are shocking because government control or corruption of the press is probably one of the most dangerous symptoms of pathological social/cultural reality monitoring (a symptom that we readily recognize when we see it in other countries).

Other practices may be less obvious, thus perhaps more insidious. In *Breaking the News*, Fallows (1997) describes the corrosive effect of two trends. The first is treating news as spectacle. Many journalists tend to cover politics as contests (e.g. focus on campaign strategy and the 'spin' political consultants put on events) rather than as a way of addressing public concerns. They emphasize conflict, highlighting polarized views rather than the middle ground of potential solutions and achieved compromises. They focus on

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp

predicting what might happen (they are often wrong) rather than explaining what did happen. In interpreting politics as largely tactical, they convey little information and encourage the public to be cynical about public servants and about whether progress can be achieved on public problems. Consistent with this, Cappella and Jamieson (1997) report studies on how presenting political differences in strategic rather than issue-oriented ways can activate cynicism. They also suggest that a spiral of cynicism can result as the cynicism directed at politicians becomes directed at the press. A press that is not trusted directly undermines social/cultural reality monitoring.

A second corrosive trend that Fallows (1997) discusses is the 'gravy train' of celebrity journalism or what he calls 'pundit profit centres'. Many of the most well-known journalists are the people who appear on TV talk shows such as the *McLaughlin Group*, *Capital Gang*, *Crossfire*, etc. Typically on such shows, political journalists from opposing sides argue, interrupt each other, make predictions, but do not engage in very much deep analysis of issues. Being on these shows does not require any real expertise because they are largely for entertainment not enlightenment. Why do journalists do this? Fallows (1997) suggests that one motive is that journalists who become known on TV receive large fees on the lecture circuit. Furthermore, they sometimes appear before, and receive fees from, groups that are involved in issues that the journalist might cover, a potential conflict of interest. Fallows argues that presenting journalism as entertainment and accepting fees for appearances before groups with political agendas contribute to the public's cynicism not only about politics, but about journalism. By eroding public trust in politicians, government and themselves, Fallows suggests that such journalism creates disaffection and decreases the chances that problems will be solved through democratic processes. 'Journalism is the main tool we have for keeping the world's events in perspective. It is the main source of agreed-upon facts we can use in public decisions' (Fallows, 1997, p. 128).

There are interesting research questions that could be explored concerning how journalists who participate, and those who do not, view the consequences of engaging in entertainment journalism, whether characteristics of entertainment journalism carry over to pundits' 'real' journalism, and whether entertainment journalism has the corrosive impact on the public trust that Fallows suggests it does.

Many journalists have expressed concern about the implications of media presentations of pseudofactual information, for example in 'reality' TV programmes and docudramas, and questionable uses of technologies for altering photos (e.g. as in the darkened photo of O. J. Simpson that appeared on the cover of *Time*, Wolff, 1994). They have raised questions about the influence of business (e.g. advertisers) and the demands of the 24/7 news cycle on what is covered. They have spoken out about their concern for the impact of these factors on the perceived credibility of the media, especially as news blends into entertainment (e.g. Fallows, 1997; *Frontline*, 2007; Garofoli, 2007; Hausman, 1992; Pew, 1999). Such concerns and commentaries serve a within-institution reality monitoring function in that they draw attention to current or developing deficits in procedures the media uses and they encourage their colleagues to take corrective action. As important, cross-institution reality monitoring comes from communication and media studies researchers who analyze media content and conduct empirical studies of the effects of the media (e.g. Cappella & Jamieson, 1997). Jamieson and Waldman (2003) argue that the press is the 'custodian' of fact and propose a number of guidelines for maintaining the quality of modern journalism.

