Investigating Dayparts in Greek Online Media

Andreas Veglis

Media Informatics Lab, Department of Journalism and Mass Media Communication
Aristotle University of Thessaloniki, Greece
veglis@jour.auth.gr

Abstract— **The concept of dayparting has been employed for quite some time in the broadcasting industry. A daypart can be defined as a consecutive block of time on similar days during which the size of the audience is homogeneous as is the characterization of the group using the medium. Until recently Internet media planning has been characterized by overall site reach, demographics and content affinity without particular regard for how audience dynamics change by time of day. This paper investigates the existence of dayparts in the usage of various publishing channels employed by Greek media websites. The existence of Internet dayparts can have major implications on media organization that continuously update their content offered by internet tools and services. The study is based on a survey conducted among graduate and postgraduate students in the Department of Journalism and Mass Media Communication in the Aristotle University of Thessaloniki. From the data we are able to identify distinct Internet dayparts that exhibit similar usage characteristics.**

Keywords— *dayparts; Greek media; usage patterns; publishing channels*

I. Introduction

Although the concept of dayparting is not very well known in the case of Internet, it is quite familiar in broadcast media [1]. A daypart can be defined as a consecutive block of time on similar days (weekdays or weekends) during which, the size of the audience is homogeneous as is the characterization of the group using the medium [2]. These subsections have a distinct audience and attitude that fit terrifically with some advertisers and badly with others. In radio and TV, each daypart has a different personality that is reflected in its programming and in its advertising [3].

The issue of dayparting has been investigated quite thoroughly in the TV and Radio industries. But this issue has caught little attention as far as Internet is concerned. Until recently, Internet media planning has been characterized by overall site reach, demographics and content affinity without particular regard for how audience dynamics change by time of day. It was reasonable to hypothesize that dayparts on the Internet do not exist since people can access the Internet from virtually anywhere at any time. For example websites' content, social networking posting, blog comments are available 24 hours a day, seven days a week [2]. A portal includes news every hour of the day. The headlines may change with time but the genre of the website remains constant [3]. But all the above changed when two surveys conducted in 2002 and a third one conducted in 2007 found

that dayparts are also applicable to the Internet use and more particularly to online media [2]-[4].

The existence of Internet dayparts has major implications on news web sites that continuously update their content [5]. In this case the existence of dayparts may play an important role in the success of the web site. The news may exist indefinitely on a news web site but there are not easy to be found if they are not displayed on the web site's first page. When a news web site publishes many articles per day, it is quite common for the users to search extensively in order to retrieve a news article that was available on the first page only a few hours ago.

But it is not only the WWW that requires study concerning the existence of dayparts. As technology for the distribution of journalistic information in various forms has become more easily available, the tendency has been for the media organizations to have several publishing channels at their disposal [6], [7]. Additionally media organization are changing their market model and distribute the news in a synchronized manner via different channels and guide their audience from one medium to the next in order to generate brand loyalty. This ability is supported by computer supported collaborative work systems that have been introduced in media organizations [8], [9]. The synchronous use of multiple publishing channels enables a media organization to make contact with its audience in a comprehensive and cross media way. Media use these channels as independent delivery paths. In other words the same information is available via many different channels [10]. Thus the existence of dayparts in all publishing channels that media organizations utilize in order to deliver their products is a issue that needs to be investigated.

One other aspect that must be taken into account is the fact that the nature of the news is topical and that means that if they are not consumed while they are recent (fresh) they lose their value [11]. For example the updates of an evolving story lose their importance very rapidly. Thus by modifying content and layout of the first page throughout the day, online media can meet users needs by offering different information at different day parts [1]. It has been proposed that the best strategy is to promote news stories in the morning and entertainment stories in the afternoon [12].

