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FROM ONLINE PUBLIC RELATIONS TO E-HEALTH INTERACTIVITY: WEBSITE PERFORMANCE OF UNIVERSITY HOSPITALS IN TURKEY

Ebru GÜZELOĴ LU*

Volkan YAKIN**

Abstract

This study undertakes the performance of websites belonging to renowned university hospitals by using as tools e-health and online public relations. As such, a comparative approach has been taken in order to analyze the activity shown on websites pertaining to various foundation and university hospitals from Turkey. The study takes 69 active university hospital websites and analyzes their content. Throughout the process of gathering the data, a 5D scale has been used as a base for the online public relations and e-health applications. The results of the study have determined that online public relations used as a tool for websites remain insufficient; however, when it comes to e-health implementations some success has been noticed. At the overall evaluation, out of ten best universities, six have been state universities and four have been foundations; yet, the overall rate of foundation hospital websites as opposed to the ones belonging to university hospitals has been found to be higher.

Keywords: Website, University Hospital, Public Relations, E-health.

Introduction

Entering full speed into the twentieth century daily living, the Internet has added dimension to online public relations and made web 1.0 technologies an important component of corporate communication. By using websites the corporations have made it possible not only to be reached from any corner of the world, but also to have their existence recognized through unique web designs. As new technologies developed, the internet's place in our daily lives also gained a quantitative as well as qualitative dimension and became a contact point for individuals as much as corporations on the online platform. The research process that shapes consumers' decisions in their shopping and life style has also gradually moved on the Internet. According to ZMOT (Zero Moment of Truth), a theory proposed by Google in 2010, we live in a time when consumers, before the first moment they actually see the product/service on display, they start researching it on any device that has an Internet connection, and so they come across with their choice on the Internet before the showcase display (Liu, 2010). This approach supports the findings of a research conducted by Cisco Systems Inc., in which two thousand American and English consumers participated; out of these participants 74% took the decision of buying a product by doing online research first, before the actual shopping session at the store. With these results it has been pointed out that nowadays it is more effective to form with the customer a personal and interactive connection, which is one of the characteristics that make

* Arş.Gör.Dr., Ege Üniversitesi İletişim Fakültesi, Bornova, İzmir, guzelogluebru@gmail.com

** Dr., Celal Bayar Üniversitesi, Uncubozkoy Kampus, Manisa, volkanyakin@yahoo.com

corporations competitive (Anonymous, 2012). This situation comes to meaning that it is necessary for every corporation and brand, including PR studies, to research and keep under control the influence and visibility of every page, site or account that represents them in an online environment.

As far as health services are concerned, the interaction with institutions is brought to a much more important matter. The consumers' choices and demands related to health services are being evaluated according to many factors that range from service quality to completion time, to the variety of consulting options and information provided by the institution, to the institution's image itself. That being said, the Internet has become a preferential research platform in the decisions consumers take with respect to health services requests, just like it is the case with the other services. When the health institutions' online activities are taken into consideration at this level, the importance of the role of the websites used as a PR and e-health tool along with the advantage of competition must be dealt with in a detailed manner.

Website as a Public Relations Tool

Public relations, as an agent of the communication market they use in order to create a positive image for the corporations and organizations both to an internal and external level, have benefitted greatly from the development of the information and communication technologies. Hospitals are institutions from which target groups formed of individuals with various socio-economic and cultural backgrounds demand a thorough and fast service of professional expertise and experience. That is why there is a need in the PR planning of a strategy much more different and extensive for these institutions than in other service areas. On the other hand – when looking at the competitive policies of private health institutions and the hospitals of foundation universities – the development of the health sector lead to an increase in the need of marketing communication (Çolak vd., 2006: 13), and put on the agenda the active use of the Internet for all communication tools and applications, especially PR. The web medium presents an opportunity for wide audiences to be reached in an interactive manner without great financial responsibilities (Kang ve Norton, 2004: 279), and so enables public and state university hospitals to benefit from it in a competitive manner. One of the important aspects of public relations on the web from a health institution perspective is also related to the quality of the service. The fact that health services can be requested independently of time and space together with the possibility of accessing or getting in touch with them at any moment puts the institutions that make use of these tools one step forward. As the studies conducted so far point out, among the factors which influence the choosing of a certain hospital the institution's image and presentation along with the reputation reflected in the media are just as important as the health service provided (Akıncı vd, 2004: 3-19; Al-Doghaither vd., 2003: 107-108), as well as the role of the website in the interaction with the target audience (Maifredi vd., 2010:17).