Even when news organizations try to maintain a division between commentary and opinion pieces on the one hand and fact-based reporting on the other, they may not be entirely successful. In one clever approach to this question, Brescoll and LaFrance (2004)

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp

examined the content of stories randomly selected from newspapers reporting research findings on sex differences in human behaviour. Explanations were coded for whether or not they were biological. Also assessed were each newspaper's political ideology (based on its endorsement of presidential candidates in the 1996 and 2000 elections) and the traditionality of the paper's sex role beliefs (based on whether or not it supported the admission of women into military academies). Conservative political ideology and traditionality of sex role beliefs together predicted a higher proportion of biological explanations of sex differences offered in papers' reporting of research results. Brescoll and LaFrance also conducted an experiment in which they varied the context of fictional newspaper articles; undergraduates read biological or non-biological explanations (or no news articles) of whether men or women were better at the identification of plants. Subsequently, participants who read the biological explanations were more likely than participants who read social (or no) explanations to endorse gender stereotypes and participants who read the social explanations were more likely than participants who read the biological (or no) explanations to express the view that people can change. Thus, it appears that reporting of science research is related to a newspaper's editorial point of view and such reporting affects readers' views on related issues. The authors note that from this study it is not clear whether ideology affects which research newspapers choose to cover or how they cover the same stories. It is possible that either of these biases can creep in without deliberate intent. What mechanisms can the media use to monitor for such effects in news reporting?

What about media sources with chronic low quality reality monitoring? Should individuals be protected from a media source that does not monitor itself well? Or should individuals be responsible for protecting themselves (e.g. Potter, 2004)? Do consumers have enough information to evaluate their media sources? Should media sources be rated like automobiles (similar to *Consumer Reports*) or restaurants (similar to *Zagat*)?[1] Media watch groups such as *Columbia Journalism Review*, *Center for Media and Public Affairs* and *Project for Excellence in Journalism*, and TV programmes such as *Reliable Sources* or the PBS *Frontline* series *News War*, are evidence of the perceived need to monitor one of our most important social/cultural reality monitoring institutions.

## SOCIAL AND CULTURAL REALITY MONITORING IN A BROADER CONTEXT

Like individuals, social groups and cultures engage in reality monitoring (Johnson, 1996, 1998). And, like individuals, societies differ in their susceptibility to reality monitoring errors. They differ in the extent to which they have mechanisms/institutions in place to monitor the origin of information and engage in corrective processes to reduce errors and distortions. Because the frontal cortex of the human brain is important in individual reality monitoring (e.g. Johnson & Raye, 2000), I have suggested that (by analogy) certain institutions constitute a society's social/cultural 'frontal lobes' (Johnson, 1996, 1998). These institutions include not only the media, but also the health care professions (e.g. doctors, therapists), the courts (judges, lawyers, juries), businesses (auditors) and knowledge generators (researchers, scientists, educators). All of these institutions

[1]Some of the issues and difficulty of rating media information in one domain–Internet Websites providing health information–are discussed by Jadad and Gagliardi (1998).

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp

contribute to a culture's sense of what is 'real' or 'true' and what is 'not real' or 'false.' We cannot expect any of these institutions to be perfect, any more than we can expect perfect individual reality monitoring. The best of procedures will result in errors sometimes because of the ambiguity of evidence, the difficulty in obtaining it and/or interpreting it or the blindspots that our current social motives and cultural schemas produce. But we should consider whether we have an acceptable rate of reality monitoring failures in our social organizations and institutions or whether we have lesions in our cultural frontal lobes. Figure 1 (from Johnson, 1996) shows a schematic of an fMRI scan of a patient (U.S.) with bilateral damage in the Washington, D.C. area, near the Congressional sulcus, with somewhat greater lesions on the right than the left. Patient U.S. shows the symptoms characteristic of lesions in this region—perseveration in ineffective strategies, lack of flexibility, grandiosity and unawareness of deficit. (Like H.M., U.S. is a case from which we can learn…)

