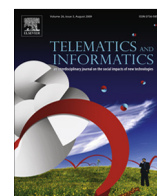




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Does research on digital public relations indicate a paradigm shift? An analysis and critique of recent trends

Yi-Hui Christine Huang^a, Fang Wu^b, Qing Huang^{c,*}

^a School of Journalism and Communication, The Chinese University of Hong Kong, Shatin, N. T., Hong Kong

^b School of Media and Design, Shanghai Jiao Tong University, 800 Dongchuan Rd, Shanghai, China

^c College of Media and International Culture, Zhejiang University, 148 Tianmushan Rd, Hangzhou, Zhejiang, China

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ABSTRACT

This study analyzes 141 articles published between 2008 and 2014 in order to determine whether public relations (PR) research has undergone a paradigm shift resulted from the rise of social media. Compared with digital PR research before 2008, we find that 1) social media have become a major research topic while remaining a secondary concern of many PR practitioners; 2) digital PR studies are gradually shifting from description to theorization; 3) the examined studies witnessed a general trend of methodological diversification but this trend needs to continue in order for scholars to better describe, predict, and explain how digital PR should be organized and practiced; and 4) digital PR research frameworks are dominated by the organizational perspective, whereas increasing attention has been paid to organizations in the nonprofit sector. Compared to digital PR research before 2008, our findings suggest that the development of digital technology in recent years has brought about changes in PR research such that the research paradigm is presently shifting and acts as a competing paradigm but has not yet shifted completely.

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1. Introduction

The development of public relations (PR) practice has been closely associated with technological advancement. After rapid changes in Internet technology, the emergence of YouTube and Facebook between 2004 and 2006, Twitter in 2007 (Boyd, 2009), and the microblog platform in Mainland China in 2009 (Bobbitt and Sullivan, 2012) has drawn attention from PR practitioners and scholars. Academic and trade associations have recently held large conferences focused on the implications of social media for PR (e.g., the PRSA's Annual International Conferences and the International public relations research conferences in the recent years).

Recent evidence indicates that an increasing number of PR practitioners have adopted Internet applications (such as websites, social network services, etc.) as tools with which to communicate to stakeholders (Guillory and Sundar, 2014; Taylor and Kent, 2010). For example, in a survey of 283 PR practitioners, the average respondent reported using 5.98 different types of social media, such as blogs, social networks, etc. (Eyrich et al., 2008). Results of empirical studies also indicate that Internet applications, such as websites and social media, not only provide an additional way for PR practitioners to deliver information to stakeholders (e.g. Kent et al., 2003), but also facilitate direct interaction and the maintenance of favorable relationships with public constituencies (e.g., Guillory and Sundar, 2014; L'Etang et al., 2012; Rybalko and Seltzer, 2010).

* Corresponding author.

E-mail addresses: yhuang@cuhk.edu.hk (Y.-H.C. Huang), yvonne.fat@gmail.com (F. Wu), q.huang0224@gmail.com (Q. Huang).

The emergence of new forms of digital media has also encouraged scholars to revisit the theorization of new media and its impact on the following aspects of PR practice: the specific features of media, the power relations that exist among stakeholders, and the forms of organizational-public interactions (Guillory and Sundar, 2014; Kent et al., 2003; L'Etang et al., 2012; Rybalko and Seltzer, 2010). Moreover, from a broad perspective of communication professionals' practice, the use of digital media, especially social media, has been demonstrated to influence professionals' leadership (Jiang et al., 2016) as well as organizational performance (Parveen et al., 2015).

Several key communicative characteristics of new media have been identified in this emergent field: synchronization, asynchrony, interactivity, individualization, demassification, globalization, dialogicity, and equality (e.g., Hiebert, 2005; Huang, 2012; McAllister-Spooner, 2009; Smith, 2010; Taylor and Perry, 2005). Due to these distinct communicative characteristics and the recent proliferation of the digital platforms that convey them, it is necessary to ask: Is the impact Internet applications substantial enough to make digital PR research a subfield of PR research as it has been traditionally conducted? Do we ask the same questions of digital PR that we ask of traditional PR? Or, more fundamentally, have Internet applications shifted the paradigm of PR research?

To address the above questions, this study depicts the landscape of digital PR research by analyzing relevant articles published from 2008 to 2014, including types of Internet applications, theories, methodologies, and research perspectives. Moreover, drawing upon the definition of paradigm and paradigm shift (Kuhn, 1969), we compare our results with those of previous studies that provide overviews of PR research in general (i.e., Sallot et al., 2003) and Internet PR research in particular (i.e., Khang et al., 2012; Ye and Ki, 2012), to explore whether digital PR has brought about a paradigm shift in PR research.

Public relations is essentially about the “management of communication between an organization and its publics” (Grunig, 1992, p. 4). Particularly, the type of organization varies from profitable corporations and political organizations to social agencies, indicating PR's interdisciplinary approach to studying organizational performance and effectiveness. Accordingly, an exploration into whether digital technologies have brought about a paradigm shift in PR research is expected to shed light upon how digital media have changed and shaped organizational practice across various social sectors. The findings of this study therefore profoundly contribute to academic understandings of the development of e-commerce and e-governance.

2. Literature review

2.1. Paradigms of PR research in the non-digital age

Kuhn (1969) defined the term “paradigm” to refer to a model or pattern of thinking about a problem within a scientific community. While “paradigm shift” remains the key concept we are analyzing within the field of PR research, we also want to acknowledge the Kuhnian concept of incommensurability (Kuhn et al., 2000) and “irreconcilable differences” between paradigms. In essence, “irreconcilable differences” inevitably bring about paradigm shifts. Such differences may not be “translatable,” but with sufficient effort they can be learned and explained, thus making comparisons possible (Kuhn et al., 2000; Wang, 2014).