Website as an E-Health Tool

E-health is a concept where medical information, public health and management methods meet and which defines the health and information services presented to their benefiters by using internet technologies (Eysenbach, 2001: 20). This concept reflect the understanding that everyone, without being withheld by time or space, may universally reach the information about health in a correct and understandable manner. Parallel with the fact that there has been an increase in the whole world of the Internet use rate, there is also a considerable increase in the rate of e-health demands. In a study supported by Kummervold et all, in the countries where the rate of Internet use has been shown to have increased, the use of traditional communication tools over the Internet as a source of information has also gradually increased (2008: 42). In another study it has been shown that 49.5% of the participants wanted initially to go to doctor for a specific health issue, however, 48.6% have taken the first information about the problem from e-health applications over the Internet. In the same study, only 10% have stated that they have gone straight to the doctor (Bradford et al, 2005: 2618). In a

study conducted in the USA in 2009 about online health research, 61% of the adult Internet users have researched their health informations over the Internet, and the concept of e-patient has been used in order to identify these users (Fox and Jones, 2009:2). Within the e-health activities in terms of sharing correct and extensive information with the public, it has been shown that the most frequently accessed services were medical records and lab results (Huang et al, 2012: 221). As for the interaction factor, out of all the American Internet users identified, 41% have benefitted from the health forums, and 24% have consulted doctors or other professionals online (Fox and Jones, 2009:3). All these results support the idea that the Internet and the websites have, along with a PR function, a series of e-health functions as well in terms of bringing awareness to the public about health topics, creating communication networks for diagnosis and treatment procedures. As such, from the public health perspective, it is highly important for a health organization to reach a certain standard in terms of quality and website content. Studies in Europe and the U.S. have shown that, when compared to commercial websites, those that belonged to nonprofit health organizations were perceived to be more trustworthy, and among these the websites of university and public hospitals were thought to be most reliable (Schiavo, 2008: 13; West ve Miller, 2009: 40). The results are an indicator of the public's need of correct and professional health information, need for which the resort to online consulting. When looking at the process of the communication technologies' development it can be maintained that in the future websites will be an even more reliable source of information in the health sector and the expectations for e-health applications will increase considerably.

Research Significance

It is possible to say that the websites of those institutions who offer online health services are unique tools that can be used both for PR purposes and for requesting public information on health topics as well as consultancy. The increased demand in online interaction and e-health applications worldwide has made it necessary for the health institutions to quickly adapt to the technologies that appear on the market. As such, in Turkey, with 45.7% of the population being active Internet users (Internet World Stats, 2012), they represent the main target audience in public relations and e-health applications. However, when taking into consideration the power of the web medium and the size of the target audience, it comes to mind the question of whether in Turkey the performance of health institutions websites is satisfactory or not from the perspective of how fast and easy can health information be accessed. Despite studies having been conducted in Turkey in order to evaluate the impact of public relations on health institutions websites, the number of studies that evaluate online public relations together with e-health applications is considerably low. Within the last years in Turkey, as a result of some legal regulations, there is a need for up-to-date studies that focus on analyzing the cooperation between private and foundation hospitals, along with university hospitals acquiring accreditation and on change in the competition rules for public university hospitals. In this respect this study plans to bring out in a comparative manner the performance of university hospitals' websites, their online public relations and e-health applications, the characteristic taken into consideration here being whether these universities belong to the state or to a foundation.