Professional programmes (e.g. law school, medical school, graduate programmes), journalism schools, internships, apprenticeships and so forth constitute the credentialing mechanisms that institutions have for transmitting the knowledge that is required to do a job well. In addition to the ideas, facts and specific techniques in a domain, also conveyed are the reality monitoring procedures and criteria that are thought appropriate in these various institutions. These are the methods of quality control for the products of the institution (within-institution reality monitoring) and the methods of quality control when an institution monitors the quality of other institutions (cross-institution reality monitoring). We may not be aware of, or may not fully appreciate, the importance of

Figure 1. Reconstruction from the MRI scan of patient U.S. illustrating cultural frontal lobe damage (in black), from Johnson, 1996

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp

individual reality monitoring processes unless they fail dramatically, as in schizophrenia or cases of confabulation associated with brain damage. Likewise, we may not be aware of or fully appreciate the importance of social/cultural reality monitoring processes unless they fail dramatically. Such failures of within-institution reality monitoring and cross-institution business oversight mechanisms contributed, for example, to the collapse of Enron (Eichenwald, 2005) and the failure in the evaluation of intelligence about Iraq's development of weapons of mass destruction that contributed to the war in Iraq (e.g. Barstow, 2005).

Who do we trust to do our social/cultural reality monitoring? Gallup Polls assessing confidence in institutions between the years 1994–2004 found only between 1/3 and 1/2 of people surveyed said they had quite a lot of confidence in: the Supreme Court, television news, public schools, newspapers and the criminal justice system. In a survey from 2004, when questions about honesty and ethical standards were asked not about institutions but about members of these institutions, nurses were rated very high, judges in the middle and, sadly, reporters, business executives, members of congress and lawyers were rated down with car salesmen.

If we compare for 2004 the views about people and the institutions they are associated with, there are some intriguing patterns: Teachers (73%) are trusted *more* than the public schools (41%), but lawyers (18%) are trusted *less* than the justice system (34%) and reporters (21%) are trusted somewhat less than newspapers (30%). Such patterns suggest that people think in terms of trustworthy individuals in a less trustworthy or corrupting institutional environment and untrustworthy individuals in a correcting institutional environment. Of course, the best situation would be trustworthy individuals in a correcting environment. Why should we need a correcting environment if individuals are trustworthy? That is, can't personal ethics solve many potential reality monitoring problems? Perhaps. But appropriate institutional reality monitoring procedures should serve to improve the products of even the most honest people in the best institutions. Reality monitoring is not only about catching lies, but also about catching mistakes. In place institutional reality monitoring procedures also can have the effect of encouraging the truth and preventing mistakes. A potentially interesting research agenda would be to assess attitudes about differences in the types of within and inter-institutional reality monitoring procedures appropriate for different organizations and institutions (e.g. pharmaceutical industry vs. electronics industry; medicine vs. journalism or politics; law vs. business).

Cross-institutional reality monitoring is a critical feature of our society—Journalists monitor politics and business; courts monitor journalists and therapists; government monitors business and science; academics monitor everyone. Perhaps most important, the authority of any institution to engage in cross-institutional reality monitoring depends on its intact within-institutional reality monitoring mechanisms. Thus deficits in any of these institutions and public cynicism about any of them (whether deserved or undeserved), reduce their effectiveness in the web of social/cultural reality monitoring mechanisms.[2]

[2]Science should be close to the ideal of trustworthy individuals in a correcting environment. Thus, we should be especially concerned when science bypasses peer review and lobbies directly for research money (Weiner, 1999), has journals that are run for profit (Altman, 1999) and, of course, when scientists are involved in cases of scientific fraud (Wade & Sang-Hun, 2006). These are serious issues for the scientific community because they erode our trust in each other and public confidence in science as a reality monitoring institution. It also makes it easier to ignore scientific results for political or other reasons. It is as important to increase science literacy (e.g. Lopez, 2001) as to increase media literacy (e.g. Potter, 2004), and consideration of issues of social/cultural reality monitoring are central to both.

Copyright © 2007 John Wiley & Sons, Ltd.