Kuhn's definition originally applied to the scientific disciplines but was later adopted by the social sciences and humanities (e.g., Gottdiener and Feagin, 1988; Van Cuilenburg and McQuail, 2003). Specifically, a paradigm consists of 1) a set of concepts linked together by a rationale; 2) a set of favored research questions taken to be the most significant; 3) a set of substantive explanations (sometimes called theories); and 4) a set of tacit assumptions deployed when evidence is absent or when interpretations are ambiguous (Gottdiener and Feagin, 1988).

Several studies have discussed paradigms in terms of public relations research (e.g., Botan and Taylor, 2004; Hallahan, 1993; Huang, 1999; Hutton, 1999; Pavlik, 1987; Toth and Heath, 1992; Vasquez and Taylor, 2000).

One line of research focused on the constitutive elements of a paradigm. For example, Toth and Heath (1992) categorized PR research into three major theoretical perspectives: rhetorical, critical, and systematic. Later, based on PR practice, Hallahan (1993) proposed seven basic assumptions regarding the role of the PR profession from the mid-1980s to the early 1990s, including discussions of public relations as a process, a program, a mode of communication, a method for organizational management, a means of behavioral change, a response to social problems, and environmental scanning. Similarly, according to the research subject and/or research questions, Vasquez and Taylor (2000) identified seven subfields of PR research, including two-way symmetrical communication, public relations roles, issue management, negotiation, public studies, international PR, and interactions between technology and PR.

By contrast, another line of inquiry argued that PR research was dominated by a certain paradigm. For instance, Pavlik (1987) contended that system theory was the major paradigm that dominated applied PR research from 1975 to 1985. Pavlik's definition of the paradigm posits environmental scanning activities serving as inputs, while communication activities serve as outputs (p. 128). Later, Hutton (1999) proposed that relationship management was a possible paradigm for PR research. Particularly, “managing strategic relationship” was considered the core of this paradigm: “managing” implies planning, control, feedback, and performance measurement; “strategic” implies planning, prioritization, action orientation, and a focus on relationships most relevant to client-organization goals; “relationship” implies effective communication, mutual adaptation, mutual dependency, shared values, trust, and commitment (Hutton, 1999, pp. 208–209). Botan and Taylor

(2004) explored the state of PR research and concluded that Grunig's symmetrical perspective served as the dominant theoretical paradigm from roughly the late 1980s to the early 2000s. They further specified that the most prominent trend in PR research over the 20 years previous to their study was the field's transition from a functional perspective to a co-creational one. A functional perspective, prevalent during the early years of PR research, views PR as a means for achieving organizational goals, while a co-creational perspective views public constituencies as co-creators of meaning and communication (Botan and Taylor, 2004). Examples of co-creational research include the shift in focus to organizational-public relationships, community theory, co-orientation theory, accommodation theory, and dialogic theory; but the most thoroughly researched co-creational theory is symmetrical/excellence theory (Botan and Taylor, 2004, p. 652).

All of these studies focused on the paradigm or its constitutive elements in the non-digital age. The extent to which the rise and increasing popularity of digital technologies changes the established paradigm of PR research requires examination. Paradigm shifts can be seen as processes in which incremental discoveries of new facts gradually challenge the established theories within a discipline and finally outdate the old paradigm with a new one (Kuhn, 1969). Accordingly, it seems reasonable to speculate that the emergence and popularization of various Internet applications have been gradually revising and challenging established PR theories. In the following section, we will first define digital PR and depict the developmental stages of digital PR research. Our research questions and hypotheses regarding any possible paradigm shift will be posed during the course of our discussion.

2.2. Defining digital PR

Although digital PR has been the subject of much recent research, the concepts of "the Internet," "new media," and "social media" have also been criticized for their lack of rigorous definition (Khang et al., 2012; Zhang and Leung, 2015). Generally, three terms have been used to describe PR research that investigates digital practices: 1) website/web-based PR (Kim et al., 2010; Sommerfeldt et al., 2012); 2) online PR (Kitchen and Panopoulos, 2010; Seo et al., 2009; Ye and Ki, 2012); and 3) Internet-related/focused PR (Khang et al., 2012; Ye and Ki, 2012). Several problems exist with these designations. "Website/web-based public relations" does not extend beyond websites, which are now only one digital platform among many. While "online" is an acceptable designation of computer-mediated communication, with the qualities of virtuality and connectivity that such communication suggests (Lievrouw and Livingstone, 2002), "online public relations" fails to capture anything specific about why PR practitioners have taken an interest in the Internet. Moreover, "Internet-related/focused public relations" places too much emphasis on the Internet *per se*, risking technological determinism and shortsightedness with respect to any future developments in digital technology that could make the Internet obsolete.

This study prefers "digital PR," echoing Phillips's (2001) recognition that Internet applications have become a new channel for PR and, more importantly, that it has added a digital virtual dimension to public and organizational practice. Specifically, digital PR is defined as the management of the communication between an organization and its public through Internet applications. Under this definition, Internet applications include websites, games, and instant messaging services that process data and display information that is mediated by the Internet through text, sound, graphics, images, video, or binary (executable) files (December, 1996).

Generally, Internet applications can be divided into two categories: web 1.0-based applications and web 2.0-based applications. Web 1.0-based applications are characterized by a small number of content creators and a large number of passive content consumers (Cormode and Krishnamurthy, 2008). Internet applications falling into this category include websites and e-mail. By contrast, characterized by interaction media, web 2.0-based applications provide a platform with which software developers and users can create content in a participatory and collaborative fashion (Cormode and Krishnamurthy, 2008; Kaplan and Haenlein, 2010) and facilitate users' creation of content free from professional constraints (Kaplan and Haenlein, 2010). Typical web 2.0-based applications include blogs, Twitter, Facebook, Wikis, YouTube, mobile Apps, etc. In everyday life, web 1.0-based Internet applications tend to be thought of as traditional Internet applications, while web 2.0-based Internet applications are more closely associated with social media. These studies all tracked the increasing prevalence of Internet applications in PR research and practice (for reviews of PR research in general see Huang, 1999; Pasadeos and Renfro, 1992; Pasadeos et al., 2010, 1999; Sallot et al., 2003, among others; and on digital PR research in particular see Duhé, 2015; Khang et al., 2012; Ye and Ki, 2012).

