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# Comparative Analysis of Interactive Web Services

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## SUMMARY

*The fact that interactive web services have entered all spheres of life motivated the authors to investigate how this new collaborative media influences modern information society. The paper discusses the results obtained by comparative analysis of different collaborative media. Interactivity was considered as one of the most important criteria for choosing between the many different interactive web services. The authors analyzed the main characteristics of the chosen services, classified them into groups and compared them within those groups. The paper stresses the importance of today's most popular services, varying from search engines, all kinds of online communities, different types of leisure services to e-learning services, on the behavior and expectations of all participants in the global Internet-based communication. Search engines were analyzed according to ranking and credibility while Web community services were analyzed according to many of their interactive and communication possibilities. The category of leisure services ranged from those services created for leisure time to those created for other purposes but used as leisure services. Also, the interactive services of the largest Croatian e-learning solution, implemented at the Faculty of Humanities and Social Sciences at the University of Zagreb, were analyzed.*

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*The positive and negative sides of each of the analyzed groups of interactive web services were compared and synthesized, and their effects on media development and the society in general were analyzed. In the paper, the authors tried to emphasize the great social aspect of the Internet today and the services it provides. They showed how society has a great influence on the growth of the Internet, but also how the Internet has an even greater effect on the relationships and activities within society. Thus, this paper does not only give an overview of the comparative analysis of interactive web services but also shows the mutual influence of the collaborative media and human creativity on the development of the information society.*

Key words: collaborative media, interactive web services, search engines, online communities, leisure services, e-learning

## **Introduction**

The fact that interactive web services are entering into all spheres of life motivated us to conduct a research. We have found it important to look closely into the most widely used services, analyze them and then classify them according to their main characteristics. Thus we classified interactive web services into four classes: information retrieval services, interactive web community services, leisure services, e-learning services. Then we analyzed the created classes more deeply in order to determine the basic characteristics of the class' services according to which we can compare them. Finally, we have comparatively analyzed those services and concluded on their positive and negative sides. The overall purpose of this analysis was to try to detect the relevance of interactive services and collaborative media, their involvement and influence on the modern, information technology driven society.

Before the analysis of the four broad classes, we should give a brief definition of what these services really are in order to facilitate the understanding of further explanations.

According to Wiki, an interactive web service is either a customizable and interactive information retrieval system or a social software that enables people to connect, communicate, collaborate and interact through computer-mediated communication, being also known as an "online community". These communities are groups of people that primarily communicate via Internet rather than face-to-face, so they basically represent a supplemental form of communication between people who know each other in real life. The users are represented online by various types of avatars which, especially in the area of Multi User Dimensions (MUDs), are seen as "digital surrogates" (Bell, Peters; 2007). Usually, the starting point for usage of any of these services is either information retrieval or a simple getaway from the routine and relaxation, having fun. Of course, it depends on a person will that remain a harmless hobby or grow to an addiction and consume a part of the

user's life, the latter one happening mostly due to the freedom one has online in customization.

### **Information retrieval services**

A search engine is an information retrieval system designed to help in finding information stored on a computer system. Today, those search engines retrieve information more in relation to personal needs. People don't want just to e.g. find where a certain street is located on a map, now they want that map to be interactive. Thus, search engines dig deeper into the storehouse of information, they present the results better or they track our long-term interests. The world today thinks that one of the ways on how to evolve better is to consider everyone an individual and the development of technology, however mechanical it can be, does exactly that. Search engines are competing among each other who will have greater and more sophisticated inquiry, of course with an accent to be made for any person, not just the professional researcher.

### **Search engines and the World Wide Web**

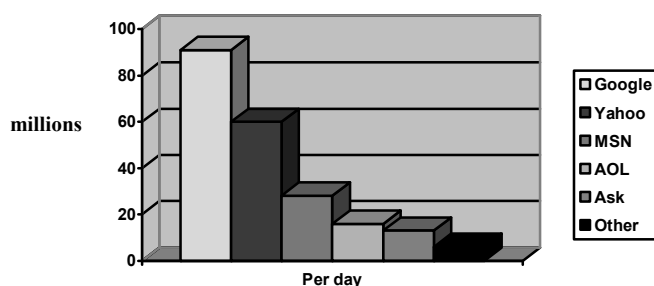
The World Wide Web is growing every day and despite the fast development of technology, no search engine can follow that growth. The reason for such lagging is the updating of web pages. Some of them are updated daily and search engines have to visit them daily to keep track of all the changes. That is, of course, not easy taking into consideration the use of Internet today. Everyone can make a web page and everyone can put different kinds of information on the Internet.

