

The evolution of the technological characteristics of media web sites

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Abstract

This paper discusses technological characteristics and tools offered by Web 2.0 which can be employed in media web sites. The aim of this study is to explore possible methods which can be used in web media companies. By this way the usability and the interaction of the media web sites can be improved significantly by using social (networking) plugins and services. The sample of the study includes twenty media web sites organized in four types (mass media, newspaper, portal, and television stations) with the highest rank in Greece according to google rank and alexa.com. Thirteen criteria that evaluate the use of web 2.0 services, related to user satisfaction and navigation are being studied. The research questions examine whether the web sites under study use social plugins (recommended, like, dislike, comment, hash tag), whether they let users to copy-paste their news and at the same time protect their copyrights, whether they use live streaming video and whether they include various other article characteristics (for example rating, most viewed, most disliked, tagging, etc.). The study contributes in underlining characteristics and tools that can be used by media web sites in order to become Web 2.0-3.0 friendly, so they can satisfy their users, improve their navigability and share their content through the web in order to increase their popularity.

1. INTRODUCTION

Media companies, such as newspapers, radio stations and television stations have a common opponent, the World Wide Web (www). More specifically technological characteristics and tools that www provides to administrators, publishers and user-readers (Cormode & Krishnamurthy 2008). Companies all over the world are constantly searching innovative services, in order to be competitive (Jaruzelski *et al.* 2012, Knight foundation). The internet provides such an environment for the media companies and because of this fact all traditional media (newspapers, radio stations and television stations) have established a web presence.

Initially www began as Web 1.0, in which the content was created only by owners and employees of the web sites. Then, www evolved to Web 2.0, a term that was proposed by Tim O'Reilly in a conference in 2004. In Web 2.0, web visitors can also act as content creators. The data, which may be uploaded, can be in the form of text, audio and video (Cormode & Krishnamurthy 2008).

Nowadays Web 2.0 is evolving to Web 3.0, where data is grouped, categorized and used by different services, networks and web sites (Fuchs *et al.* 2010, Harris 2008, Tasner 2010, Watson 2009). This could be also called "Semantic Web", in which there is a connection between different web sites with alternative data (semantic) (Floridi 2009). Eventually Web 3.0 has been created mainly with the aid of companies and developers. Some companies (web sites) allow users to process their data. From developer's point of view, they use these databases and create new services and applications. For instance, users are constantly creating new content in Wikipedia or Google maps. Developer's on many occasions use this data (from Wikipedia or Google maps) in order to create applications by processing such semantic data and used them in other web sites (Harris 2008).

The creation of a usable informative web site, which can give value to the content and finally bring an increased number of visitors, is the aim of a constant scientific research. This is the reason why media web sites which are created by a small number of people and employ evolutionary technological characteristics and tools may be competitive even with well-known established media organizations. Thus, it is of great importance to examine media web sites in order to ensure that they operate in an expected way and meet user's requirements. This procedure is called evaluation (Abowd *et al.* 2004).

The purpose of this paper is to study how and to what extent media web sites offer to their users new services based on Web 2.0-3.0. Media companies that utilize web sites have not only to upload the content created by journalists but also to provide their readers with appropriate services for use. As a consequence, web sites can increase their usability (Avouris *et al.* 2001, Kostaras *et al.* 2008) and this will lead to an increased number of visitors. An important parameter of their success is the improvement of their navigation with an interactive way as well as their connection through virtual communities (Musiał & Kazienko 2013).

2. LITERATURE REVIEW

The issue of internet connection has attracted the attention of many researchers. In 2012 a research that was conducted in Greece (as well as in 27 countries of the European Union (excluding UK): 144107 households and 204858 individuals) concluded that 50% of the sample in question uses the internet while a significant part of this percentage is aged between 16 and 24 (Seybert, 2012).