2.3. Three developmental stages of digital PR research

Several attempts have been made to map the impact of the Internet on PR research. Huang (2012) subjected 33 articles to qualitative analysis. The articles were extracted from two Social Science Index (SSCI) and two Taiwanese Social Science Index (TSSCI) journals (*Mass Communication Research* and *The Journal of Advertising & Public Relations*) in order to summarize the characteristics of digital PR practice between 1998 and 2007. Ye and Ki (2012) conducted a quantitative content analysis of 115 PR research articles, published in peer-reviewed journals from 1992 to 2009, which focused on the Internet's effects on PR practice. They identified the trends, patterns, and level of academic rigor of digital PR research during that period. Additionally, Duhé (2015) conducted a comprehensive overview of 321 articles published from 1981 to 2014.

Drawing upon Wimmer and Dominick's (2006) description of the four phases of research on mass media development, this study delineates three developmental stages of digital PR research:

Budding stage (1992–2003). Digital PR research began in 1992 (Ye and Ki, 2012). In this budding stage, the majority of digital PR research described the Internet in a general way (Ye and Ki, 2012). Websites and e-mail were the two most frequently studied forms of media that bridge organizations and public constituencies online (e.g. Esrock and Leichty, 1999, 2000). Research at this stage was relatively weak in academic rigor with a lack of theoretical frameworks, research questions and hypotheses, rigorous research methods, and empirical statistics (Khang et al., 2012; Ye and Ki, 2012).

Diversification stage (2004–2007). In this stage, the Internet was studied as a medium of communication. Various types of social media emerged and became prevalent during this stage (e.g. blogs in 2004, Facebook and YouTube in 2004–2006, and Twitter in 2007). Due to this enriched new media landscape, researchers began taking specific media or platforms, such as organizational websites and social network services (SNS), as research subjects. Scholars attempted to describe the patterns and effects of social media use in PR practice (Khang et al., 2012; Ye and Ki, 2012). Such studies often used analyses of organizations' official websites as their most predominant research subject since 2004 (Ye and Ki, 2012). Due to the exploratory nature of this research, many research questions were generated during this stage (Huang, 2012; Ye and Ki, 2012). Digital PR research increased in academic rigor at this stage, but it still lacked strong theoretical frameworks. Finally, quantitative methods dominated studies at this intermediate stage (Ye and Ki, 2012).

Advancement stage (2008 to present). This stage examined the development of the Internet, especially social media, in PR research. Beginning in 2008, social media spread rapidly to a global market (LePage, 2013), and in the same year social media first became a useful tool in the U.S. presidential campaign (Smith, 2009). At the end of 2009, the number of registered Facebook users reached 350 million, a number that increased by 250% within a year (The Associated Press, 2013). At the same time, the microblog format (*weibo*) emerged and began to gain popularity in China, while the Chinese government officially blocked Facebook, Twitter, and YouTube (Bobbitt and Sullivan, 2012). There were over 500 million registered users of Sina-weibo (the most popular microblog in China) by the first quarter of 2013 (Xinhuanet, 2013). During this time period, corporations and other social sectors also started to embrace social media. Many organizations created official accounts in various social media platforms such as Facebook, Twitter, and YouTube, because their consumers and competitors were using the applications (Seo and Lee, 2016).

According to the development of digital PR research, the advancement stage (from 2008 to present) shows much potential given the increasing importance and popularity of social media in PR research and practice. Besides, previous research depicting the role of Internet applications in the PR field basically focused on studies published before 2008 or around (Huang, 2012; Ye and Ki, 2012), which further justifies 2008 as a point of departure for depicting the landscape of digital PR research. Moreover, a comprehensive review of 321 Internet-related studies from six public relations journals suggested that theoretical contributions to research on new media and PR had remained not that radical by the end of 2014 (Duhé, 2015), indicating 2014 as an appropriate end point. Accordingly, this study focuses on studies published between 2008 and 2014 to provide an overview of digital PR research.

2.4. Paradigm shift in the digital age?

The present state of the field encapsulates overviews of the development of Internet applications in PR practice (Ye and Ki, 2012), predictions of future applications and technological improvements as they pertain to PR practice (Khang et al., 2012), the establishment of theory tailored for digital PR practice (Huang, 2012; Ye and Ki, 2012; Khang et al., 2012), as well as comprehensive observations of the trend of new media research in the PR field (Duhé, 2015). However, these studies merely provide an overview of the research landscape and fail to address epistemological features involving paradigms, such as analyzing sets of favored research subjects/questions, key concepts and theories, and tacit assumptions (Gotttdiener and Feagin, 1988). In order to fill in the gap, this study tries to investigate whether Internet applications have brought about a paradigm shift to PR research.

Firstly, considering that research subject has always been a fundamental element of a paradigm (Gotttdiener and Feagin, 1988), as well as that previous studies have consistently paid much attention to categorizing the emerging Internet applications in PR research (e.g., Duhé, 2015; Khang et al., 2012; Ye and Ki, 2012), we try to explore the typology of Internet applications appeared in digital PR research in recent years:

RQ1: What are the types of Internet applications being analyzed in digital PR research from 2008 to 2014?

Taking into account the emergence and rapid development of various social media since 2007 or 2008 (Bobbitt and Sullivan, 2012; Boyd, 2009), we expect that digital PR research would pay more attention to Web 2.0-based Internet applications than to Web 1.0-based applications, because of the practical status quo that organizations increasingly tend to use social media with two-way communication capabilities to communicate with the public (Go and You, 2016). Therefore, we make the following argument:

H1: Internet applications in digital PR research from 2008 to 2014 will focus more on social media than on traditional Internet applications compared to previous digital PR research.