This paper investigates the existence of dayparts on the use of the Internet by Greek internet users. The study is an extension of a work presented earlier this year which focused on the use of the WWW and especially in the case of news

	OPA (2003)*	MORI (2003)**	Newell et al. (2008)**	Burst Media (2007)**	Bari (2009-10)**	Veglis & Avraam (2013)**
0:00-1:00	Late night	18:00-8:00	Overnight	Early morning	1st	Night
1:00-2:00						
2:00-3:00						
3:00-4:00						
4:00-5:00						
5:00-6:00						
6:00-7:00	Early Morning		Morning drive	Morning - noon	2nd	Morning
7:00-8:00						
8:00-9:00	Daytime	8:00-11:00				During the day
9:00-10:00						
10:00-11:00			Mid-day			
11:00-12:00		11:00-13:00				
12:00-13:00				Afternoon - noon		
13:00-14:00		13:00-18:00	Aftrnoon (13:00-16:30)	Late afternoon	3rd	
14:00-15:00						
16:00-17:00						
17:00-18:00	Evening	18:00-8:00	Aftrnoon drive (16:30-17:30)	Evening	4th	Afternoon - evening
18:00-19:00			Primetime (17:30-23:00)			
19:00-20:00						
20:00-21:00						
21:00-22:00						
22:00-23:00						
23:00-24:00	Late night		Overnight			

*these dayparts apply only to weekdays. OPA proposed a distinct daypart for the weekend.
**there is no distinction between weekdays and weekends

Fig. 1. Definition of dayparts in various surveys

web sites [12]. Specifically the previously mentioned study was based on data collected from Greek Internet users on the use of the Internet with the help of Google Analytics. Interesting conclusions were reached as far as weekdays and weekends are concerned as well as the periods of weekdays that the consumption of news content is higher. In this study we collect user data and study the existence of dayparts for various devices that are being utilized in order to access the internet as well as internet services that constitute different publishing channels for media organizations.

The rest of the paper is organized as follows. Section II includes a literature review on previous studies that addressed the issue of Internet dayparting. The various publishing channels employed by media organization are briefly discussed in section III. The following section includes the methodology of the study. Section V presents the results of the survey. Discussion and a daypart model that is applicable in the case of Greece are included in Section VI. Concluding remarks and future extensions of this work can be found in the last section.

II.   STATE OF THE ART

Broadcast media have been employing dayparts for quite some time. Dayparts for TV and radio represent a subsection of the day during which a program or a group of similar or related programs are broadcasted. Each daypart has a discrete audience [3], [13].

Back in 2002 two studies confirmed that temporal influences affect Internet users in USA [1]. Specifically MORI (a research company) conducted a research for the Newspaper Association of America (NAA), which studied the temporal opportunities for online newspapers [3]. The results of the study confirmed the existence of dayparts in the Internet use of online newspapers. In other words users' priorities appeared to change across a 24-hour period. Another study conducted by OPA (Online Publishers Associations) provided additional evidence to support the existence of five distinct dayparts on the Internet, which differ in usage levels, demographics and type of content accessed [2]. Five years later Burst Media conducted a survey that focused on the Internet habits of women, age 25 year and older [11]. The survey identified different usage patterns in different time periods. One year later a study was published that focused on media consumption [12]. The data of the study included 4 years of biannual daypart media consumption surveys. The study compared new media usage with other incumbent media (newspapers, magazines, radio and television) [14]. Bari (a research company), conducted daypart surveys in Greece by assuming 4 equal dayparts in a day (6 hours each) [15].Also

Avraam proposed a dayparting model for online media consumption in Greece that employed four dayparts during the weekdays [15]. Finally earlier this year a daypart model for internet usage in Greece was proposed [13].

As mentioned earlier dayparts were employed in broadcast media. Thus all the attempts to propose Internet dayparts were based or were influenced by this previous experience. We must note that dayparts were mainly a tool for the advertising industry, which now acknowledges Internet and WWW i n particular as a new ground to expand to.

Each of the surveys, mentioned in the literature review, proposed different Internet dayparts. OPA defined 4 dayparts during weekdays and one daypart for the weekend. On the other hand MORI did no distinguish between weekdays and weekend and proposed 4 dayparts. Newll et al, proposed 6 dayparts, each one with small duration [14]. Burst Media [13] included 5 dayparts and Bari [15] just divided the day in four equal dayparts. Finally Veglis & Avraam [12] employed Bari's dayparts as a base and proposed 4 daypart model based on traffic date extracted from Greek media web sites.