Also in 2012 an online survey under the title “Between idiosyncratic self-interests and professional standards: A contribution to the understanding of participatory journalism in Web 2.0” was carried out. The sample consisted of 153 participants in Germany and it was concluded that users are interested in evaluating and participating in web media (Fröhlich, Quiring & Engesser 2012). The same year an evaluation of 25 media web sites in Greece was conducted, including 5 types of media web sites (Mass media, Portals, Newspapers, Radio stations and Television (tv) stations), based on 32 characteristics (Antonopoulos & Veglis 2012).

Another survey related to internet social networks (online or virtual communities) helped researchers understand the classification of web social networks through coherent analysis (Musiał & Kazienko 2013). In December 2011 the Usability Research Laboratory from Wichita State University researched 259 responders on what they share and interests them, in a major communication tool, such as Facebook (Owens 2011). In 2009, a study was carried out for the Greek Institute of Audiovisual Media. The sample consisted of 106 Greek media web sites and the researchers were focused on the web services and the content provided by the web sites (Media Informatics Lab). Finally, in the same year, a research was conducted under the title: Promises unfulfilled? “Journalism 2.0”, user participation and editorial policy on newspaper web sites. The research included four newspaper web sites and one of the conclusions was that user-generated content must continue to be published. However, their concern was how the user generated content can be combined with traditional journalistic work (Rebillard & Touboul 2010).

3. METHODOLOGY AND DEFINITION OF THE SAMPLE

The study focused on Greek media web sites with the highest traffic rank (according to Alexa and Google rank) between 06/02/2013 and 11/02/2013. The web sites included in this study were organized in five types: mass media, portals, newspapers, radio stations and television (tv) stations. Mass-media includes media companies employing more than one medium (newspaper, radio, television and portal) in the same web site under the same brand name. Initially, 500 web sites with the highest traffic in Greece from alexa.com were included in the sample. Next, all the media web sites included in the initial sample were listed according to their Google rank and five web sites of each category with the highest Google rank were included in the final sample (Table 1).

It is worth noting that during the research of media web sites, radio stations that could be included in this category were not found in the sample. Potential reasons for this outcome may be that radio stations' web sites do not utilize the appropriate technological techniques and tools (Antonopoulos & Veglis 2012). This finding may also be supported by the fact that users prefer accessing radio stations' live stream by visiting web sites that provide the complete lists of greek radio stations. Through these sites they are able to access any radio station without visiting the particular radio station's web site. Thus, this specific media type included no web sites and the number of categories

under study was limited to four, namely mass media, portals, newspapers and television stations. Furthermore, it should be mentioned that in the sample we included only greek media web sites although many foreign media web sites (mostly in english language) were found to be among the top web sites that Greeks visit. The final sample consists of 20 web sites based on the data with the highest traffic in Greece. Table 1 includes the 20 web sites organized in four types.

Table 1. Media web sites

Types	Media Web Sites¹				
Mass-media	skai.gr	ert.gr	sport-fm.gr	tovima.gr	real.gr
Newspapers	naftemporiki.gr	tanea.gr	kathimerini.gr	enet.gr	ethnos.gr
Portal	in.gr	news247.gr	newsbomb.gr	sport24.gr	newsit.gr
TV Stations	antenna.gr	megatv.com	alphatv.gr	star.gr	mtvgreece.gr

The research is based on experiential observation and listing of a number of characteristics defined by the researchers, without being registered at the web sites. The browser employed for the study was Google Chrome. All the characteristics under study had to appear distinctively in the web site. Otherwise they were considered as absents. The scale of evaluation in every characteristic was of dichotomous nature so the available choices were limited into two, present (Yes) or absent (No). The characteristics under study examined the navigability and the interaction of the web site through social networks. Also, they examined how the number of readers visiting the web site can be increased with the use of Web 2.0-3.0 services through word of mouth (Rodrigues *et al.* 2011). As a consequence web sites serve their primary target, for which they were created, namely informing the users.

