# Public communication practices in the Web 2.0-3.0 mediascape: The case for PRevolution

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## Abstract

*This article presents a critically informed analysis of public relations practice in what Mark Poster termed the Second Media Age that began with the internet and which is increasingly characterised by interactive 'social' media enabled by Web 2.0 and the emergent Web 3.0. Industry texts and statements suggest that the growth of 'PR 2.0' is taking advantage of the interactive two-way communication and relationship-building capabilities of Web 2.0 media and realising the ethical and practical ideals of dialogic and Excellence Theory in public relations. However, there is a lack of empirical data on use of social media and the 'social web' in public relations, and research that exists indicates that practice lags public relations theory and social and cultural shifts occurring in other areas of public communication. This critical analysis draws on research undertaken in relation to Web 2.0 and Web 3.0 in the contexts of the public sphere, journalism, and advertising, as well as public relations, to identify the ways in which public communication is changing and the opportunities as well as risks posed in this emergent media environment.*

## Introduction

While the World Wide Web, commonly referred to simply as 'the web', has been in existence since 1990, it has been the development since 2004 of what is termed Web 2.0 that has triggered an escalating range of changes in media and public communication which have captured the attention of social scientists as well as industry, media and the public. It has been suggested that Web 2.0, and its affordances often referred to as *social media*, are as significant as the development of moveable type printing in China around 1040[1] and in Europe circa 1436-40[2]. Balnaves, Donald and Shoesmith (2009, p. 12) propose that there have been "four distinct revolutions in the history of media", citing creation of the Greek alphabet which led to writing as the first, followed by invention of the printing press, the development of broadcast *mass media* (radio and television), and "arrival of the computer and social media".

Caution is necessary in making claims about the significance and effects of current media and public communication developments, noting the warnings of Mosco (2004) concerning "the digital sublime", Woolgar (2002) who discusses "cyberbole", and the five-stage technology 'Hype Cycle' described by Gartner Research (2008). However, many researchers agree that Web 2.0 is fundamentally reshaping the public sphere and public communication practices in journalism, advertising, marketing, and public relations (e.g. Dahlgren, 2009; Jenkins, 2006; Meyer, 2004; Pavlik, 2008; Ruskoff, 2003). Development of Web 3.0, little discussed in scholarly literature at this stage, is well advanced and is predicted to accelerate these changes, as well as lead to a range of new functions and dysfunctions (Battelle, 2005).

This article presents a critical analysis of public relations practices in what Poster (1995) termed the Second Media Age that began with the internet and which is increasingly characterised by interactive social media enabled by Web 2.0 and the emergent Web 3.0. It argues that, while 'excellence' in public relations is theoretically aligned with the Web

2.0-3.0 environment, practices lag and need to undergo further change to keep pace with social, cultural, and technological shifts. Furthermore, public relations practitioners need to be attuned to potential dysfunctions and risks in this emergent online communication.

## Literature review

Poster (1995) introduced the notion of the Second Media Age to identify what he and other scholars see as a major change taking place in media due to exploding use of the internet. While he proposed this shift in media and public communication well before emergence of what is termed Web 2.0, the characteristics and potentialities he identified and contrasted with the First Media Age are salient in understanding the changing media and public communication environment. Poster noted that the First Media Age was characterised by (1) centralised content production, (2) state control (or by capitalist control in concert with the state), (3) one-way distribution of information, to (4) audiences conceived as a mass, and (5) media designed to influence social consciousness and reproduce existing social structures (Holmes, 2005; Littlejohn & Foss, 2008). Poster saw this regime of *mass media* influencing *mass audiences* as a key structuralist feature of modernity and modernism.

In contrast, Poster (1995) saw the Second Media Age as postmodern "characterised by a decentralised network of communications [that] makes senders receivers, producers consumers, rulers ruled, upsetting the logic of understanding of the first media age" (p. 33). Poster (2001) proposed that media in the Second Media Age were beyond state control and democraticising through their "two-way decentralised communication" (p. 63) and interactivity which he argued were essential elements for individuals to construct themselves as subjects and for effective functioning of society (p. 82).