Methodology

According to YÖK (Higher Education Institution) records, as of October 2013 there are 192 state and foundation universities in Turkey. According to the same period, there are a number of 74 universities to which at least one hospital is linked. While counting the hospitals the selection has been made by taking into account the website or registered county of the main institution, without counting the regional policlinics or branches. When choosing the sample of the study there have been two types of organizational sites taken into consideration: 1) web sites linked to hospitals which function as research and practice centers and which belong to medical faculties connected to state universities (Dev_{hs}), and 2) web sites linked to hospitals which function as research and practice centers and which belong to medical faculties connected to foundation universities, and/or have been connected to one after their foundation

(Vak_{hs}). The analysis made between October and November 2013 didn't take into consideration inaccessible or inactive sites. As such, there have been chosen a total number of 69 websites (N_{total}) that belong to state (Dev_{hs}) and foundation (Vak_{hs}) hospitals. The state-foundation hospitals distinction and distribution are given in Table 1.

Table 1: Analysed with number and percentage of hospital websites

Regions	**Dev_{hs}**		**Vak_{hs}**		**N_{Total}**
	N	**%**	**N**	**%**	
Marmara	10	62,5	6	37,5	16
Aegean	9	81,8	2	18,2	11
Black sea	11	100	-	-	11
Mediterranean	6	100	-	-	6
Central Anatolia	12	75,0	4	25,0	16
Eastern Anatolia	5	100	-	-	5
Southeastern Anatolia	4	100	-	-	4
N_{Total}	**57**		**12**		**69**

Due to specific qualities of an important number of scales which investigate the website content and design quality, the research has been focused on hospital organization and scales that include public relations and e-health applications. It must be pointed out that there is no single scale that has international general validity which can define the various qualities of the websites in the methodology (Catana vd, 2007:146). That is why, for the analysis of this study there have been taken as base various scales from Maifredi et all (2010) by also taking into account the websites of the eligible institutions; the chosen one was a 5D website analysis scale specially developed for this purpose. The scale has been chosen based on online public relations impact and the level of online interactivity of the services provided, including the items that scale e-health applications. The adapted scales are composed of 86 items divided as follows: 1) Technical items, 2) Hospital information and facilities, 3) Hospital admission and medical services, 4) Interactive online services, and 5) External services.

At the level of technical items there have been taken into account characteristics such as the name of the institution and placement of the logo, visual and audio animations, foreign language access, copyrights and legal warnings, membership, useful links. This point also takes into account the country where the scale has been developed (Italy) and the legal regulations (like for example HON –Health on the Net Foundation certificate and the certificate which regulates disabled citizens' accessibility to public administration in Italy, etc.) implemented by the union it belongs to (European Union), together with their respective articles related to confirmation documents or the implementation of the above mentioned certificates. By eliminating the matters belonging to these regulations, be it optional or mandatory, only those adapted to fit Turkey's context have been kept and in this manner the items have been brought down to a number of 14. For the scale concerning Hospital and information facilities, 22 items have been chosen which investigate characteristics such as history, information related to the PR office, mission and vision, transport, map and virtual visitor access, contact information linked to the website's main page, general field and information for foreigners. Medical services dimension includes 25 items related to admission guide and payments, information about visiting and escorting, departments and units, doctors and professionals and quality indicators. Interactive online services include 10 items about diagnosis made over the Internet, and access to information about hospital services that can insure an appointment, applications about recommendations and reclamations. Lastly, external services dimension is comprised of 15 items that analyze characteristics related to forums, health brochures, libraries, activities and job opportunities. The scale data has been collected by using content analysis and analyzed with the SPSS 15.0 package program. The analyzed characteristic has been evaluated by scanning the websites' list codes and scored according to its presence or absence (1= characteristic is present; 0= characteristic is absent). After the elimination process, at the end of the analysis there

remained a code list constituted of a total of 86 items - adapted scales with a high validity level (*Cronbach's Alpha*=0,882; *n*=69).

Findings

The code list has been processed according to a scoring system applied to the websites as a whole. The scoring order is given in Table 2 according to the university's qualification and regional distribution.