4. CHARACTERISTICS UNDER STUDY

As mentioned earlier the study included 13 characteristics. Next these characteristics are presented and discussed briefly.

4.1 Pop Up

Pop up page, pop up light box, splash page and splash screen describe the same function. When a user enters a web site, a splash screen appears so that the user can be informed about whatever the editor suggests (for example to access the web site's profile in a social network). In nowadays, attracting the user's attention is of a great importance in order to persuade the user to subscribe to the official account of the media web site in social networks, like Facebook, Twitter and Google plus (Codecanyon, Too cool 2 be true, Wordpress). In this way, users just login their social network profiles and read the latest news from the media web site, write comments and share articles with their friends. Moreover, if the visitors are interested in being advertised through a web site, they

¹ In all the types the web sites that are presented, sites are sorted in descending order, based on their rating in Google rank.

evaluate among other parameters the number of followers that the media web site has in social networks so that their commercial ads can have higher impact (Galan-Garcia *et al.* 2012).

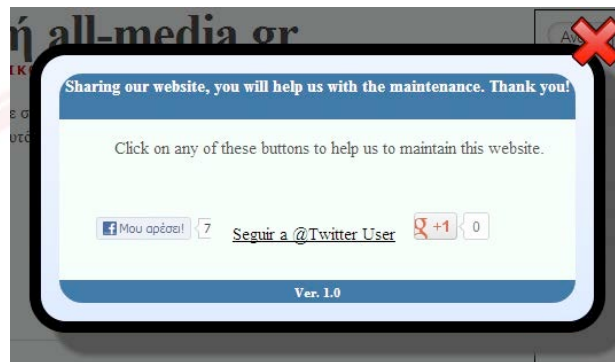


Figure 1. Example of a splash page that links the web site to social networks.

4.2 Most Viewed/ Read/ Popular Articles

These specific characteristics examine whether media web sites include a category with articles, which are the most viewed (read) or the most popular of the web site. Thus, the web site increases its usability in its navigability while it suggests users something that may interest them (Starr 2006). Users recommend the most viewed/ read/ popular articles through a word of mouth process. Consequently more users are interested in visiting the media web site (Rodrigues *et al.* 2011). Finally, the web site is constantly updated with the latest news determined by the visitors through their views and the article rating. As a consequence, these web sites become interactive and attract more visitors (Blanco *et al.* 2012).

4.3 Most Disliked Articles

Readers are able to determine the most impressive articles, published by a media web site by having the ability to rate them. At the same time, they may also dislike articles they disagree with their content. In a similar study it was found that almost 45% of the media web sites allow their users to rate their articles (Antonopoulos & Veglis 2012). Web sites can use this service not only to include a category with the most popular articles for the reasons mentioned above, but also with the most disliked ones. So, comments and reactions against the disliked articles are increased and there is also interaction with users so that their opinions can be taken into account. It is also democratic (Blanco *et al.* 2012, Racherla *et al.* 2013) that the readers can express themselves by making conversations through a commenting system (Spyridou & Veglis 2011), something that can provide feedback and increase the traffic of the web site.

4.4 Show Tags

Media web sites publish articles for various subjects. The use of words (keywords or tags) describing an article in web sites is essential so that search engines can categorize them properly (Du *et al.* 2012). The inclusion of those tags in the articles, which can be visible to readers, succeeds in further data categorization and improves web site usability. By selecting one of those keywords all the articles with this tag are displayed. This constitutes an additional article recommendation system.

Thus users are able to read articles that interests them (Hart 2009) since they are organized in categories with keywords (tags) indicating their content.



Figure 2. Example of a media web site that uses tags so that users can navigate (Ert).

4.5 Facebook Social Plugins

Facebook has created social plugins for web sites that can connect any media web site to this social network. Some of these plugins are: the like button, the send button, the follow button, the comments, the activity feed, the recommendations box, the like box, the login button and the facepile (Facebook). So in the case of this characteristic, the researchers investigate whether one or more of the above mentioned social plugins are employed in the media web site.