While caution needs to be sounded in relation to some highly optimistic and transformist views of the web, a number of scholars have identified the effects of Web

2.0 in the early 21st Century as far-reaching, impacting media institutions, journalism, politics, advertising, public relations, communities, and individual social and cultural capital. Jenkins (2006) noted that "media industries are undergoing another paradigm shift" (p. 5). In his historical review of media from parchment and printing to hypermedia, Deibert (1997) concludes "that we are currently living through a revolutionary change in technologies of communication is beyond dispute" (p. 4). Ruskoff (2003) prefers to describe current ICT developments as a renaissance, but also concludes that we are witnessing a major shift in human perspective and understanding. Meyer (2008) says the internet is "as disruptive to today's newspapers as Gutenberg's invention of movable type was to the town criers, the journalists of the 15th century" (para. 10). Pavlik (2008) sees the rise of 'citizen journalism' published in social media such as blogs constituting a "sea change" with "far reaching implications for the nature and function of journalism in modern society" (p. 77). In relation to politics, Hirst and Harrison (2007) claim that "not since the time of ancient Greece, where the birth of democracy occurred, has political communication been so dramatically altered" (p. 356). Research into the 2008 Obama presidential campaign supports this argument (Macnamara, 2010a). Beyond election campaigns, democratic governments worldwide are adopting interactive Web 2.0 media for civic engagement and public participation, termed *e-democracy* (Hernon, Cullen & Relyea, 2006; Kearns, 2002; Macnamara, 2009a, 2010b). Advertising is increasingly going online in interactive Web 2.0 formats (Deloitte, 2008; Wells, Spence-Stone, Moriarty, & Burnett, 2008), and Web 2.0-enabled social media and networks are increasingly being deployed by businesses for communication and marketing (McKinsey, 2007).

To understand the characteristics of Web 2.0 and the communication practices that it enables and fosters, it is useful to consider the views of the pioneers and architects of this interactive communication and media environment as well as scholarly studies. The term Web 2.0 is

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widely attributed to Tim O'Reilly who used it as the theme of a conference in 2004 referring to a second generation of web-based services that feature openness for collaboration and interactivity (Boler, 2008; O'Reilly, 2005). First use of the term dates back to a 1999 article in *Print* magazine by DiNucci (1999, p. 32). However, DiNucci used the term mainly in relation to design and aesthetics in her article targeted at Web designers. In his description, O'Reilly (2005) emphasised a new way of thinking behind Web 2.0 more than particular technologies. In a much-quoted essay titled 'What is Web 2.0', O'Reilly said a central principle of Web 2.0 is harnessing 'collective intelligence,' a concept discussed extensively by sociologist Pierre Lévy (1997). O'Reilly summarised: "you can visualise Web 2.0 as a set of *principles* and *practices*" (2005, para 7) [italics added].

Merholz (2005), another Web 2.0 pioneer, refers to a *philosophy* behind the practices of Web 2.0 [italics added]. In his blog *Peterme.com*, under the heading 'Web 2.0 – it's not about the technology', Merholz states: "Web 2.0 is primarily interesting from a philosophical standpoint. It's about relinquishing control, it's about openness, trust and authenticity" (2005, para 5).

MacManus (2005), the publisher of *ReadWriteWeb*, which is one of the world's top 20 blogs specialising in analysis of web products and trends, presents a number of definitions of Web 2.0 including describing it as a platform, but also as "an attitude not a technology" and specifically as "the underlying philosophy of relinquishing control" 2005, para 2, 3, 5). In *Convergence Culture*, Jenkins (2006) also emphasises that convergence of communication and content on the latest iteration of the Web is about culture more than technology and, in particular, "participatory culture" (p. 243).