Secondly, the three developmental stages suggest that digital PR research has grown more systematic and theoretically rigorous over time. Except for Duhé's (2015) general overview, however, previous studies that have sought to map the

landscape of digital PR research did not include studies published in recent seven years (e.g., Huang, 2012; Ye and Ki, 2012; Khang et al., 2012). Given that theoretical frameworks and methodologies lay the epistemological foundation of a paradigm (Gottdiener and Feagin, 1988), our study attempts to explore the epistemological features that determine any present paradigm by proposing the following research questions:

RQ2: What are the theoretical and methodological rigors presented in digital PR research from 2008 to 2014 in terms of theoretical frameworks, key concepts, and research methods?

Moreover, considering that the nature of the Internet is to promote interactivity (Huang, 2012; McAllister-Spooner, 2009), we believe that a transition of theoretical focus towards dialogue should be occurring. Likewise, given the diversity of Internet applications, multiple methods will be applied to digital PR research. Thus, we posit that:

H2.1: Theoretical frameworks focusing on interactivity and symmetry between organizations and publics will be more frequently adopted by digital PR research from 2008 to 2014 compared to studies that pre-date that span of time.

H2.2: Research methods applied to digital PR research from 2008 to 2014 will be more diverse compared to previous studies.

Last but not least, due to that Internet applications, especially social media, have immense technologically empowered publics compared to the non-digital or Web 1.0 age (Seo et al., 2009), research perspectives underlying digital PR scholarship are expected to be more public-oriented. Besides, Internet applications provide more opportunities for improving PR in the non-profit sector, extending the traditional corporate PR mode in which corporations serve as the major clients of public relations practitioners (Waters, 2015, p. xx). Research perspectives, a manifestation of tacit assumptions of a paradigm (see Gottdiener and Feagin, 1988), have not been explored in previous surveys of digital PR research. Accordingly, the current study tries to address this oversight in the following respects:

RQ3: What is the research perspective that dominates digital PR research from 2008 to 2014, organization-oriented or public-oriented?

H3.1: Publics will receive more attention than organizations in digital PR research from 2008 to 2014.

H3.2: Organizations in the non-profit sector, including government agencies, NPOs, NGOs, and educational institutions will receive more attention than profitable organizations in digital PR research from 2008 to 2014.

3. Method

In this study, we conducted a meta-review to address the overall inquiry into whether the Internet has shifted the paradigm of PR research. A meta-review is to analyze the content of literature reviews on a certain topic from a certain perspective. We first conducted a quantitative content analysis of relevant articles published in the two major public relations journals between 2008 and 2014. We conducted content analysis for the purpose of depicting a sensible landscape of current digital PR research in terms of the most investigated Internet applications, the most frequently cited theories and methodologies, as well as the most common research perspectives. Moreover, we compared the findings of our content analysis with those of previous articles on PR research (e.g., Sallot et al., 2003) and Internet-related PR research in particular (e.g., Khang et al., 2012; Ye and Ki, 2012), so as to provide a picture of the temporal development of digital PR research.

3.1. Article collection

This study reviews 141 articles published from 2008 to 2014 in two major SSCI listed PR research journals: *Journal of Public Relations Research* and *Public Relations Review* (Pasadeos et al., 1999). SSCI was used for journal selection because SSCI journals are generally considered to have long-established publication histories that are widely accessible to scholars affiliated with academic institutions; further, SSCI journals represent a higher caliber of research than journals not indexed by SSCI (Zhang and Leung, 2015). *Journal of Public Relations Research* and *Public Relations Review* are the two and only SSCI listed journals that concentrate on public relations research. *Journal of Public relations Research* mainly publishes studies that establish, examine, or expand public relations theories. Most of the articles published by *Public Relations Review* are empirical analyses undertaken by academic researchers as well as professionals in the field. By analyzing the relevant studies in these two journals, this study generates understandings of the theoretical and practical implications of new media technologies on the field of public relations.

Only journal articles were included in this study. Book reviews, prefaces, editorials, and bibliographies were not analyzed. Titles of articles were queried in the two journals with the key words “public relations & Internet,” “public relations & social media,” “public relations & new media,” and “Internet public relations.” Second, articles unrelated to digital PR were excluded from this study. 114 (80.9%) articles were drawn from *Public Relations Review*, and 27 (19.1%) were from *Journal of Public Relations Research*.

3.2. Measures

Four broad coding categories were used in this study. The first category is *basic information*, including the name of the journal, publication year, number of authors, names of authors, institutions of authors, and locality of authors. The second category codes the study's *perspective* (organizational or public); the *type of organizations* studied (profit-making organizations, governmental agencies, educational institutions, NPO/NGO, or others); *type of public constituency* studied (Internet users, customers and consumers, media practitioners, activists, government officials, employees, stockholders, or others); *type of situation* (crisis situation or non-crisis situation) involved in the study; and the country/region where the examined material originated. The third category codes the *research subjects* that were studied (traditional Internet applications or social media), including websites, intranet, Facebook, Twitter, etc.; and the *communicative characteristics* discussed in each article. The measures of communicative characteristics used in the coding scheme were slightly altered from the ten communicative characteristics of new media summarized by Huang (2012). In addition to synchronization, asynchrony, interactivity, individualization, demassification, globalization, dialogicity, and equality, we added two-way communication as a communicative characteristic in that part of the coding scheme for this study. In addition to quantitative analysis, this study also conducted qualitative analysis of the main findings of each article, in addition to thematic analysis of the effects each article found to result from applications of Internet technology to PR practice.

3.3. Inter-coder reliability

Two experienced graduate students served as coders for all 141 articles. To test inter-coder reliability, 13 articles were randomly selected, representing 10% of the total. Using Hosti's method (1969), inter-coder reliability was 1.0 for basic information (name of the journal, publication year, number of authors, names of the authors, institutional affiliations of authors, and locality of authors) and countries/regions; 0.90 for research perspective and type of organization, public constituency, and situation; and 0.97 for the research subjects, specific Internet applications, and communicative characteristics covered by each article. Overall inter-coder agreement was 0.96.