Institutions and cultures, as well as individuals, cannot function without intact reality monitoring mechanisms that we can count on. How can we improve our social/cultural reality monitoring without sacrificing values such as freedom of expression, open access to professions, an adversarial court system and free enterprise (Johnson, 1996)? Does public exposure of errors in within-institution or across-institution reality monitoring increase or decrease confidence in institutions? What are the signs of normal reality monitoring errors in a healthy system and more serious symptoms of pathology in a diseased system? Is it easier to see pathology in other institutions and cultures than in our own? For institutions and for a culture, as for individuals, what matters more than the truth of any particular memory, knowledge or belief are the mechanisms in place for reality monitoring (Johnson, 1998).

## CONCLUSIONS

Thinking about the media can stimulate our thinking about the cognitive and social mechanisms of learning and memory, persuasion and influence, attitude formation, perception of groups, decision making and problem solving, including the interaction between cognition and emotion in all of these domains (Johnson, 2002). Are available theoretical constructs (e.g. constructive and reconstructive processing, associations, schemas, situation models, causal chains, source monitoring and source misattributions, arousal, counter-arguing, accessibility, identification, empathy, perspective taking, motivated reasoning, social norms, social learning) sufficient, or does understanding the impact (and in some cases, lack of impact) of the media require considering new variables and/or new principles, which might in turn provide insights about cognitive, emotional and social processes in other domains? Considering the media causes us to ask what makes a narrative effective; how cognition and emotion interact in the context of processing fictional and nonfictional narratives; how we identify reliable sources; how individual differences (e.g. in tendency to be 'transported', in working memory, in motivations) affect reality monitoring; and ask about similarities and differences between factual and narrative truth. Considering media effects prompts reflection about the origins and expressions of self- and group-identity in the media we produce and consume. It challenges us to confront difficult issues such as the difference between education and propaganda, and tradeoffs between values such as freedom of expression and accountability. Who should control the content and distribution of public narratives? Should we as consumers more often self-censor what we process? What level of evidence do we need to change our own media consumption habits? To change our children's? To attempt to change other peoples' media productions and/or consumption habits via persuasion or public policy?

Investigating the media presents a stimulating and challenging domain of research that can benefit from many disciplines. In addressing intriguing questions such as those concerning individual reality monitoring and the media, and the media's role in social/cultural reality monitoring, there is much to build on from previous work in cognitive psychology, social psychology, political psychology, media studies, communications, sociology and marketing and advertising. The rapidly expanding public access to information of varying quality, and the increasingly rapid exchange of information of varying quality, suggests that understanding how the media influences individuals, groups and cultures, is an important and challenging goal. Findings should have implications for

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp

current and future theories in behavioural and social sciences and will raise, and perhaps help address, important issues of professional practice and public policy.

## ACKNOWLEDGEMENTS

Our laboratory's work on reality monitoring and source monitoring has been supported by NIH grant AG09253.

## REFERENCES

ACLU. Freedom of expression. *Briefing paper*, number 10.

Altman, L. K. (24 August 1999). The doctor's world; inside medical journals, a rising quest for profits. *The New York Times*, p. F7.

Ban on false political advertising is voided. (12 June 1998). *The New York Times*, p. A17.

Barstow, D. (1 April 2005). Doubts on source for key piece of data were suppressed, report says. *The New York Times*, p. A11.

Barstow, D., & Stein, R. (13 March 2005). The message machine: How the government makes news; under Bush, a new age of prepackaged news. *The New York Times*, p. A1.

Bok, S. (1978). *Lying: Moral choice in public and private life*. NY: Pantheon Books.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (2000). *How people learn: Brain, mind, experience, and school.* Washington, DC: National Academy Press.

Bransford, J. D., & Johnson, M. K. (1973). Considerations of some problems of comprehension. In W. G. Chase (Ed.), *Visual information processing* (pp. 383–438). NY: Academic Press.

Brescoll, V., & LaFrance, M. (2004). The correlates and consequences of newspaper reports of research on sex differences. *Psychological Science*, *15*, 515–520.