Bucy (2004) also emphasises interactivity as a defining element of web communication, particularly Web 2.0 – albeit interactivity is interpreted in multiple ways and needs clarification. Three levels of interactivity are discussed by Carpentier (2007), McMillan (2002) and Szuprowicz (1995) in relation to

computer mediated communication. The latter defines these as user-to-system interactivity, user-to-documents interactivity, and user-to-user interactivity. User-to-system interactivity such as clicking a mouse and accessing menus (what Carpentier calls person-to-machine interaction), while significant in Human Computer Interface terms, is a basic and largely perfunctory interaction in terms of human communication. It is user-to-user interactivity that is most significant in Web 2.0, as well as open user-to-documents access to edit and create content rather than simply consume content. Boler (2008) notes that "the web has always been about voice and conversation" (p. 39) and cites web founder Berners-Lee who said the web was never intended to be about delivering content to passive audiences, but to be about "shared creativity" (p. 39).

From definitions offered by the founders and architects of Web 2.0 as well as from scholarly literature, the defining characteristics of this emergent communication environment can be summarised as *openness* for *interactive two-way* interaction at human-to-human as well as human-to-content levels expressed through *conversation, collaboration*, and *co-creativity* harnessing collective intelligence. Explicit in definitions and descriptions of this environment is relinquishing *control* that characterises one-way top-down information distribution models, and a requirement for *authenticity* instead of heavily 'produced' and pre-packaged content (Macnamara, 2010a).

Much of the public relations literature shares this enthusiasm in relation to this evolving environment for interactive two-way communication. For instance, Breakenridge (2008) proposes that, in the era of Web 2.0, public relations has evolved into 'PR 2.0' and, writing with Solis, says that Web 2.0 is "putting the public back in public relations" (Solis & Breakenridge, 2009). In the foreword to Breakenridge's 2008 book also published online, Solis (2008) stated: "Welcome to what just may be the greatest evolution in the history of PR". He claimed that with the shift from PR to PR 2.0 "monologue has given way to dialogue" (para. 1). In another contemporary text, *New Media and Public Relations*,

Hazelton, Harrison-Rexrode and Kennan (2008) go further and claim that public relations is "undergoing a revolution" (p. 91).

Such statements suggest that public relations practitioners are engaging in the use of social media and that these interactive applications are helping realise the two-way symmetrical model of communication recommended in *Excellence Theory* (Grunig, & Grunig, 1992; Grunig, Grunig & Dozier, 2002) but which, hitherto, critics have suggested is an unrealised normative theory (L'Etang, 2008, Murphy, 1991). Similarly, claims such as those of Solis, suggest that interactive social media are enabling a *dialogic model* of public relations as proposed by Kent and Taylor (2002).

However, despite considerable rhetoric in relation to social media use in public relations, there is a lack of empirical data on the extent and ways in which public relations practitioners are utilising these media and networks. A 2009 study by Wright and Hinson (2009) in the US claimed to be the "the world's first extensive examination of how social media are being implemented in public relations" (p. 1). In critically analysing the use of blogs in public relations, Kent (2008) concluded that there is "very little scholarly research in communication or public relations about blogging" (p. 34). Australian researchers Herger and Howell (2007) concluded even more broadly that "from a public relations perspective, there has been limited investigation and understanding into the nature of cyberspace as a communications medium" (p. 93).

Studies available suggest that public relations is at an early stage in adopting Web 2.0 and has not yet begun to think about Web 3.0. For example, Wright and Hinson (2009) concluded that "meaningful gaps exist when measuring differences between what is happening and what should be happening in terms of ... social media" (p.19). Kelleher (2009) found that, in the case of corporate blogs, public relations functions are "distributed" and performed "by a wide range of people representing an organisation" who "do not think of themselves as public

relations people" (p. 185). This indicates that social media are being used in organisations, but it does not present a picture of public relations as leading or active in this area of communication. To the contrary, it suggests that PR practitioners are lagging in using social media. Another 2009 study reported that PR practitioners mostly maintain personal blogs, and use blogs as a professional communication medium at low levels (Porter, Sweetser & Chung, 2009). Significantly, Xifras and Huertas (2008) reported that organisations filter comments heavily in customer blogs, as they do not want to give customers freedom of expression.