4. Results

Fig. 1 indicates a marked increase in digital PR research ($n = 141$) in two major journals. Articles published in *Public Relations Review* ($n = 114$, 80.9%) outnumbered those in *Journal of Public Relations Research* ($n = 27$, 19.1%). Research quantity peaked in 2013 ($n = 31$, 22.0%), followed by 2012 ($n = 29$, 20.6%) and 2010 ($n = 21$, 14.9%). In contrast to a total of 35 articles on the same topics published in these two journals between 1997 and 2008 (Huang, 2012), the years from 2008 to 2014 witnessed a boom in digital PR research. Despite a drop-off of quantity in 2014, we observed that the topics of studies published in the two journals in 2014 were of great diversity, including discussions on crisis communication, public relations leadership, brand communication, etc. It may imply that the intensive academic focus on the impact of new media technology on public relations since 2010 has gradually shifted back to other sub-topics of this field.

4.1. Internet applications studied by digital PR research

In terms of the type of Internet applications, results show that 51.1% ($n = 72$) of the articles mentioned social media, 25.5% ($n = 36$) mentioned traditional Internet applications, 23.4% ($n = 33$) involved both traditional Internet applications and social media, and the remaining articles did not specify Internet-application type. Researchers most frequently examined organizations' official websites and Twitter ($n = 61$, 43.3% for each). 41.8% ($n = 59$) focused on blogs ($n = 59$), and 36.2% ($n = 51$) focused on Facebook (see Table 1).

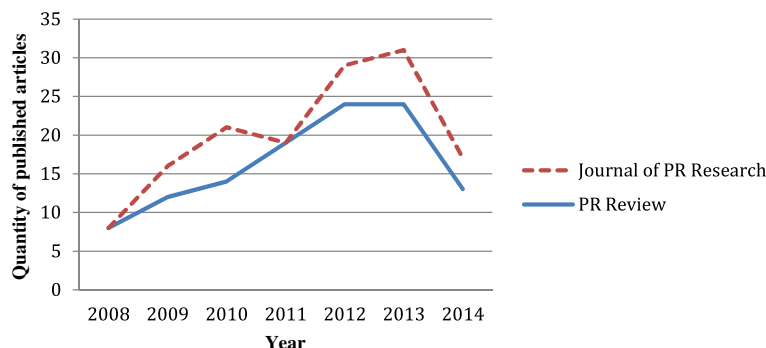


Fig. 1. Quantity of digital PR research on a yearly basis.

Table 1
Frequency of specific Internet applications.

Traditional Internet applications		Social media	
E-mail	16 (11.3%)	BBS	11 (7.8%)
Official websites	61 (43.3%)	Blog	59 (41.8%)
Portal websites	3 (2.1%)	Twitter	61 (43.3%)
Intranet	6 (4.3%)	Facebook	51 (36.2%)
Others	2 (1.4%)	Wiki	15 (10.6%)
		YouTube	26 (18.4%)
		Others	36 (25.5%)

Table 2
Comparing the Internet applications studied by more than 10% of the corpus in two different time periods.

	Digital PR research from 1992 to 2009 (Ye and Ki, 2012)	Social media PR research from 1997 to 2010 (Khang et al., 2012)	Digital PR research from 2008 to 2014
Internet applications	WWW (n = 69, 60.0%) Blog (n = 14, 12.2%) Internet in general (n = 13, 11.3%)	Blog (n = 17, 50.0%) Social media in general (n = 9, 26.5%) Social network sites (n = 6, 17.6%) Forum/BBS (n = 4, 11.8%)	Official websites (n = 61, 43.3%) Twitter (n = 61, 43.3%) Blog (n = 59, 41.8%) Facebook (n = 51, 36.2%) YouTube (n = 26, 18.4%) E-mail (n = 16, 11.3%)

Although the analysis of organizations' official websites remains an important component of digital PR research, studies of blogs and Facebook have increased since 2009 (see Table 2 for comparison with Ye & Ki's findings on studies up to 2009). Moreover, social media and social networking sites like Twitter, Facebook, and blogs have been receiving increasing attention in digital PR research since 2008. Accordingly, the hypothesis that the digital PR research from 2008 to 2014 focused more on social media than on traditional Internet applications like websites (H1) was partially supported.

4.2. Theoretical framework and methodological rigor

4.2.1. Theoretical framework

More than half of the selected articles built theoretical frameworks upon one or more well-established theories (n = 77, 53.2%). While less than half (n = 3, 37.5%) of all digital PR studies in 2008 adopted theoretical frameworks (Kelleher, 2008; Woo et al., 2008; Zoch et al., 2008), the 2010s saw a substantial increase in this respect (see Fig. 2). In 2011, 63.2% of our sample for those years used theoretical analysis. In 2012, that figure was 62.1%. Compared to Ye and Ki's (2012) finding that between 1990 and 2009 there was a lack of theoretical analysis in digital PR research, the present study indicates that over the past half-decade there has been a shift from description to theorization.

Of the theoretical frameworks used in articles from 2008 to 2014, the most frequently applied is dialogic theory (n = 17, 12.1%), which is followed by excellence theory (n = 12, 8.5%). Excellence theory provided the dominant theoretical ground (Sallot et al., 2003); however, dialogic theory, which was established by Kent and Taylor (2002) for conceptualizing digital PR, surpassed excellence theory and became a competing theoretical framework in 2012 and 2013 (see Fig. 2).

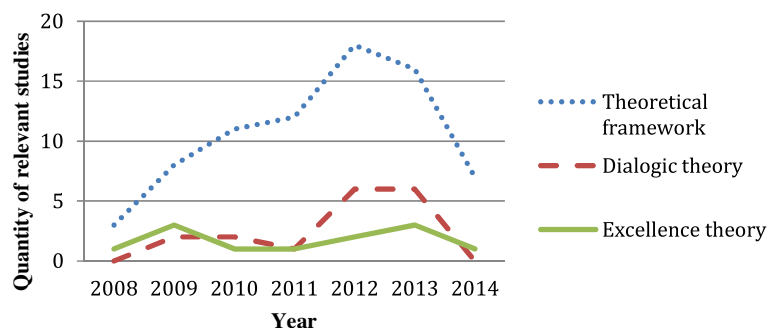


Fig. 2. Theoretical frameworks in digital PR research.