Table 2: Analysed with score distribution of hospital websites

Regions	**N**	**P**	**Score**
Southeastern Anatolia	4	47,75	54.261
Aegean	9	41,09	46,693
Central Anatolia	16	35,53	40,375
Mediterranean	6	35,33	40,147
Marmara	16	34,03	38,670
Eastern Anatolia	5	31,30	35,568
Black sea	11	26,41	30,011
Vak_{hs}	**12**	**42,17**	**47,920**
Dev_{hs}	**57**	**33,49**	**38,056**

The technical issues include the first 14 items related to the hospital websites' technical characteristics. The highest points among items included in the technical issues level are given to which contain the hospital's name in the scanning bar (Dev_{hs}-%93, Vak_{hs}-91,7), and the lowest to those with the possibility of printing out the web pages (Dev_{hs}-%15,8, Vak_{hs}-50,0). The characteristic of accessing the site in a foreign language is important in that it allows foreign visitors to understand the content of the site and emphasizes the international service of the hospital. For this item foundation university hospitals have a higher rate of accessing the site in a foreign language (%66,7) as opposed to state university hospitals (%17,5), characteristic which has been identified as an important difference between the two groups (p=0.000).

On the other hand, in terms of the elements related to the presence of website maps and copyright specifications, foundation universities scored higher than the hospitals (Dev_{hs}-%45,6- Vak_{hs}-%91,7; p=0.004). Technical matters on website design are related to web designers' preferences to use up-to-date designs, which can be shaped in different manners according to time and purpose. That is why the difference related to the website maps is thought to stem from the fact that most of the state university hospitals' websites have been designed in an earlier period and/or foundation university hospitals' designs are more frequently updated.

Hospital information and applications level includes 22 items related to hospitals' general promotion characteristics and how they project themselves online. Among these items, what draws attention is the fact that the PR unit and the information related to its applications remain at a low rate. In some websites no information related to the existence of a PR unit or any of its applications has been encountered. Aside from this fact, by analyzing the information published on some websites there has been observed the presence of some patients' rights units which are referred to as consultancy and information units and which run public relations applications. The significant differences encountered among the items at this level are hospital history (Dev_{hs}-%77,2- Vak_{hs}-%33,3; p=0.005), virtual visiting accessibility (Dev_{hs}-%14,0- Vak_{hs}-%58,3; p=0.001), and the presence of information for foreign visitors (Dev_{hs}-%52,6- Vak_{hs}-%91,7; p=0.012); when analysed according to the aforementioned items, foundation university hospitals are found to score higher points. In general terms, it can be said that the hierarchical structure of state university hospital websites is superior, as well as foundation universities hospitals' access to information according to different target groups.

The item related to the information given in respect with the process of checking out of a hospital (Dev_{hs}-%36,8- Vak_{hs}-%75; p=0.015) shows a difference between the two groups in that

foundation university hospitals' websites scored higher than those of state hospitals. Another difference has been identified in the information given with respect to the doctors' professional experience (Dev_{hs}-%50,9- Vak_{hs}-%83,3; p=0.039). In general foundation universities attached importance to the publishing of information related to their employees' expertise (91.7%) and experience (83.3%). This situation can be interpreted as a fact that foundation universities have a competitive approach and are very concerned with the health services they provide and the doctors' qualifications and experiences.

The level of interactive online services includes 10 items which describe to what level hospitals interact with web visitors when providing health services. The websites of foundation university hospitals score higher at this level as opposed to the rest. In terms of interactive online services, foundation hospitals have a rate of 70% and state hospitals have one of 53%, thus making this level score higher than all the other levels. This result brings to think the fact that hospitals are more aware of the easiness interactive online services (such as "Alo 182" appointment center, etc.) provide to patients and hospital staff. The differences found at this level are in the online services related to recommendations and complaints (Dev_{hs}-%75,4- Vak_{hs}-%100; p=0,050) and access to newsletters (Dev_{hs}-%31,6- Vak_{hs}-%91,7; p=0.000).