The exact dayparts of each survey are presented in figure 1. All dayparting models employ 4 to 6 dayparts. In the case of models that include four dayparts the duration of the dayparts are quite close (with the exception of OPA that includes one daypart with very small duration). On the other hand models of MORI and Newell et al. propose more dayparts during the working day (7:00- 17:00) while Burst media (which employed 5 dayparts) includes 4 medium size dayparts and one small daypart in the afternoon.

The model proposed by Veglis and Avraam earlier this year included 4 dayparts, namely, night (00:00-6:00), morning (6:00-10:00), during the day (10:00-17:00), and afternoon - evening (17:00-24:00). The research tool, employed for the needs of the study, was web analytics. Web analytics are considered to be an integrated part of the evolution of the Web [16].

Although the variation of the proposed dayparts model may cause initially confusion, they must be viewed by taking into account the working schedule of the country for which the model is addressed to. Also other parameters that must be examined are internet use, broadband line penetration, etc. In other words internet users in Greece and USA do not have identical working hours and also have different percentages in broadband connections in households.

III.   CHANNELS

The majority of the media organizations today employ various channels in order to distribute their products (news). These channels are being used in a cross media scheme. The majority of them are based on the internet and some of them on mobile phone network [17]. Precisely these channels are WWW, Webcasting, Smartphone/Tablet apps, e-mail, SMS, PDF, RSS, Social Networks and Twitter [18]. The internet users employ these channels and in some cases they do not distinguish them as separate publishing channels. For example while visiting a news article on the WWW the user can also watch a video (Webcasting channel), download and read a

PDF file (PDF channel) etc. Next we briefly discuss these channels.

The main advantage of WWW is the transportation of information over great distances, and the possibility of continuous updating [19]. Newspapers publish the majority of their articles along with the photos and in some cases they enrich the articles with additional sources that cannot be included in the printed edition.

Smartphone is a high-end mobile phone that combines the functions of a personal digital assistant (PDA) and a mobile phone. Although they include browsers that enable users to access regular websites, they incorporate small screens and thus web surfing is not an easy task. That is why many media companies are offering special designed applications (called apps) that are able to display news articles that include limited graphics (with basic navigation functions) but all the necessary text and pictures for each article [20]. One other device category is the Tablet. Tablet is a portable PC that includes touch screen and wireless connection to the Internet. These devices offer relatively large high resolution displays and an extensive storage capacity (in comparison with smartphones) that allow publishers to provide readers with visually rich content in a fixed format that can retain each publication's established brand identity [21]. Although there are some cases of special designed applications that take advantages of the Tablets' characteristics, in most cases Tablet users employ the same apps that are designed for smartphones.

E-mail is employed by media organizations in order to alert their readers about breaking news, relay them the headlines of the main stories (with links to the entire articles included in an online version of the newspaper), or send them the entire edition in a PDF file [22]. RSS is a method of describing news or other Web content that is available for feeding from an online content provider to internet users. Today many media organizations are employing RSS in order to alert their readers about the news headlines [23]. A RSS feed usually employs text and often small pictures. Blog: A blog is a website where entries are written in chronological order and displayed in reverse chronological order. An important feature of the blog is the ability for visitors to leave comments. That is the reason why media organizations have included blogs as a supplement to their web editions, thus giving their journalists the opportunity to comment onto current events and to their readers the ability to interact with them [23].

Social Networks are web-based services that allow individuals to construct a public of semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system [24]. Many media companies have established a present in the most popular social networks in order to publish their news articles and attract other members of the social network to their web site. They have also integrated social media links in their web articles in order for the users to link to them through their social network profiles [20].

Twitter is a social networking and micro-blogging service that enables its users to send and read other users' updates

known as tweets. Tweets are text-based posts of up to 140 characters in length. Updates are displayed on the user's profile page and delivered to other users who have signed up to receive them. Users can send and receive updates via the Twitter website, SMS, RSS (receive only), or through applications. Many media organizations are using twitter in order to alert their readers about breaking news [18]. It is worth noting that although one may argue that Twitter belongs to the Social Network category, its distinct characteristics allow us to categorize it as a separate channel.