In two qualitative studies of social media use in public relations, Fitch (2009a, 2009b) interviewed 10 practitioners in Singapore and Malaysia in 2006 and undertook a follow-up study in 2009 based on interviews with three social media practitioners employed by multinational public relations consultancy firms in Singapore. Fitch reported one practitioner saying that "the internet is the Wild West, right, anything goes. There are no rules". Another said "we're really writing the rule book as it is. There are no rule books, no textbooks to learn from" (2009a, p. 5).

These findings and comments indicate a lack of research and a lack of understanding of Web 2.0 in public relations. In other fields there is extensive research, trialling, and adoption of Web 2.0 communication media, as well as active discussion of Web 3.0 as a further development in interactive communication. Therefore, it is fruitful to analyse research in fields such as political communication and the public sphere, and critically review what lessons can be learned by public relations from these studies and applications as well as from specific public relations studies.

## Methodology

This critical analysis is framed within two theoretical frameworks. First, public relations practices are examined in the context of the Second Media Age as described by Poster (1995) and in related definitions of Web 2.0 and interactivity outlined in the literature. Second, this analysis examines public relations

in the Web 2.0 and Web 3.0 environment within the context of dialogic theory of public relations (Kent & Taylor, 2002) and Excellence Theory which advocates two-way symmetrical communication as more effective and more ethical than one-way information transmission or asymmetrical communication (Grunig, Grunig & Dozier, 2002).

This analysis is informed by empirical data drawn from a two-year research programme exploring Web 2.0 and Web 3.0, and the social media and social network practices that they enable. This programme comprised three research projects undertaken in conjunction with literature review between November 2007 and November 2009: firstly, a study of use of social media in the 2007 Australian federal election; secondly, a study of international use of Web 2.0 use in the public sphere including the Obama Online Operation; and thirdly, a 2008-2009 study of online public consultation trials by the Australian Federal Government. These research projects have been reported elsewhere, so their methodologies and samples will not be discussed here. Instead, the primary focus of this analysis is how the findings of various interdisciplinary studies inform the creation and maintenance of relationships with constituent publics which many scholars identify a core function of public relations (e.g. Hon & Grunig, 1999; Ledingham & Bruning, 2001; Toth, 2000).

### Analysis – what interdisciplinary studies tell us about Web 2.0 - 3.0

Content analysis of social media used in the public sphere shows a mix of approaches, with some employing the philosophy, principles and practices of Web 2.0 as outlined, while others maintain a one-way, controlled approach to public communication.

Australia's 226 parliamentarians contesting the 2007 federal election had a total of 426 online sites plus another 83 online communications such as e-newsletters, podcasts, and e-petitions on these or third party sites. However, 226 of these were Australian Parliament House web pages that are automatically created for all parliamentarians, and 137 were personal websites which were predominantly Web 1.0 – that is, they featured controlled content and one-way information distribution. Also, the 42 e-newsletters were non-interactive one-way communication. The study found that, despite widespread claims of social media use in the election, only 26 Australian parliamentarians had a MySpace site; 24 used online surveys; 15 had blogs; 13 posted YouTube videos; eight used Facebook; seven created podcasts; one had a vlog (video blog); and 10 had other forms of interactive online communication such as online petitions. Also, political party sites including the highly-publicised *Kevin07* site and its related social network sites were primarily one-way distribution of pre-packaged information (Macnamara, 2008).

However, Web 2.0 social media were used interactively by political interest and activist groups such as Get Up (www.getup.org.au) which claimed more than 200,000 'members' during the election (more than some political parties); Senator On-Line (www.senatoronline.org.au) which stood political candidates in the election and claimed to be the first internet political party in the world; and You Decide (http://youdecide2007.org) which invited citizens to report on issues in their electorates. Independent blogs also contributed analysis and commentary. For instance, several specialist blogs more accurately predicted the election result than mainstream media which focused on sponsored opinion polls (Macnamara, 2008).