Cappella, J. N., & Jamieson, K. H. (1997). *Spiral of cynicism: The press and the public good*. New York, NY: Oxford University Press.

Carvajal, D., & Bennhold, K. (25 June 2007). Free press in France: The right to say what politicians want. *The New York Times*, p. C6.

Chaiken, S., Wood, W., & Eagly, A. H. (1996). Principles of persuasion. In E. T. Higgins, & A. Kruglanski (Eds.), *Social psychology: Handbook of basic mechanisms and processes* (pp. 702–742). Hillsdale, NJ: Erlbaum.

Chalaby, J. K. (2004). Scandal and the rise of investigative reporting in France. *American Behavioral Scientist*, *47*, 1194–1207.

Eichenwald, K. (2005). *Conspiracy of fools*. NY: Broadway.

Fallows, J. (1997). *Breaking the news: How the media undermine American democracy.* New York, NY: Random House.

*Frontline*: Newswar. (2007). Retrieved 21 June 2007, from http://www.pbs.org/wgbh/pages/frontline/newswar/view

Garofoli, J. (13 February 2007). PBS' 'Frontline' examines ways politics, business hurt news media. Retrieved 21 June 2007, from http://sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/02/13/DDGRFO28SJ1.DTL

Gilbert, D. T., Tafarodi, R. W., & Malone, P. S. (1993). You can't not believe everything you read. *Journal of Personality and Social Psychology*, *65*, 221–233.

Green, M. C., Strange, J. J., & Brock T. C. (Eds.). (2002). *Narrative impact: Social and cognitive foundations*. Mahwah, NJ: Lawrence Erlbaum Associates.

Hastie, R., Penrod, S. D., & Pennington, N. (1983). *Inside the jury.* Cambridge, MA: Harvard University Press.

Hausman, C. (1992). *Crisis of conscience: Perspectives on journalism ethics*. NY: Harper Collins Publishers.

Henkel, L. A., & Coffman, K. J. (2004). Memory distortions in coerced false confessions: A source monitoring framework analysis. *Applied Cognitive Psychology*, *18*, 567–588.

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp

Jadad, A. R., & Gagliardi, A. (1998). Rating health information on the Internet: Navigating to knowledge or to Babel? *Journal of the American Medical Association*, *279*, 611–614.

Jamieson, K. H., & Waldman, P. (2003). *The press effect: Politicians, journalists, and the stories that shape the political world*. New York, NY: Oxford University Press.

Johnson, M. K. (1996). Fact, fantasy, and public policy. In D. J. Herrmann, C. McEvoy, C. Hertzog, P. Hertel, & M. K. Johnson (Eds.), *Basic and applied memory theory in context* (Vol. 1, pp. 83–103). Mahwah, NJ: Erlbaum.

Johnson, M. K. (1998). Individual and cultural reality monitoring. *The Annals of the American Academy of Political and Social Science*, *560*, 179–193.

Johnson, M. K. (2002). Foreword. In M.C. Green, J. J. Strange, & T. C. Brock (Eds.), *Narrative impact: Social and cognitive foundations* (pp. ix–xii). Mahwah, NJ: Lawrence Erlbaum Associates.

Johnson, M. K. (2006). Memory and reality. *American Psychologist*, *61*, 760–771.

Johnson, M. K., Hashtroudi, S., & Lindsay, D. S. (1993). Source monitoring. *Psychological Bulletin*, *114*, 3–28.

Johnson, M. K., & Raye, C. L. (1981). Reality monitoring. *Psychological Review*, *88*, 67–85.

Johnson, M. K., & Raye, C. L. (2000). Cognitive and brain mechanisms of false memories and beliefs. In D. Schacter, & E. Scarry (Eds.), *Memory, brain, and belief* (pp. 35–86). Cambridge, MA: Harvard University Press.