IV.   METHODOLOGY

Data was collected within a one month period (May 2013) using online questionnaires of predetermined options. The questionnaires included 18 questions. E xcept the questions that collected demographic data, a five-level Likert scale was employed in order to measure the possibility of using certain internet tools and services in specified time periods. The questionnaires were completed in the laboratory and additional information was provided in oral form upon request. The sample of the study included graduate and post graduate students of the Department of Journalism & Mass Media Communication. 94 questioners were completed. These students are considered to be above average internet users since in their field of study the use of internet is considered to be a necessity. The data was analyzed with the help of SPSS 20.0.

V.   SURVEY RESULTS

31,9% of the sample were male and 68,1% female. The majority of the participants (61,7%) belonged to the 18-24 age group and 30,9% to the 25-34 age group. Initially, survey participants were asked to determine how often they access the internet. Almost all of them (99%) reported that they are online every day. Only one participant answered that he access the internet 2-3 times per week. This finding justifies our initial assumption that the sample can be considered that it is consisted from above average internet users.

Next we tried to determine which devices (namely desktop or laptop PC, smartphone and Tablet) the survey participants use in order to access the internet. Precisely the users were asked to determine how probable (in a 1-5 scale, 1 the least probable and 5 t he most probable) is to use the previous mentioned devices during various time periods in a day. Thus we were able plot the usage pattern of those devices during a 24 hour period. Figure 2 includes the usage patterns for PC, smartphone and Tablet.

From the plots it is obvious that PC is the device that the participants are more likely to use during a day. It is worth noting that for almost 12 hours the probability of PC use is above 4. The smartphone exhibits an average probability (2.5) for use, especially in the second half of the day. Tablet seems to be employed by only a few participants, but their usage patterns seem to remain almost constant during the 24 hour period. Of course they are some minor fluctuations that follow the usage pattern of the PC use. It is worth noting that PC and smartphone usage patterns exhibit their lower points at different time periods (PC in the 6:00-8:00 time period and smartphone in the 8:00-10:00 time period. But during the afternoon all three devices exhibit a s light decline in use during the 16:00-18:00 time period. Finally smartphone exhibits its pick use during the 00:00 to 6:00 time period. The latter can be explained by the fact that during this time period many young people are usually away from their homes and thus relay to smartphones for internet connectivity.
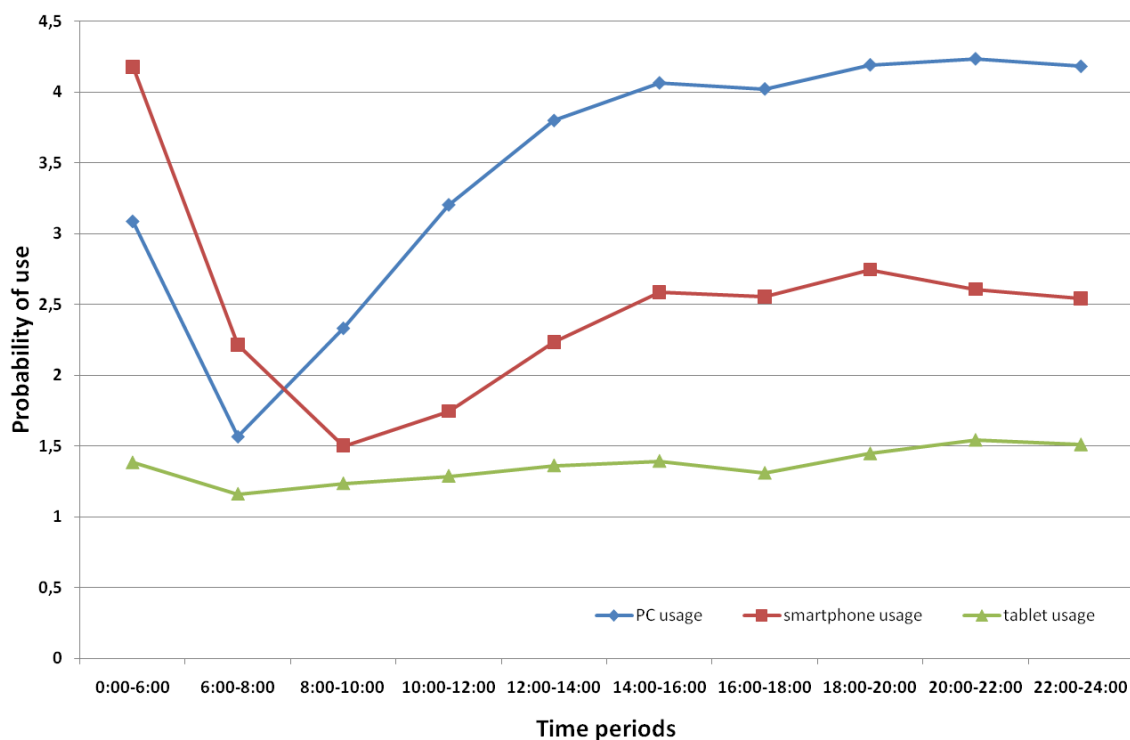