**Table 1:** Online communication by Australian federal parliamentarians during the 2007 Australian federal election (Macnamara, 2008).

| Site | No. |
|------|-----|
| **Australian Parliament House web page** | **226** |
| **Personal website** | **137** |
| **E-newsletter (on web or PDF)** | **42** |
| **MySpace** | **26** |
| **Online survey** | **24** |
| **Blog** | **15** |
| **YouTube video** | **13** |
| **Other (e.g. online petition)** | **10** |
| **Facebook** | **8** |
| **Podcast** | **7** |
| **Vlog** | **1** |
| **TOTAL** | **509** |

The 2008 Barack Obama presidential campaign in the US took social media use for political communication to a new level. As well as raising an unprecedented US$1 billion in online donations (Ben Self, personal communication, February 16, 2008), two million Americans joined Obama's social network MyBarackObama.com[3]; five million members of other social networks signed up as supporters; Obama maintained a presence in 15 online communities including Facebook, MySpace and YouTube; one billion emails were sent; 400,000 blog posts were written; and one million people signed up for Obama's text messaging programme (Vargas, 2008). Citizens also watched 18 million hours of video during the campaign, according to technology director of the Democratic National Committee at the time, Ben Self. Self sums up the changing mood and practices of public communication saying "people are expecting to interact with organisations in a different manner than in the past" (personal communication, February 16, 2008). The Obama campaign gained the highest US voter turn-out as a percentage of the population since 1968 (Election results, 2008), reversing declining interest in politics noted with alarm by many political and social scientists (e.g. Dahlgren, 2009; Gibson, Lusoli & Ward, 2008; Putnam, 2004).

During the same period and since, governments and scholars around the world have increasingly recognised interactive social media as important channels through which to engage citizens (Hernon, et al., 2006; United Nations, 2008). For instance, in the UK the Power of Information Review (Mayo & Steinberg, 2007), the UK *Digital Dialogues* report (Miller & Williamson, 2008), and the UK Power of Information Taskforce report (UK Cabinet Office, 2009) have identified and fostered increased online engagement of citizens using Web 2.0. Government initiatives such as 'Fix my Street' (www.fixmystreet.com) and private networks such as Netmums with 500,000 members have demonstrated the capabilities of Web 2.0 interactive media to engage citizens and build relationships (Macnamara, 2010a).

In late 2008, the Rudd Labor Government in Australia established a number of online sites as trials in online public consultation. These included a blog by the Department of Broadband, Communications and Digital Economy to discuss digital economy issues; an online human rights consultation forum by the Attorney-General's Department, and an early childhood education forum hosted by the Department of Education, Employment and Workplace Relations. Research into the

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establishment and conduct of these and other government Web 2.0 media found a number of structural barriers and limitations to effective communication including public service regulations and bureaucratic approval procedures which restricted response to citizens; narrow definitions of what is acceptable language and content; and a lack of resources to process citizens' comments and respond (Macnamara, 2009a, 2010b). This research is informative in drawing attention to the need for appropriate infrastructure – both personnel and systems – to receive and process public comment, as well as to distribute information. Interactive Web 2.0 media place a responsibility on organisations to *listen* and, in large-scale public communication; this can be a challenging task.

An online experimental research project at the Massachusetts Institute of Technology (MIT) initially called The Collaboratorium (Klein, 2007) and renamed The Deliberatorium in 2008 (Iandoli, Klein & Zolla, 2009) has provided useful insights into approaches and tools required to gain and maintain citizen interaction online. In reporting on an online climate change forum conducted as part of the Collaboratorium, Klein, Malone, Sterman and Quadir (2006) identified a number of requirements for effective online engagement. These include careful design of the rules of interaction; 'seeding' of discussions with "an initial corpus of policy options and pointers" (p. 3) to stimulate discussion; a "committed community of contributors and expert judges" (p. 3); voting systems which provide citizens with simple quick ways of contributing; and tools for collating and assessing well-structured arguments.