“Things have changed in a decade. Ten years ago, few people, other than a few librarians, lawyers and scientists, did computer-based search. Today, hundreds of millions of people do search on the web. (...) The ability to do a high precision search (that is, retrieve only relevant articles) and search with good recall (that is, find all relevant articles) is still somewhat primitive.”<sup>1</sup>

The number of people who need something and are conducting a search is greater by the day. Picture 1 shows statistical numbers of how many searches are conducted per day with different search engines.

These numbers first show that Google is one of the leading search engines today. Later it will be described more in details. The second issue these numbers show is the large amount of activities that are very important to people in finding certain information. Thus, the question of credibility arises. And before the credibility of the content, the question of ranking factors must be answered.

Picture 1: Number of searches per search engine per day  
(within the United States in March 2006, based on *comScore* figures).



### Ranking factors

According to a search engine optimization consulting company (SEOMoz), it is always a good idea to be updated on the factors that search engines use to determine search results and rank websites. The company stated 5 newest positive and negative factors related to the ranking of web pages within search engines:

- keyword usage in title tag
  - global link popularity of a site
  - anchor text of inbound link
  - link popularity within the site
  - age of a site
- } positive factors
- server is often inaccessible to bots
  - content very similar or duplication of an existing one
  - content on the index
  - external links to low quality/spam sites
  - participation in link schemes or actively selling links
  - duplicated title/meta tags on many pages
- } negative factors

By reviewing those ranking factors we can see how they were developed parallelly with the development of technology. What is important about it is the aspect that the development paves the way for our personal interests and tries to make the interaction easier. That is what search engines are all about – how to meet people’s interests and their level of searching knowledge. The latter one is further being analyzed in the article mentioned as the Google suggest option.

### Credibility

Search engines may be innocent intermediaries, or villainous agents – it depends on who you ask! The relative sentence, just stated, shows how credibility is hard to be assessed. Credibility is one of the most important aspects people expect from search engines. But in today's overflow of information it is hard to determine it and people in their busy lives just need information, they don't have the time to assess is it good or bad information. So, how to search exactly what we are looking for and get it in a form that is valid?

More questions arise when we ask if a certain search enables a large scale intrusion into the privacy of others and if an anonymous search is a necessity or a possibility. In our opinion, it is not an intrusion. If someone lets his/hers privacy stay unprotected, why would anyone be an intruder?! Of course, a lot of ethical questions can be posed in this example.

There is an interesting question among people discussing this theme: why does information, not accessible through search engines, appear to be even non-existent for our information society? This opinion shows that information is there to be shared, that the world develops on the grounds of interaction and that search engines that allow that interaction are interactive themselves and are the best way to inform the society.

“Because each search engine will most likely yield different results, it is in your best interest too use several search engines to do your search.”<sup>22</sup>

### Positive and negative sides of search engines and the greatness of their interactivity

There are numerous positive and negative sides of search engine usage. Here are some stated and explained:

- easy to use
  - becoming customized
  - accessibility
  - user generated content
- } positive sides
- interactivity with a machine
  - spam sites
  - duplicates
- } negative sides

Among the positive sides, we must mention the *ease of use*, for it allows a wide usage for everyone and customization makes every search individualized.

Interactivity with a machine could be a positive side, because it makes a search more objective, but in our opinion interaction with a human is maybe subjective but more flexible and thus more user-generated.

### **Google**

Google is one of the world's leading search engines. It searches over eight billions web pages and, as seen on Picture 1, over 90 million searches are conducted on Google per day.

Google's extras / innovative services are G-mail, Google suggest, Google co-op and Google web accelerator. All of these make the usage of Internet more interactive and meet the needs of the user. For example, Google suggest gives suggestions as soon as a user types in the first letters of his search. On the other hand, in Google co-op a user can make his searches more individual.