Fig. 2.   Usage patterns for three different devices for a 24 hour cycle.
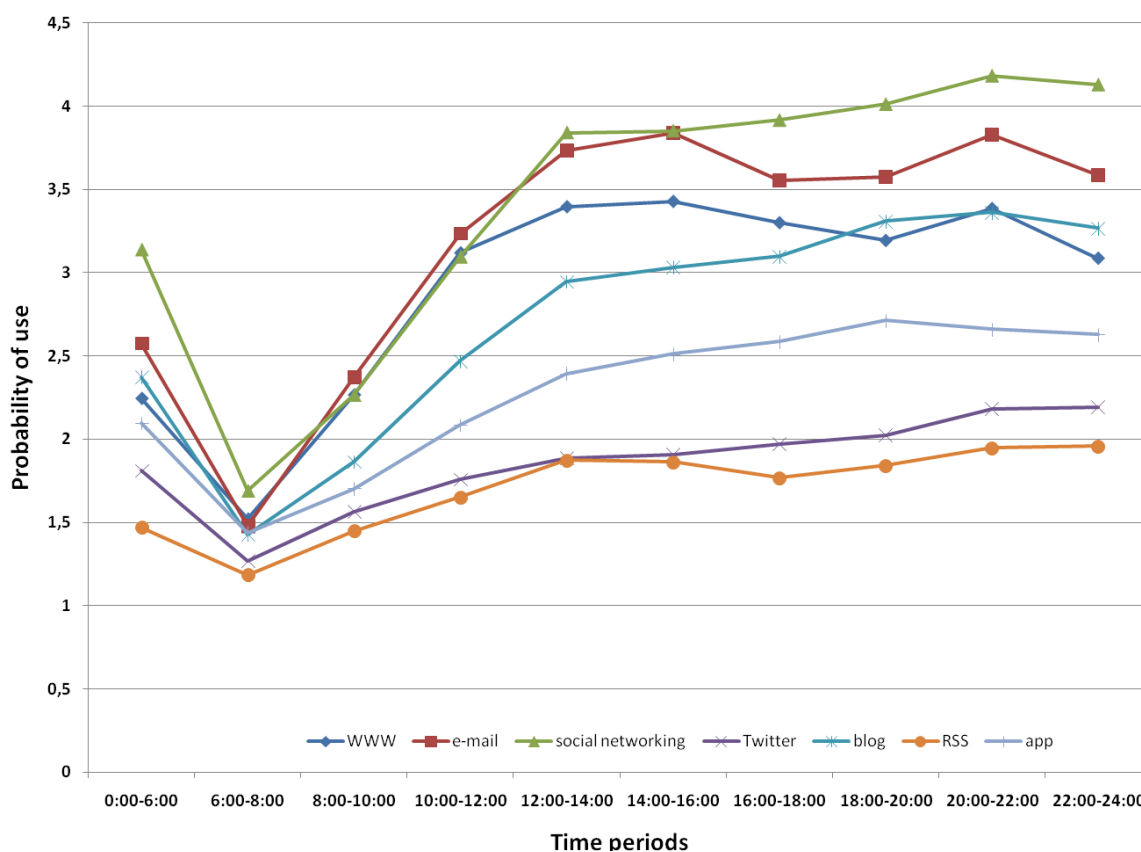
Fig. 3.   Usage patterns for various publishing channels for a 24 hour cycle.

PC and smartphone usage patterns show significant variations during the day (varying from 1.5 percent up to 4.3) that are similar to the variations that were observed in the media websites traffic patterns in a previous study [12].