4.6 RSS in Every Category

Readers may only be interested in reading articles in a particular category of a media web site without visiting the site. This characteristic allows users to subscribe through an rss feed (Hammersley 2005, Nielsen) to any thematic category of the web site, so that they can have direct access to the articles that they are interested in.



Figure 3. Media web site that offers distinct RSS feeds to the article thematic categories (Ert).

4.7 Twitter Widget

Twitter is a social network through which millions of users share news and interact with each other. In order to check if this characteristic exists, researchers examine whether tweet feeds appear in the media web sites, thus supporting an interconnection between twitter and the media web sites (Bruns 2012, Xiao *et al.* 2012).



Figure 4. Media web site which includes a twitter widget (Finance in.gr).

4.8 Account in Video Platforms

Media web sites may have an account in online video platforms like YouTube, Ustream and Livestream so that they can broadcast live television or upload their videos. Thus, web sites can use free services in order to enrich the services that they offer to their users (Liang & Liu 2012). The researchers investigate whether such characteristic is employed in the media web sites under investigation.



Figure 5. Media web site with an account in YouTube (Mega).



Figure 6. Media web site utilizing a video platform for broadcasting live television programs (Skai).

4.9 Live Online TV

This characteristic refers to media web sites that offer live web television through their web sites and not by an external online video platform (YouTube, Ustream etc).

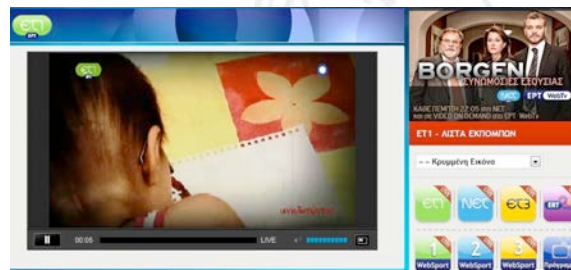


Figure 7. Media web site with live web broadcast television programs (Ert).

4.10 Copy of an Article

Employees of a media web site produce some material under the copyrights announced in the media web site. Users can share information (through copy and paste operations) included in media web site's articles with other online platforms. This may be facilitated by the media in the context of a word of mouth (Rodrigues *et al.* 2011) policy which can increase the popularity of the web site. In Figure 8 there is an example of Greek media web site, which allows users to copy an article.



(a)



(b)

Figure 8. Example of a copying (a) an article from a media web site and pasting (b) into a blog (Skai, All media).

Figure 8 includes an example of how the content of an article is copied and pasted into another web site. When the article is published in the web there is an automatic addition of the article's source as well as links to the official accounts of Twitter and Facebook of the media web site. As a consequence, the content of the articles is protected and the media web site is advertised in another web site.

4.11 Copy Protection (Anti Copy Article)

A web site has to protect its content from framing, printing, print screen, right click and selecting data from a media web site (Joomla). Regarding this characteristic, researchers copied an article from each web site under research and then pasted it into another web site. In that way they were able to observe whether these functions are permitted. Provided that paste was possible, researchers then checked what kind of content is allowed to appear (Figure 9).

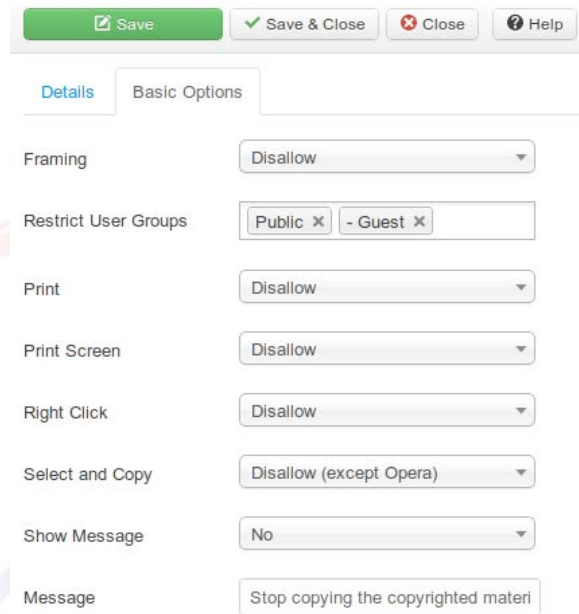


Figure 9. Example of anti copy (Joomla).