Johnson, M. K., & Sherman, S. J. (1990). Constructing and reconstructing the past and the future in the present. In E. T. Higgins, & R. M. Sorrentino (Eds.), *Handbook of motivation and social cognition: Foundations of social behavior* (pp. 482–526). New York, NY: Guilford Press.

Kurtz, H. (11 May 1998). New republic fires writer over 'hoax. *The Washington Post*, p. D1.

Lindsay, D. S., & Read, J. D. (1994). Psychotherapy and memories of childhood sexual abuse: A cognitive perspective. *Applied Cognitive Psychology*, *8*, 281–338.

Loftus, E. F. (1996). *Eyewitness testimony*. Cambridge, MA: Harvard University Press.

Lopez, J. C. (2001). In science we trust. *Nature Medicine*, *7*, 871.

McGuire, W. J. (1986). The myth of massive media impact: Savagings and salvagings. In G. Comstock (Ed.), *Public communication and behavior* (Vol. 1, pp. 173–257). Orlando, FL: Academic Press, Inc.

McMillan, J., & Zoido, P. (2004). How to subvert democracy: Montesinos in Peru. *Journal of Economic Perspectives*, *18*, 69–92.

McNeill, R. (1999). *Lecture*, Princeton University, 22 November.

Mitchell, K. J., & Johnson, M. K. (2000). Source monitoring: Attributing mental experiences. In E. Tulving, & F. I. M. Craik (Eds.), *The Oxford handbook of memory* (pp. 179–195). New York: Oxford University Press.

New York Times' top editors resign after Blair scandal. (23 June 2003). *Jet*, p. 24.

Paluck, E. L. (submitted for publication). Reducing intergroup prejudice and conflict with the media. A field experiment in Rwanda.

Paluck, E. L., & Green, D. P. (2008). Prejudice reduction: What works? A review and assessment of research and practice. *Annual Review of Psychology.* (in press).

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123–205). Orlando, FL: Academic Press.

Pew Research Center for the People & the Press. Striking the balance, audience interests, business pressures and journalists' values, Survey Report released March 30, 1999. Retrieved 21 June 2007, from http://people-press.org/reports/

Pippert, W. G. (1989). *An ethics of news: A reporter's search for truth*. Washington, DC: Georgetown University Press.

Potter, W. J. (2004). *Theory of media literacy: A cognitive approach*. Thousand Oaks, CA: Sage Publications.

Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review*, *96*, 341–357.

Slater, M. D. (2002). Entertainment education and the persuasive impact of narratives. In M. C. Green, J. J. Strange, & T. C. Brock (Eds.), *Narrative impact: Social and cognitive foundations* (pp. 157–181). Mahwah, NJ: Lawrence Erlbaum Associates.

Copyright © 2007 John Wiley & Sons, Ltd.

Third columnist on Bush payroll (28 January 2005). Retrieved 21 June 2007, from http://www.cbsnews.com/stories/2005/01/26/politics/main669432.shtml

Wade, N., & Sang-Hun, C. (10 January 2006). Human cloning was all faked, Koreans report. *The New York Times*, p. A1.

Weiner, T. (24 August 1999). Lobbying for research money, colleges bypass review process. *The New York Times*, p. A1.

Wolff, J. (1994). Opening up, online: What happens when the public comes. *Columbia Journalism Review*, Retrieved 21 June 2007, from http://backissues.cjrarchieves.org/year/94/6/online.asp

Wrightsman, L. S., & Kassin, S. M. (1993). *Confessions in the courtroom*. Newbury Park, CA: Sage.

Zaragoza, M. S., Lane, S. M., Ackil, J. K., & Chambers, K. L. (1997). Confusing real and suggested memories: Source monitoring and eyewitness suggestibility. In N. L. Stein, P. A. Ornstein, B. Tversky, & C. Brainerd (Eds.), *Memory for everyday and emotional events* (pp. 401–425). Hillsdale, NJ: Lawrence Erlbaum.

Copyright © 2007 John Wiley & Sons, Ltd.

DOI: 10.1002/acp