The collected data on the use of the three different devices in order to access the internet, allow us to investigate the existence of correlations between various parameters of the study. Precisely we have found that the use of PC and smartphone in order to access the internet is not correlated with any of the demographic parameter collected (gender, age, education level, etc.). But in the case of the Tablet the statistical analysis indicates a strong correlation with the use of smartphone ($p=0.296$, $t<0.001$), age ($p=0.332$, $t<0.001$), education ($p=0.308$, $t<0.003$), occupation ($p=-0.454$, $t<0.000$), and income ($p=0.305$, $t<0.003$). The above findings can be explained by the fact that Tablets are expensive and as new technology they are initially adopted by young educated people with high income [25]-[26].

If we turn our attention to the various channels that can be employed by media organizations in order to disseminate their news content, we observe similar usage behaviors with variations that relate mainly with the probability of use during the various time periods. The channels that exhibit the higher usage patterns are: Social networking, e-mail, WWW, and blogs. The app channel appears to have moderate use and Twitter and RRS channels demonstrate the lowest usage patterns. All channels exhibit their lowest use during the 6:00-8:00 time period. Some channels (e-mail and WWW) show significant fluctuations in the probability of use during afternoon and evening, in comparison with other channels (social networking, blogs, RSS, app and twitter) that their usage patterns remain relatively constant during the same time period.

It is worth noticing the overall dominance of the social networking channel, which can be justified by the fact that the majority of the participants of the survey are between 18 to 14 years old. According to data provided by the Observatory for digital Greece, almost 70% of young Greeks used social networking in 2010 [27]. On the other hand the low use of Twitter can be contributed to the fact that this service is not yet very popular in Greece, especially among young people that constitutes the majority of our sample [25]. Also the low usage of RSS can be justified by the fact that RSS is considered to be an "old" service that has been substitured with other social networking notification services especially among young people.

VI.   DAYPARTS IN CHANNEL USE

Based on the results presented in the previous section we will try to determine the dayparts in the media channels use. Although the usage patterns appear to identical in the early hours of the day, they have significant variation in the afternoon evening hours. It is obvious that the daypart model that was proposed in an earlier study that concerned only WWW usage is also applicable in the channel use [12]. Specifically the proposed daypart model includes four 4
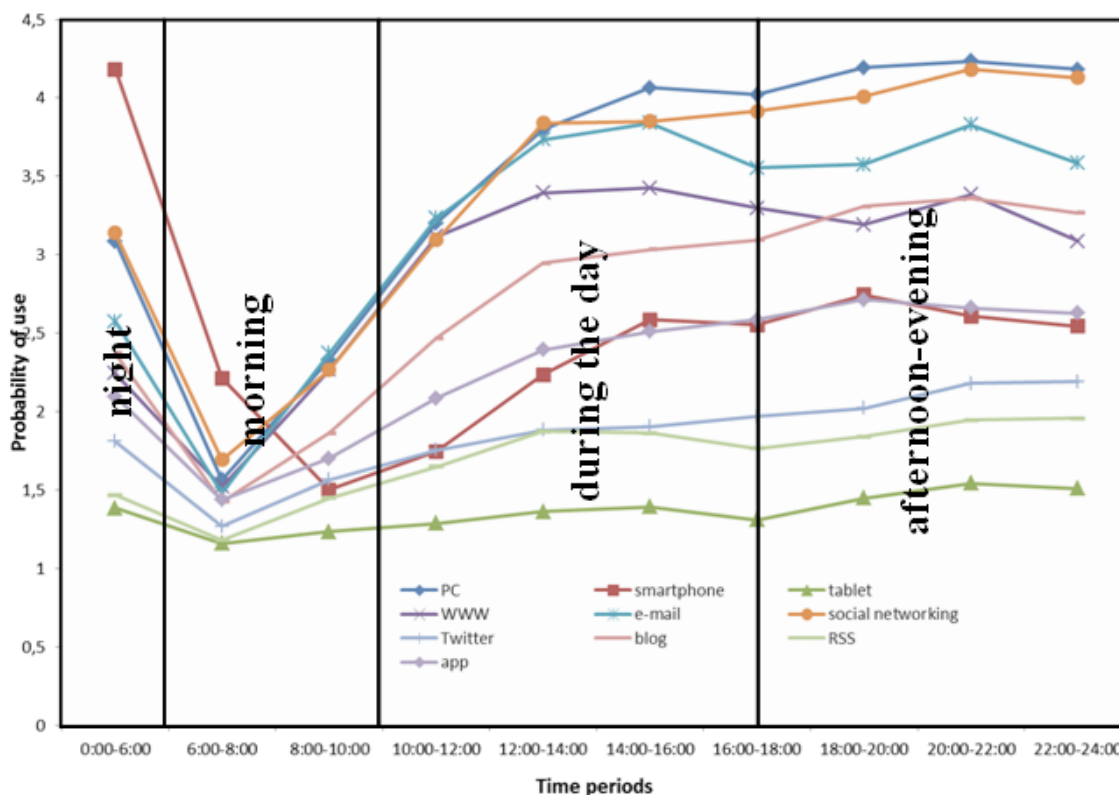
Fig. 4. Dayparts in channel and devices use for a 24 hour cycle.

