Web 2.0 and Semantic Web perspective for Public Relations

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Abstract: Until recently, public relations were based on the personal relations of public relations executives but also on the use of traditional means of mass media. With the advent of new technologies such as the World Wide Web, a significant thrust of new opportunities and possibilities emerged. As internet technologies constitute cutting edge technologies, they naturally evolve and improve. The aim of this article is to examine how recent advances in web technology such as Web 2.0 and Semantic Web can facilitate public relations executives to accomplish their strategic tasks more effectively. An initial investigation of the definition of these two trends will contribute to answering questions such as: Do these technologies really help public relations executives or are they in fact much ado about nothing? Do the public relations executives continue to use the old practices or do they replace them with new ones?

1. Introduction

Sriramesh and Vercic (2007) point out that public relations are at present well developed as well as further developing in the Americas Asia, Australia, and Europe. Most of the companies and organizations recognize the importance of public relations nowadays. Public Relations practitioners are familiar with new technologies since they provide very useful tools for their profession. They try to follow the new possibilities offered by the Internet to achieve a more effective pursuit of public relations.

However, many inside the public relations profession lament the lackadaisical posture that PR practitioners take in response to Web 2.0 opportunities. The

paper examines how Web 2.0 and Semantic Web could be used in the area of public relations. How can public relations practitioners take advantage of the opportunities given to them by Web 2.0 and Semantic Web? A research was conducted with the help of future public relations professionals in order to find out their views on the possibilities of merging old public relations practices, techniques and tools with new ones.

2. Literature Review
2.1 Web 2.0 and Semantic Web
The Web in its early form consisted mainly of static pages that were interconnected by means of hyperlinks. Information search amongst the few sites (around 700 by the end of 1993, more than 10000 by the end of 1994) was facilitated by browsers such as Mosaic and thematic catalogues and search engines such as Archie, Lycos and Yahoo later, one of the first success stories. That Web, which is today considered to be Web 1.0, was quite exciting for the pioneer web surfer and easy to master. With the introduction of dynamic technologies (DHTML, Java and PHP, Shockwave and Flash) web pages were dynamically created from a user-customized database and the web evolved into more or less its present form, which some people refer to today as Web 1.5. (Bleicher, 2006).

The Web 2.0 is based on this foundation, but is a significant extension to it. The term was coined at a brainstorming conference by Tim O'Reilly (2007) and was defined by "then-and-now" examples of companies and web applications. Web 2.0 applications are essentially user-centered and promote interaction, collaboration and profile sharing on the World Wide Web.

User-generated content is emphasized on Web 2.0 sites where users become creators (prosumers) rather than passive consumers. Thus, content in Web 2.0 is assumed to be dynamic and non-hierarchical, organized upon retrieval and "tagged" by other users. Examples of Web 2.0 include social networking sites, blogs, wikis, video sharing sites, hosted services, web applications, mashups and folksonomies. Communal content contribution and reviewing (blogs, wikis), mashing up data from different sources (AdSense, Google Maps) and AJAX (enabling responsive user interfaces) are the three technological pillars for service-oriented, light but nevertheless rich, Web 2.0 applications (Ankolekar, Krotzsch, Tran, and Vrandecic, 2007)

The Semantic Web, Web 3.0 in a sense, is an extension to the network of hyperlinked human-readable web pages by using machine-readable metadata to describe pages and how they are related to each other. The term was coined by Tim Berners-Lee (2001), the inventor of the World Wide Web and director of the World Wide Web Consortium, which oversees the development of proposed Semantic Web standards.

The principal objective that initiated the Semantic Web development was to enable computers and people cooperate more efficiently in the task of finding, combining and acting upon information. The aim was not for a separate web but an extension to the current one, where existing data will be given a well-defined meaning enabling machines to "understand" data rather than just display them.

The Semantic Web community is at the moment presented with the challenge to "add logic" to the web, so that rule-based, inference making will be enabled. Although the task is quite complex, the two important technologies are already present: eXtensible Markup Language (XML) and the Resource Description Framework (RDF). With XML, we create tags to structure the information present on a web page and RDF gives meaning to XML structures. RDF uses triplets, similar to subject-verb-object, where subject and object are identified by a Universal Resource Identifier (URI). To avoid misunderstanding, URIs have to be standardized somehow and this is accomplished by ontologies, the third basic component of the Semantic Web, which formally define relations among terms (Web Ontology Language - OWL).