Kent and Taylor proposed five principles that define the dialogic relationship between public constituencies and organizations in the Internet age: creation of a dialogic loop, the usefulness of information, the generation of return visits, easing the interface, and the conservation of visitors (Kent and Taylor, 1998, pp. 326–330). Given that both dialogic and excellence theories are rooted in a co-creational perspective, this might suggest a shift from classic PR theories to theories better suited to explanations of digital PR. In 2014 excellence theory was only adopted by one article, whereas none of the selected articles used dialogic theory as a theoretical framework. Six other theories related to excellence theory or dialogic theory, such as situational theory and stakeholder theory, were used in studies published in 2014. The findings of this study echo Ye and Ki (2012) that theory development in digital PR research emphasizes the co-creational perspective between organizations and their publics.

4.2.2. Key concepts

This study identifies a set of concepts to characterize the communicative patterns of digital PR. This repertoire has been further defined and enhanced by studies focused on social media. The most frequently used concepts characterizing digital PR were interactivity ($n = 72$, 51.1%) and two-way communication ($n = 50$, 35.5%), followed by dialogicity ($n = 41$, 29.1%). Previous studies suggested that social media are characterized by interactivity, dialogicity, and two-way communication to a larger extent than Web 1.0-based Internet applications (Cormode and Krishnamurthy, 2008). A set of chi-square tests showed that two-way communication (chi-square = 11.23, $df = 2$, $p < 0.01$) and dialogicity (chi-square = 6.70, $df = 2$, $p < 0.05$) were significantly associated with social media, while interactivity was not significantly associated with specific types of Internet applications (chi-square = 1.64, $df = 2$, $p > 0.05$).

Given the imperative role of excellence theory in public relations research, dialogic theory has become the most dominant theoretical framework in digital PR research. With the increased attention to social media, a set of concepts have been developed to characterize the communicative patterns of digital PR. Therefore, theoretical frameworks focusing on interactivity between organizations and publics have been more frequently adopted by digital PR between 2008 and 2014 compared to previous studies (H2.1 was supported) (see Table 4).

4.2.3. Research methods

Findings showed that quantitative research methods remained dominant in digital PR research over the seven years examined (see Table 3 and Fig. 3). 68.1% ($n = 96$) of the examined articles adopted quantitative research methods. Quantitative content analysis was the dominant data-collection method ($n = 69$, 48.9%). This holds true for the portion of our research sample that postdates 2008. Surveys were the second most frequently used data-collection method ($n = 27$, 19.1%), followed by in-depth interviews ($n = 16$, 11.3%). Given that the focus has gradually shifted from web 1.0-based Internet applications to social media since 2008, quantitative content analysis and surveys remain the most popular data collection methods of digital PR research (see Table 4). The more advanced research methods such as network analysis and computerized textual analysis of user-generated-content in social media have not proliferated in the community of digital PR research.

Table 3
Specific research methods.

Qualitative	n	%	Quantitative	n	%
Interview	16	11.3	Content Analysis	69	48.9
Content Analysis	8	5.7	Survey	27	19.1
Focus Group	3	2.1	Experiment	14	9.9
Discourse Analysis	5	3.5			
Total	30	21.3	Total	110	78.0

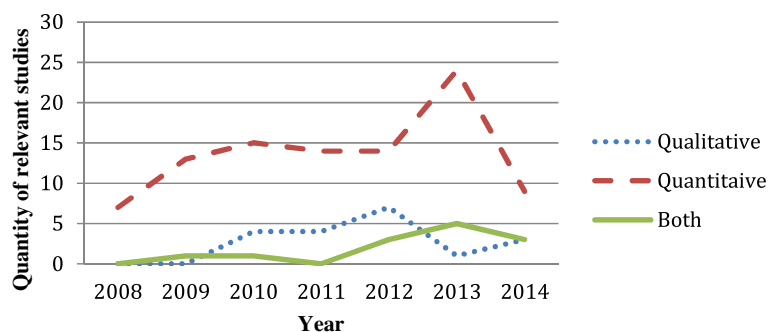


Fig. 3. Research methods in digital public relations research.

Table 4

Frequently used theoretical frameworks and research methods used by more than 10% of the corpus.

	Public relations research in general (Sallot et al., 2003)	Digital PR research from 1992 to 2009 (Ye and Ki, 2012)	Digital PR research from 2008 to 2014
Frequently used theoretical frameworks	Excellence theory (n = 19, 2.5%) Relationship theory (n = 14, 1.9%) Crisis response theory (n = 14, 1.9%)	Dialogic theory (n = 9) Excellence theory (n = 8)	Dialogic theory (n = 17) Excellence theory (n = 12)
Research methods (above 10% of the corpus)		Content analysis (n = 49, 42.6%) Survey (n = 23, 20.0%) Critique/essay (n = 14, 12.2%)	Content analysis (n = 69, 48.9%) Survey (n = 27, 19.1%) Interview (n = 14, 11.3%)

Although quantitative research methods predominated in our sample of digital PR research from 2008 to 2014, the proportion of studies using only quantitative research methods actually decreased from 93% in 2008 to 60% in 2014. Meanwhile, the results of our study revealed an increase in the exclusive use of qualitative research methods (in 2014, 40% of selected articles adopted qualitative research methods) and multiple research methods in the past seven years. Although none of the studies published in 2008 used qualitative research methods, the past seven years witnessed a diversification of research methods in digital PR studies, showing partial support for H2.2.