dayparts, namely, night (00:00-6:00), morning (6:00-10:00), during the day (10:00-17:00), and afternoon - evening (17:00-24:00). In fig. 4 we have included the usage patterns for the publishing channels as well as for the three devices under study (desktop or laptop PC, smartphone and Tablet).

The first daypart, night, ranges from 0:00 to 6:00. During this period the use of all channels is quite high but drops sharply during the next time period 6:00-8:00, where all channels exhibit their lowest use of the day. The second daypart, morning (6:00 to 10:00) is characterized by a drop and also growth in probability of use. During the day is the biggest daypart, which spans from 10:00 to 17:00. In this daypart, channel use continues to grow and saturates around 14:00.

Around 17:00 the majority of the channels exhibit a slight decline. This constitutes the beginning of the afternoon-evening daypart which spans from 17:00 to 24:00. During this time period channel use fluctuate but generally remains high.

It is worth noting that the proposed dayparts are identical with the dayparts that were proposed in a study earlier this year [12]. This can be explained by the fact that both daypart models are applicable for Greek users. The daypart model is consistent with the average working day in Greece. Precisely the majority of Greeks work from 8:00 to 16:00. Also surveys have indicated that most of Greeks access the Internet from home, where they are located during the afternoon and the evening [27]. The fact that the proposed dayprting model is

compatible with traffic data form web sites [15], as well as with user usage behavior ensure us for its validity.

VII.   CONCLUSIONS AND FUTURE EXTENSION OF THIS WORK

This paper has studied the issue of dayparting in the use of various publishing channels employed by Greek media organizations. The study has identified the existence of dayparts by collecting the usage habits of internet users with the help of online questionnaires. Specifically we have proposed four dayparts, namely night (00:00-6:00), morning (6:00-10:00), during the day (10:00-17:00), and afternoon - evening (17:00-24:00). We have pointed out some interesting variations between the various publishing channels (smartphone and Tablet use). The results of the study can be proven valuable to Greek media organizations, as they can help them in their news update planning in the various publishing channel they utilize in order to discriminate their news.

The study produced also some interesting results that need to be investigated more thoroughly. For example the smartphone use differs on the time period when it exhibits its lowest value, and the Tablet use is quite low in order to extract valid results. The survey which has been presented in this paper was intended to act as a pilot study for the main survey that will be conducted next September in a wider scale, in order to collect more tangible results.

REFERENCES

[1] H. Beyers, "Dayparting Online: Living Up to its Potential?", International Journal on Media Management, 2004, 6:1, 67-73.

[2] OPA, "The Existence and Characteristics of Dayparts on the Internet", The OPA White Papers, January 2003.

[3] MORI Research, "Online Dayparting: Claiming the Day, Seizing the Night, Report, 2004.

[4] OPAeurope, "Internet Access At Work- A Media Consumption study", 2007.

[5] M. Pascual,'Dayparting' and 'prime-time': two trumps of online advertising, Newspaper Techniques, April, 20-21, 2004.

[6] K.Sabelström,"Information Categories and Editorial Process in Multiple channel publishing". Phd Thesis. Royal Institute of Technology. Department of NADA. Division of Media Technology and Graphics Arts. Stockholm. Sweden, 2001.