External services level researches the extra online services provided by the hospitals and those services which enable a more partner-like relationship [with the patients]. For this level as well foundation university hospitals' websites score higher than those belonging to state hospitals. The web publications related to the cooperation among hospitals appear to be limited. Differences have been identified in terms of health brochures availability on websites (Dev_{hs}-%12,3- Vak_{hs}-%75; p=0.000), publication information (Dev_{hs}-%21,1- Vak_{hs}-%58,3; p=0.009) and job offers details (Dev_{hs}-%5,3- Vak_{hs}-%50; p=0.001). The fact that health brochures and publication information are more frequently present on the websites which belong to foundation university hospitals can be an indicator for the increase of public awareness due to the releasing of more extensive studies conducted on this matter. The details related to job opportunities are again encountered more frequently on foundation university hospitals' websites, and can be interpreted as a difference factor in the hiring process between the two groups of hospitals.

Table 3: All items comparison based on the types of hospitals

		Sum of Squares	Df	Mean Square	F	Sig.
Technical items	Between Groups	,076	1	,076	5,231	,025*
	Within Groups	,972	67	,015		
	Total	1,048	68			
Hospital information and facilities	Between Groups	,047	1	,047	2,391	,127
	Within Groups	1,306	67	,019		
	Total	1,353	68			
Admissions and medical services	Between Groups	,001	1	,001	,037	,848
	Within Groups	2,336	67	,035		
	Total	2,338	68			
Interactive online Services	Between Groups	,260	1	,260	4,875	,031*
	Within Groups	3,568	67	,053		
	Total	3,828	68			
External activities	Between Groups	,087	1	,087	4,084	,047*
	Within Groups	1,424	67	,021		
	Total	1,511	68			

*Test significant p value

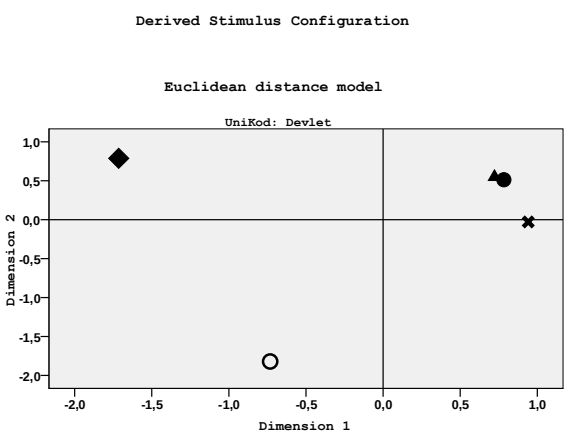
When running the tests, the scales did not show differences between the groups according to geographic distribution, but a differentiation has been noticed at the level of technical items (p=0,025), interactive online services (p=0,031) and external services (p=0,047). When looking at the averages, results show that foundation university hospitals scored higher than the state ones. The aforementioned levels can be accounted for what differentiates a hospital aside the known services and what provides an advantage in terms of communication. Parallel with the development of communication technologies, the health sector has also become one of the digitalized zones in order to meet the consumer's needs for information, consumer who is nowadays frequently directed to online platforms when researching health related issues. Similarly, hospital websites have become the first meeting point for the visitors who are in need for getting briefed on current health matters, applications and reliable medical information. In this aspect this analysis has put a special emphasis on the elements included in the scales which are related to e-health services. Within the scales – most of which belong to the interactive online services – the scoring of 12 items directed at e-health show a focus on the possibility of getting an internet appointment for the medical services and hospital admission (55 websites, n=69). It can be said that e-health applications account for a score that ranges from 7 to 42% in terms of providing technical service together with the availability of newsletters that broaden the service areas of their institutions and increase the acquired information of the visitors, and of services related to publications, forums or medical dictionaries. Differentiation has been identified within these elements when it comes to newsletters, publication information and services related to health brochures in that it was observed that these services are provided more by the foundation universities websites. At the end of the analysis it has been observed that hospitals in general attach more importance to interactive applications such as e-appointment, whereas on the topics of e-health applications and e-information publication there is a need for developments to be made.