The Semantic Web effort so far has been restricted to closed domains of manageable size, e.g. libraries and intranets. The vision is however for a universal semantic web. Having achieved a well-structured and meaningful web will enable agents (programs with the role to collect web content from diverse sources, process the information and infer results) to work in a synergetic manner. The Semantic Web's unifying logical language will let anyone express new concepts and link them with existing ones. Agents based on semantics will help analyze the new structure, contributing therefore to evolution of knowledge (Berners-Lee, Hendler, and Lassila, 2001).

2.2 Public Relations

What Public Relations does is gain public's confidence in the company, earn consumers' loyalty, solve company and public related conflicts, form a positive image of a company, increase the popularity of goods and organizations and finally demonstrate the social responsibility of a company.

According to Kotler, (2003:768), "public relations is one of the most complex and uncommon elements of promotion. This element is an exceptional one because its results may be noticed only after a period of time". Gruning and Hunt (1984:550) "define public relations as the function of management between any organization and its public".

As Jefkins (1988) mentions in his work, public relations practice is "the planned and sustained effort to establish and maintain a mutual understanding between organization and its public". What enterprises and companies do is to hire a public relations specialist in order to exercise public relations or they cooperate with public relations consultancy. In-house Public Relations Officer (PRO) is the predominant practitioner, especially if he or she services the communications needs of the organization. Some organizations cannot afford the cost of employing someone to exercise public relations from inside the organization so they end up cooperating with an external consultant. As Wilcox (2003) mentions, there are eight stages in order to plan public relations. The first stage is situational analysis, the second one is determination of goals, the third one is determination of purposive auditorium, the forth one is strategy, the fifth is tactics, the sixth is creation of a timetable-schedule the seventh is budgeting and the last and final one is program assessment.

The main responsibilities of the PRO is to work towards the publication of a magazine distributed amongst employees and customers, prepare press releases, organize press conferences, make phone calls to newspaper publishers, participate with other company managers in the financial organization productivity bonus program, organize preparations for new products, contact ministries and prepare up to date reports for the Board of Directors.

Most of the PPOs know how to make use of new technologies. They use their mobile phone to communicate with their clients and they use their email in order to send faster press releases or invitations for press conferences to journalists. Of course today, they can find most of the relevant information they need for their everyday work on the Internet.

Breakenridge (2008) introduces a new term, that of PR 2.0, in order to merge new technologies and public relations. As he claims, PR 2.0 places a whole new meaning and value on PR and marks the true convergence of PR and the Internet. He believes that with PR 2.0, a new breed of Web savvy PR/marketing professionals has been born. As a result of PR 2.0, brands are able to have conversations directly with their customers in niche Web communities.

2.3 Related Work

Web 2.0 seems to be a quite a new field for researchers in the area of Public Relations and as a result there is a lack of empirical data on the extent and ways in which public relations practitioners are utilising these media and networks. Eyrich (Eyrich et al., 2008) conducted an online survey about the Public Relations Officers' thoughts on social media and how they can utilise them in their work. This research showed that although the rate of adoption varies, new communication tools are continuously being adopted by practitioners, some of the more established tools such as e-mail and intranet, the study found, have been widely adopted, and the newer tools such as blogs and podcasts are adopted at an increasing speed. Another important point was that they were facing difficulties in adopting Web 2.0 technologies since they were not familiar with such technologies.

Payne's survey in 2007 (2008:78) "suggested intervention strategies designed to increase the intent of public relations practitioners to accept and use Web 2.0 technologies should focus on performance expectations (increased productivity and compensation), social influence (senior management and organizational support), and the effective components of technology (content and creativity vs. code and computers)".

In Wright and Hinson's research (2008) participated a large number of public relations practitioners. What came out from their research was that 61% of practitioners believed that the emergence of social media including blogs has changed the way their organization functions. In the question if social media have enhanced the practice of public relations, more than 66% said that social media have done so successfully, in their opinion.

Kim in 2009 (Kim, & Johnson, 2009) conducted an online research about the use of new technologies in public relations. The findings of this study indicated that public relations practitioners and employers with no real experience in the

industry do not necessarily agree on the competence levels of public relations practitioners new to the field.