4.12 Newsletter

This characteristic refers to a service offered by the media web site that sends registered users e-mails with news and information.

As a result, there is mailing list that the administrator can employ in order to inform registered users about the latest news (Lee *et al.* 2012, Vogel & Goans 2005).



Figure 10. Newsletter registration in a media web site (Ethnos).

4.13 User Sign Up from an Existing Account to a Media Web Site

Through the use of WEB 3.0 users can sign up to any web site from existing accounts that they might have in social networks (Oneall) or other web services (Google). This characteristic allows users to login to media web site's services (comment, rate etc.) by using such connections.

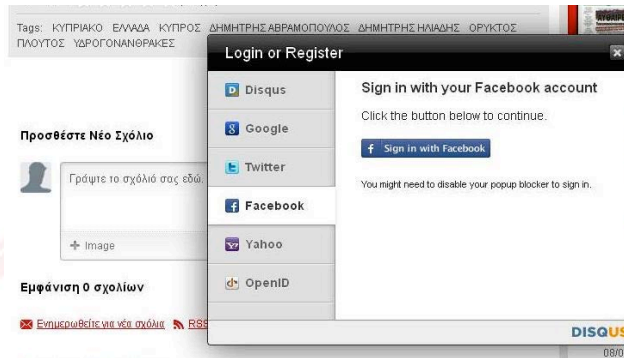


Figure 11. Sign in to comment from an existing social network account (Newsbomb).

5. RESULTS

Table 2 presents the detailed results of the evaluation per type of media and per characteristic. Four types of news web sites have been researched. Based on the results of Table 2, it is concluded that mass media web sites support the rss service in every thematic category, reaching 100%. Additionally, in any other characteristic, percentages ranged from 0 to 40% in mass media web sites. 100% of the researched newspaper web sites (Table 2) suggested users a category with the most read-viewed-popular articles and 80% of the web sites enabled users to subscribe in rss service in every article thematic category. Regarding the rest of the characteristics, the positive answers ranged from 20% to 40%. Also, no positive answers were found in the following six (6) characteristics: pop up, dislike articles, Facebook social plugin, live web site TV, copy article with source and copy protection (anti copy article).

Additionally, it was found that in portals 80% of the web sites employ tags, users are able to register in newsletters and users can login (sign up) from an existing account to the media web site. As far as the rest of the characteristics are concerned, the positive answers were between 20% and 60%.

Finally, 80% of the tv station web sites employed characteristics such as: most viewed (read)-popular, account in YouTube/ Ustream/ Livestream and login (sign up) from an existing account to the media web site.

Table 2. Detail results per type and per characteristic

Characteristics	% positive answers			
	Mass media	Newspapers	Portals	TV Stations
Pop up	0%	0%	0%	0%
Most viewed / read / popular articles	40%	100%	60%	80%
Dislike articles	0%	0%	0%	0%
Tags	40%	40%	80%	20%
Facebook social plugin	40%	0%	60%	40%
Rss in every category	100%	80%	60%	60%
Twitter widget	0%	20%	40%	40%
Account in YouTube / Ustream / Livestream	40%	40%	60%	80%
Live web site TV	40%	0%	0%	40%
Copy article with source	20%	0%	20%	0%
Copy Protection (Anti copy article)	0%	0%	0%	0%
Newsletter	40%	40%	80%	40%
Login from another account to the web site	20%	20%	80%	80%

Figure 12 presents the overall results for the 13 technological characteristics and tools for web media companies in Greece. Based on the above results, it can be concluded that 70% of media web sites uses services, such as most viewed (read) - popular articles and 75% uses rss. Greek media web sites have low percent of online live web tv, (20%) but high percent (55%) of online video platforms. Only one media web site (Skai.gr) provides its viewers with online live web tv through the use of video platform, such as YouTube. What is more, it was found that in 50% of the media web sites, users can have the ability to login (sign up) from an existing account from social networks or other web sites.