The MIT research has identified three types of argumentation tools based on de Moor's and Aakhus' (2006) argumentation support model – sharing, funnelling and argumentation tools. Klein (2007) says that system design should include aids such as articles for users to read to become familiar with issues and for and against views before participating; 'argument maps' to locate ideas and arguments on a given topic grouped or linked together; and simple tools for users to search, add comments, rate, and vote

on articles and ideas, as well as post new articles. Klein (2007) also says editors or moderators are essential in the process to provide immediate feedback to users such as simple 'thank you' acknowledgements of contributions.

As well as leading to major changes in communication within the public sphere, there is also evidence that interactive social media are revolutionising other public communication fields such as journalism and advertising. Deuze (2007) says bluntly in his 2007 text *Media Work* that "journalism as it is, is coming to an end" (p. 141) with the rise of not only mobile multimedia journalists referred to as the 'MOJO' evolution (Quinn, 2008) and 'backpack journalists' (Stone, 2002), but also 'citizen journalists' writing in blogs, vlogs, Twitter and on social networks. PriceWaterhouseCoopers (as cited in Deuze, 2007,) has forecast that advertising will undergo a transformation to interactive social media using 'viral' techniques, advertising in interactive games, and even fully-consumer produced ads (p. 127). As well as growth of social network and social media marketing, future directions enabled by what is being termed Web 3.0 will include 'recommendation engines' that allow information to find people rather than people having to find information (MacManus, 2007; Nightingale, 2007).

Web 3.0, also called the Semantic Web, will not look much different, but will introduce several substantial innovations under the surface that, as is the case with many media advances, are likely to result in beneficial functions as well as dysfunctions. In terms of technology, Web 3.0 involves the tagging of content on the web with computer code that will make finding documents much faster and more precise than current techniques that rely on embedded links and searching for key words that appear in documents (see Iskold & MacManus, 2006). In the future, even if links are not clicked and key words used in searches do not appear in documents, information will be delivered to users based on conceptual matching and profiling.

A second feature of Web 3.0 that will contribute to this and further changes in public

communication is that vastly increased amounts of information about users will be captured and shared. Personal data entered by users in forms, online registrations, and in purchasing will be combined with *clickstreams* data to provide website operators with an ever more specific profile of users' interests and preferences, which can be used to target them with information such as advertising and political propaganda. In a paper based on its 'Marketing & Media Ecosystem 2010' study, Booz Allen Hamilton recommends to marketers that they "ruthlessly build consumer insights" by capturing user data on the internet (Rasmussen, Ude & Landry, 2007, p. 12), and KPMG consultant Lars Mouritzen (2007) predicts that it is only a matter of time before major organisations cooperate to share web users' profile information.

A number of scholars express deep concern at potential abuses of privacy in advanced Web 2.0 applications and its evolution into Web 3.0, including Battelle (2005), Chester (2006), Clarke (2009), and Hirst and Harrison (2007). Clarke warns of *dataveillance* as a major public issue in the roll-out of Web 3.0.

## Conclusions – implications for public relations

Drawing on the findings of interdisciplinary research, a number of implications of Web 2.0 and Web 3.0 can be identified for public relations practice.

### *True two-way communication*

Web 2.0 and 3.0 which facilitate and emphasise two-way interactive communication provide opportunities for public relations to realise the two-way symmetrical model of communication that Excellence Theory holds to be more ethical and more effective than one-way information distribution and asymmetric models (Grunig & Grunig, 1992; Grunig, Grunig & Dozier, 2002). However, the following point speaks to the challenge involved in this change.