As Macnamara (2010:4) mentions, "a study by Wright and Hinson (2009) in the US claimed to be "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)".

3. Methodology of the Study

The authors decided to conduct the study to students of a public relations department. The main reason for that was because they wanted to find out if the future workers in the area of public relations understand the advantages of Web 2.0 and Semantic Web in their discipline. Another reason was to investigate if the future public relation practitioners can understand the importance of new technologies and exploit their use.

The survey took place in the Technological Educational Institution of Western Macedonia in Greece and more specifically, in the Department of Communication and Public Relations, in the Annex of Kastoria. A questionnaire with open and closed type questions was distributed among 88 students. The authors preferred a quantitative research method as it was desired to come up with statistical measurements. The method of questionnaire was chosen as a relatively inexpensive and reliable tool of data collection from a large and varying population. The questionnaire included 16 questions, 15 closed ended and 1 open ended.

The questionnaire contained, demographic elements, questions with regard to the students' Internet experience, knowledge of Web 2.0 and Semantic Web, the connection of these technologies to public relations and their possible use in the field. A copy of the questionnaire is available upon request.The research was conducted in March 2011. For data analysis and introduction of quantitative results, Excel in its simple form was used. The authors intend to proceed to a more detailed statistical analysis in a future publication.

4. Results

The correspondent percentage was 68% female and 32% male. All the participants in the research claimed that they use the internet. 31% of the students claimed that they have been using the internet for more than 6 years, 13% for 4-6 years, 27% for 2-4 years, 18% for 1-2 years and only 9% for less than a year (Table 1).

Web experience (in years)				
< 1 year	1 – 2 years	2 – 4 years	4 – 6 years	> 6 years

9.1%	18.2%	27.3%	13.6%	31.8%

Table 1: Student Web experience

40% of our sample claimed that they knew the term Web 2.0 and 60% mentioned that they did not know the term Web 2.0. What is interested though is that while the sample did not know the term Web 2.0, they do use Web 2.0 applications. 73% of our sample claimed that it uses Web 2.0 applications and only 27% claimed that they do not use Web 2.0 applications.

Use of Web 2.0 applications	
Yes	**No**
73%	27%

Table 2: Students' use of Web 2.0 applications

The students were also asked about usage of some basic Web 2.0 applications. 40% of the students claimed that they use Facebook a lot, 27% moderately, 9% little and 22% claimed that they do not use Facebook at all. In contrast, 45% of the students claimed that they do not use Twitter at all, 18% little and only 5% claimed that they use Twitter a lot. On the other hand 50% of our sample uses You Tube a lot, 31% moderately and only 5% they do not use You Tube at all. 86% of the sample does not use MySpace at all and only 5% uses it moderately. Almost the same situation was observed with Flickr as 86% of the students do not know the term at all. All results are shown in Figure 1.
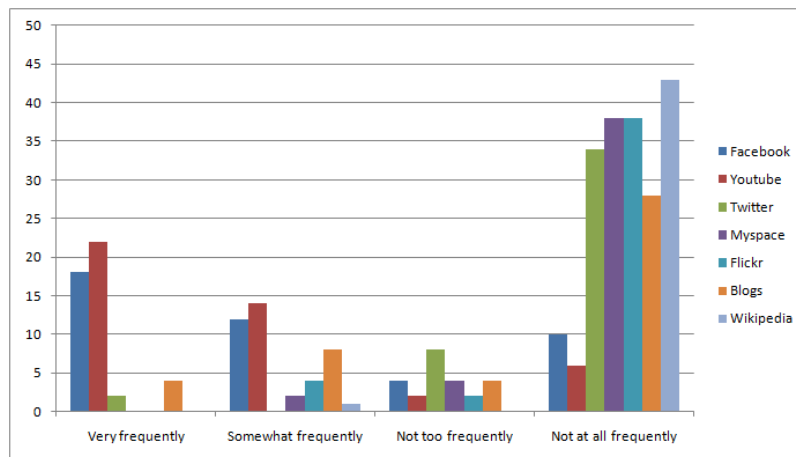

Figure 1: Web 2.0 Application usage

Question 10 was asking students if they believe that Web 2.0 applications can help the promotion of Public Relations. Roughly 18% of the students answered that Web 2.0 applications can help public relations very much, 40% much, 13% moderately, 18% little and only 9% claimed that Web 2.0 technologies would not help public relations at all (Table 3).