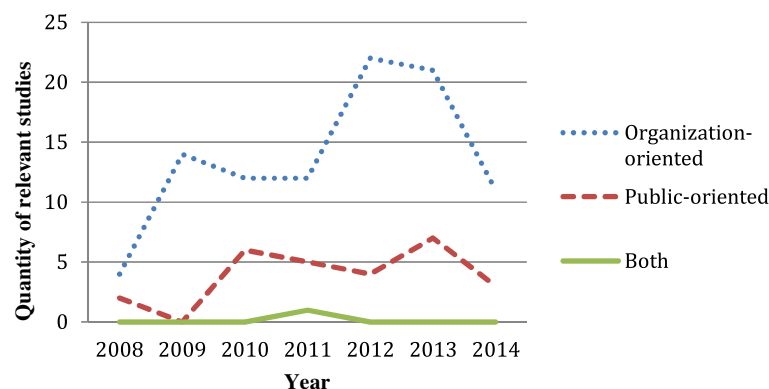
4.3. Research perspective and organization type

4.3.1. Research perspective

It was found that 68.1% (n = 96) of our sample had an organization-oriented perspective, while only 19.1% (n = 27) had public-oriented perspectives. One article embraced both organizational and public-oriented perspectives. The organization-oriented perspective was the dominant research perspective from 2008 to 2014 (see Fig. 4). The number of organization-oriented studies increased dramatically from 2008 (n = 4) over the following three years and increased again during 2012 and 2013 before a decrease in 2014. By contrast, the number of public-oriented studies did not fluctuate sharply across six years, with an average increase of only six per year. Although 33% of the examined studies took a public perspective in 2010, the proportion decreased to 21% in 2014. Our findings echo Huang's (2012) argument that digital PR research was characterized by an organization-oriented perspective. The rapid development of Internet technology did not cause a substantial shift in research perspectives, which goes against H3.1 that publics will receive more attention than organizations in digital PR research during this time period.

4.3.2. Organization type

Among the 96 articles specifically examined from an organizational perspective, 34.4% focused on for-profit organizations (n = 33), 19.8% focused on NGOs/NPOs (n = 19), 7.3% focused on educational institutions (n = 7), and 13.5% focused on government agencies (n = 13). Fig. 5 shows an upward trend of studies on for-profit organizations over the past seven years. By contrast, numbers of studies on government agencies, NGOs/NPOs, and educational institutions fluctuate drastically. Given that the number of articles focused on organizations in the non-profit sector, including government, NPOs/NGOs, and educational institutions exceeded that of profitable corporates, H3.2 was supported.

**Fig. 4.** Research perspectives of digital public relations research.

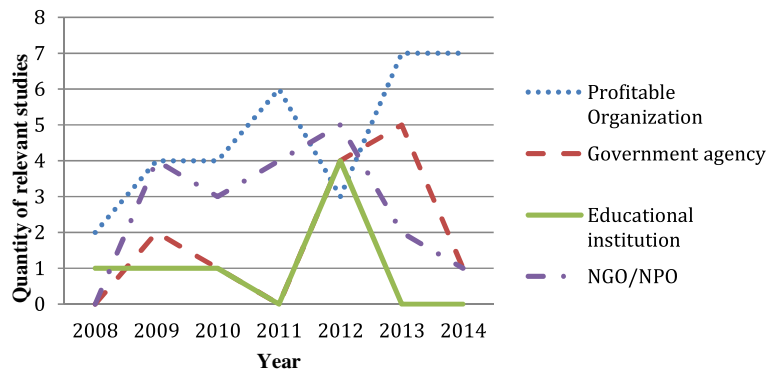


Fig. 5. Organization types examined in digital public relations research.

5. Discussions and conclusion

5.1. Social media constitute a new research subject

Over the past seven years, digital PR research has demonstrated increasing interest in social media. Compared to Ye and Ki's (2012) findings that between 1992 and 2009 social media rarely attracted researchers' attention, our study shows that the post-2008 flourishing of social media and other web 2.0 applications has gradually impacted the agendas of the PR research community. The result reveals that Web 2.0-based Internet applications were more frequently studied by PR researchers than Web 1.0-based Internet applications in the past seven years. Moreover, social media have become an increasingly favored research subject for PR scholars. In other words, technological development has given digital PR research a set of favored and concentrated subjects, especially the increasing popularization of social media, and has gradually facilitated the formation of a new paradigm for PR research.

5.2. A focus on co-creational theoretical concepts and frameworks

Digital PR research over the past half-decade has shifted from description to theorization. In contrast to early stages of this research, which are characterized by a lack of theoretical frameworks and rigorous research methods (Khang et al., 2012; Ye and Ki, 2012), the 2010s revealed substantial gains in both areas. Relevant concepts derived from features of Internet applications such as interactivity, dialogicity, and two-way communication have received increasing amounts of attention.

Moreover, dialogic theory has begun to at last parallel, if not overtake, excellence theory in recent years. In addition to dialogic and excellence theories, other theories used in digital PR research such as situational theory and stakeholder theory are rooted in similar co-creational perspectives. The idea that publics are co-creators of meaning and communication (Botan and Taylor, 2004), which is central to theories of co-creational perspective in PR research, has replaced the functional perspective that sees communication practices as means for achieving organizational goals. In summary, the shift from a functional perspective to a co-creational one, generally agreed to be the most prominent trend in the overall PR field over the past 20 years, also pertains to digital PR research between 2008 and 2014.

There was a considerable elaboration of dialogic theory in the digital PR research we surveyed. Kent and Taylor (1998) set the initial terms for dialogic theory by proposing five principles of dialogic relationships between public constituencies and organizations in the Internet age: creation of a dialogic loop, the usefulness of information, the generation of return visits, easing the interface, and conservation of visitors (pp. 326–330). Further studies have summarized dialogic theory's decade-long development (e.g., McAllister-Spooner, 2009; Theunissen and Wan Noordien, 2012). Other studies focused on the dialogic features and functions of social media in presidential elections and university management (Adams and McCorkindale, 2013; McAllister, 2012). In short, the use of co-creational perspectives in theoretical frameworks has provided digital PR research with a set of substantive explanations and pertinent concepts for analyzing the impact of the Internet on public relations practice.

5.3. More diversified methodology

Quantitative research methods still dominate digital PR research, just as they did from 1992 to 2009 according to Ye and Ki (2012), who found that content analysis and surveys remained the most frequently used quantitative methods during that time span. Liu (2010), for instance, analyzed 887 articles from news websites or blogs to investigate reports of crises in online news media. One explanation of the prevalence of quantitative content analysis in digital PR research is that user-generated content provides a wealth of raw data.