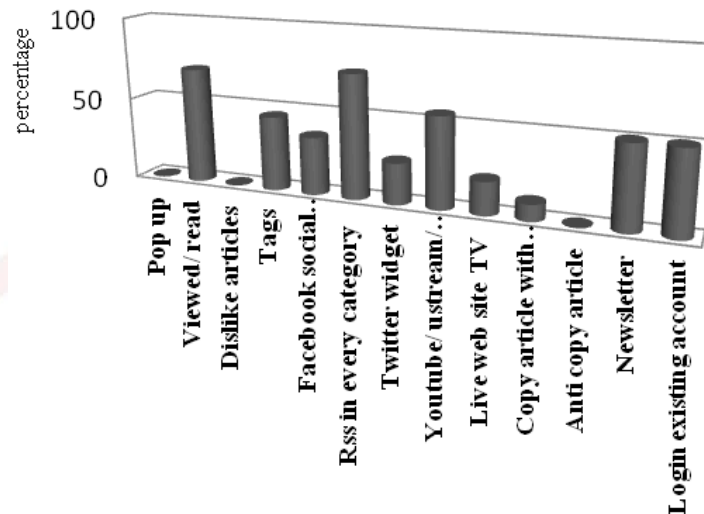


Figure 12. Overall results from all the characteristics that were examined.

Figure 13 presents the overall results of the characteristics with positive answers between 0 and 20 percent. Regarding the characteristics on whether a splash screen (pop up) appears when a user enters a web site, none of the web sites employed such a function. Only in.gr antenna.gr, newsit.gr and naftemporiki.gr were using pop up commercials, which appeared during user navigation. Also none of the web sites included the following characteristics: disliked articles, and using copy protection (anti copy articles). Finally, it was found that 10% of the media web sites offered their readers the ability to copy and paste their articles with a link to the primary source.

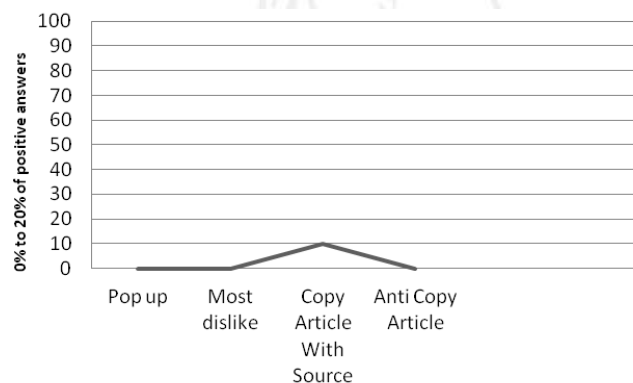


Figure 13. Overall results of specific characteristics that range between 0 and 20 percent.

6. CONCLUSIONS AND FUTURE EXTENSIONS

This paper presented a study on the WEB 2.0-3.0 technological characteristics and tools of media web sites in Greece. The sample of the study included twenty Greek media web sites and the study focused on 13 characteristics. The results of the study indicated a moderate - low use of technological characteristics and tools from the media web sites.

Many of the media web sites under study were found to include services, such as most viewed (read) - popular articles, rss in every category, accounts in online video platforms (Youtube, Ustream etc.) and user login (sign up) from an existing account from social networks or other web sites. These

findings indicate the use of Web 2.0-3.0 by Greek media web sites. Overall portals were found to employ the most characteristics under study among the media types researched. Future extension of this work will include studies aiming to define the usability structure of a media web site that readers seem to like most.

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