[7] K.Sabelström, "Consumer Needs and Competing Products in Printing and Publishing". in Proc of the 98 Conference Beyond Convergence. Stockholm. Sweden. June 1998.

[8] A.Veglis, "Implementation of a Computer Supported Collaborative Work System in a newspaper", WSEAS Trasnactions on Information Science and Applications, 2005, 2:7, 891-902.

[9] A.Veglis, "Modeling Computer Supported Collaborative Work in a newspaper organization", in Proc of the 9th WSEAS Int.Conf. on COMPUTERS, 2005.

[10] C.Dena, "Current State of Cross Media Storytelling: Preliminary observations for future design", presented in the European Information Systems Technologies Event. The Hague. Netherlands. 15 November 2004.

[11] B. Morrissey, "Defining dayparts. Internetnews.com", 2003, available at http://www.Internetnews.com/IAR/article.php/1580701/Defining+Dayp arts.htm

[12] A.Veglis & E.Avraam, "Dayparts in Greek media websites", 2nd International Symposium on Language and Communication: Research Trends and Challenges, 10-13 June, 2013.

[13] Burst Media. "Online Insights", June 2007.

[14] J. Newell, J.Pilota, & J.Thomas, J., "Mass Media Displacement and Saturation", International Journal of Media Management, 2008, 10:4, 131-138.

[15] E. Avraam, Contribution of new information and communication technologies in the production distribution and consumption of news (in Greek), Phd dissertation, Department of Journalism & MMC, Aristotle University of Thessaloniki, Greece, 2012.

[16] A. Giannakoulopoulos, I. Varlamis, "Feeds as Methodological Tools for Web Research" in Proceedings of the 4th "Colloque International Enjeux et Usages des TIC" (EUTIC 2008) - Challenges and Uses of ICT: Media and Information Diffusion: Towards an Open Society, October, Lisbon, Portugal. Available at http://www.dit.hua.gr/~varlamis/Varlamis-papers/C31.pdf

[17] A.Veglis, "Comparison of alternative channels in cross media publishing", Publishing Research Quarterly Journal. June 2008, pp. 111-123.

[18] A.Veglis, "From Cross Media to Transmedia Reporting in Newspaper Articles", Publishing Research Quarterly,Volume 28, Issue 4 (2012), pp. 313-324 .

[19] N.Negroponte, Being Digital, Athens: Kastaniotis 1995.

[20] A. Veglis, "Journalism and Cross Media Publishing: The case of Greece". chapter in Eugenia Siapera and Andreas Veglis (eds) The Wiley-Blackwell Handbook of Online Journalism 2012.

[21] S.Wearden, and R. Fidler, "Crain's Cleveland Business: Evaluating an e-Newspaper Concept for Tablet PCs", Future of Print Media Journal. Spring, 2001

[22] F.Schiff, "Business models of news Web sites: A survey of empirical trends and expert opinion". First Monday. volume 8 number 6. June 2003 http://firstmonday.org/htbin/ cgiwrap/bin/ojs/index.php/fm/article/view/1061/981.

[23] A.Veglis, "Cross media publishing by U.S. newspapers", Journal of Electronic Publishing. Spring 2007. http://quod.lib.umich.edu/j/jep/3336451.0010.211?rgn=main;view= fulltext.

[24] D.M.Boyd, and N.B. Ellison, "Social Network Sites: Definition, History, and Scholarship", Journal of Computer-Mediated Communication. Volume: 13 Issue: 1, 2008, pp. 210-230.

[25] E.Rogers, Diffusion of innovations, Fourth edition. New York: (Free Press 1995).

[26] A.Veglis, G.Tsourvakas, A.Pomportsis, and E.Avraam, "Adoption of information technology by Greek journalists: A case study by First Monday", volume 10, number 8 , http://firstmonday.org/htbin/cgiwrap/bin/ojs/ index.php/fm/article/view/1266/1186.

[27] Observatory for digital Greece, "Internet usage by Greeks" (in Greek), 2011, Available at http://www.observatory.gr/files/meletes/Α100526_Προφίλ%20χρηστών%20Internet%202010.pdf.