### *Breakdown of the control paradigm*

Beyond using the enabling tools of the 'social web', PR practitioners need to adopt and convince their management to adopt the philosophy, values, principles and culture of Web 2.0 and its future iterations. This requires abandoning the control paradigm that characterises much corporate and marketing communication practice (Macnamara, 2009b). Web 2.0 media "shift PR from command driven, top-down communication to a symmetrical conversation", according to UK public relations scholar Philip Young (2006, para. 31), but there remains little evidence of this in practice. Critical analysis suggests that relinquishing control is a much greater challenge for practitioners and the management groups in which they operate than adapting to new technologies.

### *New skills to engage in online conversations*

Basic skills of 20th century public relations practice such as writing media releases, statements, speeches, and organising interviews and news conferences, are not relevant to the growing array of social media. PR practitioners need to develop new skills such as how to enter conversations online to represent their organisations, correct inaccurate information, and defend against criticisms. This requires new ways of talking and new ways of listening. They need to learn to write all over again in a new style that is very different from news releases, brochures, annual reports, speeches and journalism. They also need to re-learn media relations, as traditional media databases no longer provide the contacts needed, and bloggers and other social media authors usually do not accept news releases and rarely attend interviews or news conferences.

### *New forms of media monitoring and analysis*

In mid-2009 Facebook had a reported 350 million members (Facebook Factsheet, 2009), demonstrating a faster adoption rate than any other communication technology or medium in history. Technorati (2009) indexes and tracks 133 million blogs, not including most of the 182 million blogs in China estimated by the China Internet Network Information Center (2009, p. 30). Six billion videos a month were being viewed on YouTube by early 2009, with a total of more than 14 billion online videos

viewed monthly across all video sharing websites (comScore, 2009). These statistics illustrate the need for public relations practitioners to extend media monitoring and media content analysis beyond traditional press clippings and broadcast content.

*Issues of privacy and reputation*

Also, public relations practitioners should be at the forefront of identifying and establishing guidelines for practices in relation to Web 3.0. 'Ruthlessly' harvesting citizens' profile data for use in marketing is likely to lead to major concerns over privacy and trigger public protests, legal challenges, regulation, and reputation damage for those involved. As well as being users of social media, public relations practitioners have an opportunity to carry out the strategic advice role that management-orientated PR literature advocates and represent the public interest that Excellence Theory espouses.

This analysis suggests that further research into public relations implications of Web 2.0 and Web 3.0 is essential and that public relations, like many other areas of media and public communication practice, needs to undergo significant evolution if not revolution to be relevant in 21st century societies.

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[1] Printing was first developed in China around the 8th century according to several scholars, and block printing, the forerunner to modern forms of printing, was developed in China around 1040, according to Needham (1986, p. 201).

[2] In Western societies, invention of the printing press is most widely attributed to Johannes Gensfleisch zur Laden, known as Johannes Gutenberg (c. 1398-1468), a goldsmith working in Mainz, Strasbourg circa 1436-1440, although others experimented with movable wooden character types in the 1430s including Laurens Janszoon Coster in the Netherlands (Deibert, 1997, p. 64). Dates of Gutenberg's invention vary from 1436 when he is believed to have developed a design (Wrench, McCroskey & Richmond, 2008, p. 306), 1440 when a working model was completed, to the early 1450s when the first printing was publicly distributed in Europe (e.g. the first printed bibles in 1452-53). Records of lawsuits involving Gutenberg in 1439 (Deibert, 1997, p. 64) substantiate his involvement as well as contentiousness concerning the invention. Notwithstanding, printing in various forms was developed in China from around 200 AD and existed in various parts of Asia including China, Korea and Japan by the end of the first millennium ("Printing", 2009). Block printing was first developed in China around 600 AD (Man, 2000) using wood blocks, and moveable type printing was developed in China around 1040 (Needham, 1986, p. 201; "Printing", 2009) – 400 years before Gutenberg's 'invention' of the printing press.

[3] MyBarackObama.com was replaced by Organising for America following Barack Obama's election to the US Presidency, however the Web link www.mybarackobama.com still works.