How much can PR benefit from Web 2.0?				
Very much	**Much**	**Moderately**	**Little**	**Not at all**
18.2%	40.9%	13.6%	18.2%	9.1%

Table 3: PR benefit from Web 2.0

Next question was asking students if old methods of practicing public relations could be combined with the new method of Web 2.0. 55% of the participants in the research claimed that a combination of the two would help public relations officers and 45% claimed that a combination of the two methods could not help them at all.

Merging old and new PR practices	
Yes	**No**
55%	45%

Table 4: Feasibility of merging old practices with Web 2.0

Question 12 (open question) was about how Web 2.0 can help public relations. Participants suggested that the use of social media can promote public relations. Another view that was expressed was that companies can save money with social media. Also, the fact that social media are interactive could help the public relations practitioners to evaluate the comments made from the public. Finally, the promotion of events through social media could play an important role in the promotion of public relations.

The vast majority (92%) of the participants clained that internet is a useful tool for collecting information. However, only 11% of our sample knew the term of Semantic Web and 89% did not know the term at all. Most of the participants (95%) claimed that there is information overload on the web. Question 16 was about possible improvements to the current form of the Web. More specifically, the students were asked if they believe that the Web could be improved and to what extent in the following fields: information filtering, natural language processing and new knowledge discovery. More than 75% of the participants answered that there can be moderate to great improvements in all three fields.

Another finding is that those students who knew the term Web 2.0 had also a positive posture that public relation can benefit greatly from Web 2.0 (33% very much, 50% much). Also, the students that responded that they know the term Semantic Web responded to question 16: information filtering very much 60%, much 40%, natural language processing very much 80% much 20%, discovery of new knowledge very much 100%.

Moreover, there was a strong positive correlation of student responses to question 5 (web experience) to those to question 9 (Web 2.0 experience), which was validated by a Pearson Correlation Coefficient equal to 0.73.

Active behavior in Web 2.0				
daily	**weekly**	**monthly**	**Every 6 months**	**Never**

20.5%	31.8%	25.0%	15.9%	6.8%

Table 5: Active behavior in Web 2.0

5. Discussion and conclusion

'New Generation' has grown up at a time of rapid development of new technologies such as mobile phone, WWW, email. The results indicate that public relation students are familiar with WWW and its applications, as they have been using it for a long time and as Ewing (2009:25) suggests "the Internet has been mainly used in public relations as a tool to distribute information". Students do not know the term Web 2.0, perhaps because they may be unaware of the fact that Web 2.0 includes social networking sites, blogs, wikis, video sharing sites, hosted services, web applications, mashups and folksonomies (Ankolekar, Krotzsch, Tran, and Vrandecic, 2007). Regardless of the fact that participants in this research did not know the term they did use Web 2.0 applications.

Another important finding was that a large amount of students are facing difficulties in adopting Web 2.0 in order to use them in public relations. This is in line with the research by Eyrich, Padman,& Sweetser, (2008) who mention that most of their participants claimed that they were facing difficulties in adopting Web 2.0 technologies as they were not familiar with those technologies.

Facebook seems to be the most popular social media application for students of public relations. As Kaplan and Haenlein (2010) found in January 2009, the online social networking application Facebook registered more than 175 million active users.

Another finding is that interactivity and promotion of events could be some of the uses that public relations officers could find in social media. As Coombs (2009:28) mentions, viewers are allowed to interact with the Web site and satiate their own desires for exploring the Web. The users that have web experience seem to be more active in Web 2.0 applications. As Macnamara (2009:8) suggests **"**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".

As Laskin (2009:153) mentions, "new technologies make information available globally, instantly and to a wide range of public". However, the paradox of information overload is present on the web and many of our students have agreed that quite often they get too much information, information that sometimes is not even necessary for their work.

Web 2.0 technologies could be merged with the already existing public relations practices and help PROs to exercise better public relations. In conclusion, it can be said that future PROs, who are currently knowledgeable users of Web 2.0, are still facing difficulties to understand the ways they can use them in public relations. It is obvious that further research of Web 2.0 and Semantic Web is essential, so that users can become fully familiar with their implications for public relations.

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