As far as the question involving a possible paradigm shift is concerned, borrowing the Kuhnian concept of *incommensurability and irreconcilable differences* (Kuhn et al., 2000), we hold that research methodology should change when exploring a totally new or different subject. Our findings show that despite the predominance of quantitative research methods in digital PR studies from 2008 to 2014, the past seven years witnessed a general diversification in digital PR research methodologies. Increasing numbers of studies adopted qualitative research methods and mixed methods to explore the effect of the Internet on public relations practices. More advanced methodologies such as network analysis and computerized textual analysis for studying user-generated-content might well be expected in future research. It is reasonable to conclude, if one adopts Gottdiener and Feagin's (1988) definition of a paradigm, that Internet applications and/or technology seem to have brought about some changes to certain features of digital PR research methods.

5.4. Organization-oriented perspective dominates

Given the features of Internet applications defined by Huang (2012), the current research agenda is limited by its lack of balanced research perspectives. The Internet precipitated the fragmentation of mass and new media and the proliferation of media outlets. The role of stakeholders in PR and strategic communication has changed accordingly. Traditional approaches to PR practices relegate the role of the general public, defined as a public that cannot directly influence organizational decisions, to that of a passive mass media audience. The Internet facilitates dialogue, which "elevates publics to the status of communication equal with the organization" (Botan, 1997, p. 196). Therefore, organizations in the Internet era should take a more collaborative approach to PR efforts. Digital PR research must also extend its perspective in a more comprehensive sense.

Still, a majority of the digital PR research we examined was conducted from an organizational instead of a public or co-oriented perspective. Although the past seven years witnessed a rise in academic attention paid to the digital PR of NGOs/NPOs, the field remains dominated by studies concentrated on profitable organizations. After two decades of development in the field, the trend has basically been to ignore calls for more research that might contribute to power-balanced, symmetrical, and more diverse research agendas (Dozier and Lauzen, 2000; Grunig, 2001; Holtzhausen, 2000; Karlberg, 1996). A more robust paradigm shift in digital PR research would call for a more balanced research perspective and a more symmetrical research agenda.

5.5. Summary, limitations, and suggestions for future research

To sum up, digital PR research constitutes an independent scholarly discipline with its own unique body of knowledge and research subject; a set of favored theoretical principles and concepts; and a budding transition in terms of tacit assumptions, more diversified methodologies, and the dominance of organization-oriented perspectives. The findings of this study suggest that the development of Internet applications brought about changes to some features of the dominant paradigms of PR research (in Gottdiener & Feagin's sense and definition of paradigm, 1988). On the one hand, Web 2.0-based Internet applications and especially social media have become major research subjects. Moreover, a set of concepts such as interactivity, dialogicity, and two-way communication have been linked together by a certain rationale. Specifically, technological development has given digital PR research a set of concepts connected by an emphasis on co-creational perspectives, leading to the development of substantive theoretical frameworks. The use of co-creational perspectives in recent theoretical frameworks has provided digital PR research with a set of substantive explanations and pertinent concepts for analyzing the impact of the Internet on public relations practice. Finally, the past seven years have witnessed a general trend of methodological diversification in digital PR research.

On the other hand, given an increasing trend of methodological diversity and the development from description to theorization, more diversified research methods remain to be developed for describing, predicting, and explaining how PR should be organized, structured, and practiced. Moreover, a lack of organization-oriented research perspectives also indicates that the older paradigm of PR research has not changed substantively. The democratic nature of the Internet should have largely empowered the public that receives PR messaging. The organization-centric assumptions of public relations research undertaken from the functional perspective are not pertinent when the audience for PR has become a massively connected and socially networked collective. Thus, we contend that research on digital PR implies a changing and competing paradigm, but not a paradigm shift in Kuhn's (1969) sense.

In addition to social media, the ever increasing and expanding digitalization has introduced more and more cutting-edge technologies, such as semantic web (Berners-Lee et al., 2001) and augmented reality (Azuma et al., 2001). For example, semantic web has been discussed in terms of its support for shipping markets' operations (Lambrou et al., 2008) as well as its contribution to e-tourism (García-Crespo et al., 2009). Besides, scholars have also explicated the role of augmented reality in developing cultural heritage archive services (Ongena et al., 2012) and mobile data service market (Feijóo et al., 2016). However, studies in our sample failed to keep up with the latest development of digital technologies, suggesting PR researchers pay attention to the potentials and implications of new technologies such as semantic web and augmented reality to PR practice in the future. Moreover, given that research subject is an integral part of a paradigm (Gottdiener and Feagin, 1988), incorporating newly developed digital technologies in PR research is expected to provide new insights into rethinking about the paradigm of the PR field.

Although this study sheds light on paradigm shifts in terms of digital PR research, several limitations should be noted. Because the purpose of this study is to analyze the research agenda and relevant findings in the field, this study relies solely on the conclusions and findings of previous studies published in two prominent SSCI journals. These criteria, however, are no guarantee that the assessments of each article are valid. Such constrained selection criteria impose limitations on the depiction of the field presented here. Future studies should, at the very least, expand the number of journals from which the sample is selected.

Despite the limitations of our methodological design, this study provides valuable insights into the present landscape of digital PR research. While the past half-decade has witnessed a remarkable growth in the application of theory to digital PR research, improvements can and should be made as follows. Firstly, in order to better understand the characteristics of Internet applications (i.e. asynchrony, globalization, cross-boundary, hypertext, etc.) and their effects on PR practice, this paper calls for more theoretical development and methodological rigor in digital PR research. Besides, this paper calls for future studies to develop more dynamic and process-sensitive methodologies, such as longitudinal research and investigations of multiple relationships as they develop over an extended timeframe. Moreover, there is a need for research agendas that are more methodologically diverse, culturally sensitive, and symmetrical.

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