Table 4: Coordinates of items: Types of hospitals

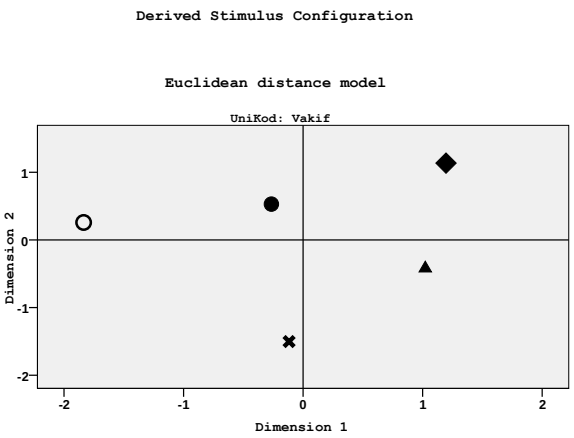
Dimensions	**1**	**2**
Technical items	-1,7144	0,7880
Hospital information and facilities	0,7224	0,5491
Admissions and medical services	0,7832	0,5128
Interactive online services	0,9413	-0,0287
External activities	-0,7325	-1,8212

Identifying the general situation of the hospitals by using the 86- items scale as well as the similarity-differences perspectives of the levels gives an idea about which levels should be taken more into consideration when updating the website contents. The most frequently encountered finding of these levels together with the multidimensional scaling analysis (MDS) may account for new data that can be used to create successful online services and improve those levels found to be inadequate for the visitors. In this scope the MDS analysis has been applied in order to compare the universities qualities by using the 5D scale. In the 2D demonstration the Kruskal Stress statistic has been established to be of Stress=0,06252 and RSQ= 0,98315, and the level between the data and configuration intervals to be of high reliability and concordance.

Graphic 1: Dev_{hs}:Two dimensions



Graphic 2: Vak_{hs}:Two dimensions



♦ Technical issues, ● Hospital information and facilities, × Interactive online services,
▲ Admission and medical services, ○ External services

According to the analysis, when taken into consideration the distance and similarity characteristics axis of the 5D scale, both state and foundation university hospitals' websites dissociate themselves in the aspects of technical matters and external services. According to this it can be argued that an institution which will undergo on its website the necessary improvements pointed out so far, it will gain an advantage as opposed to the other hospitals that have similar qualities. As for medical services, hospital information, applications and interactive online services, it can be observed that the websites belonging to state hospitals have all scored similar points due to their close positions (Graphic 1 and 2). However, foundation university hospitals experience a differentiation on the level of technical matters, external services along with interactive online services. It can thus be predicted that these hospitals will make a difference if they decide to make improvements at these levels.

Conclusion and Recommendations

It is a known fact that nowadays hospitals are being managed with a modern approach which gives priority to integrated marketing communication. One of the tools of integrated marketing communication is the corporate website, and it holds an important role in reaching the hospitals' target audiences. As with all the other sectors, the health sector as well must put forward the need to develop habits of acquiring information from web sources, and to equip the hospitals' corporate sites with extensive, detailed and professional resources. By enabling the target audiences to access a trustworthy resource, the hospitals will have the possibility of creating a positive impression directed towards their service performance. Likewise, it can be argued that in this manner those institutions which choose to increase the performance of their online services and providing information will have a higher chance of getting chosen by the patients. It is in the same time public responsibility for university hospitals to make efforts to increase the service quality and the possibility of getting information through online platforms.

This study analysed the websites of university hospitals that operate in Turkey and identified a series of differences at various levels between state and foundation hospitals in terms of their online performance. In general the results of the analysis show that the websites which belong to foundation university hospitals have scored higher when compared those of state university hospitals. The result of the analysis shows that in general the general performance of these websites needs improvement and that their public relations function isn't used in a productive manner. The fact that quite many websites don't have any content related to the public relations department, and only a limited number has contact information about how to reach the PR department is particularly striking. However, within the e-health

applications the presence of interactive programs such as e-appointment or access to lab results are worth mentioned as an effort to make improvements in this area. As a result, while designing the websites, the hospital management should cooperate with a professional team that has the authority to implement the aforementioned suggestions and the know-how on the subjects of public relations, e-health services and information technologies. Those websites which constantly develop their technical structure, the variety of their content, and the quality of the presentation will have a higher chance of expecting their target audience to rise. Even more, along with their e-health activities, they should also increase the use of social media.

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