### **Pogodak**

Pogodak is the only search engine specialized for the Croatian Internet space.

### **Wikipedia**

Wikipedia represents a different way of searching the Web for information. It is a free encyclopedia that anyone can edit. It is free and loaded with information, but it has a lot of negative sides. Among those is the fact that in many examples it demolishes the credibility of the content. It makes no guarantee of validity, has no contract and gives no professional advice. It is interactive, but does it meet all users' needs?

### **Interactive Web Community Services**

In all of interactive web communities the reputation one has online is clearly evident, so much that it could be simply called "a desire for prestige"<sup>3</sup>. It is very easy to conclude that, as people are fairly social beings, it is motivating and necessary for many, if not all users, to be responded to and get credit.

According to Wiki, there are two kinds of tools used in social software applications:

1. communication tools,
2. interaction tools.

The first ones involve the acts of talk, speech and/or writing, and the second ones involve the interest users establish in one another as individuals (this way it is possible to present as much of the user's expression and performance as possible), followed by privacy controls that allow members to choose the level of viewability of their profiles.

Also, there are a few main reasons for growth of all kinds of interactive web services: there is no censorship, any kind of creativity and expression (by netiquette) is allowed, the price is either very acceptable or the usage of such services is free, while possibilities for interactivity are endless.

Here is an insight on the positive characteristics of interactive web services that we deduced from our research, followed by the negative ones.

Positive characteristics:

- liberty of expression (underlying the netiquette),
- great number of possibilities for communication and information retrieval (one can communicate with others via chats, forums, private messaging systems, comments on userpages etc.),
- possibility of profit by using such services (cause and effect – a user gets recognized for his/hers e.g. photos or music, leading to fame due to his/hers work, and eventually gaining wealth),
- social aspect in the case of maintaining relationships (either between people that know each other in real life or, specifically, online relations),
- learning,
- gaining skills in using many kinds of software (from keyboard shortcuts to photo manipulation and using various interfaces on forums, MUDs, messengers etc.) and programming (such as basic knowledge of HTML).

Negative characteristics:

- lack of face-to-face communication (alienation in general, followed by the loss of communication skills in real life, which often get intertwined with cyber language),
- need of minimal knowledge of IT (users must possess basic knowledge in computer usage, as well as some orientation in terms of cyberworld),
- administrators are usually experts only in IT, and not in the field they are administrating (very often there are mistakes in understanding a topic – banning where unnecessary or no action taken where it is expected),
- spam – irrelevant commentaries and posts of users, useless topics etc.,
- abuse from hackers (data and copyright theft, stealing accounts, viruses) and sexual predators (that aren't easily traceable) to stalkers and fictional accounts that represent the most benign kind of abuse and might be put to the category of spam.

**FlickrR (<http://flickr.com/>)**

FlickrR is a photo sharing website for non-commercial purposes where users share personal photographs and many bloggers use it as a photo repository<sup>4</sup>.

It uses innovative online community tools that allow photos to be tagged and browsed by folksonomic means and offers some innovative options: organizing (using collections of photos, sets and tags), maps (sharing where photos were taken, the ones taken nearby), making all kinds of stuff (postcards, photo books, framed prints etc.) but using FlickrR for commercial purposes is strictly forbidden – an account will immediately be terminated if the owner sells products or services.

A huge problem here is copyright infringement, the most common one being finding one's works in other member's photostream, or finding out that another person is getting credit, fame and/or making money for the stolen work elsewhere. Fortunately, stealing is not too easy because it is impossible to retrieve a full-size photo simply by rightclicking and saving it to your local computer.

Users can give "testimonials" and comment on other members' work by marking a certain part of a photo that stands out (Picture 2), thus enabling the recognition and contributing to their popularity, as there are links to official sites of users.

#### **MySpace (<http://www.myspace.com/>)**

MySpace is a user-submitted network of friends, personal profiles, blogs, photos, music and videos, now being world's fifth most popular English-language website and fifth most popular website in any language<sup>5</sup>. Becoming that huge encouraged working with law enforcement to prevent incidents (all kinds of threats, giving out too much personal information etc.).

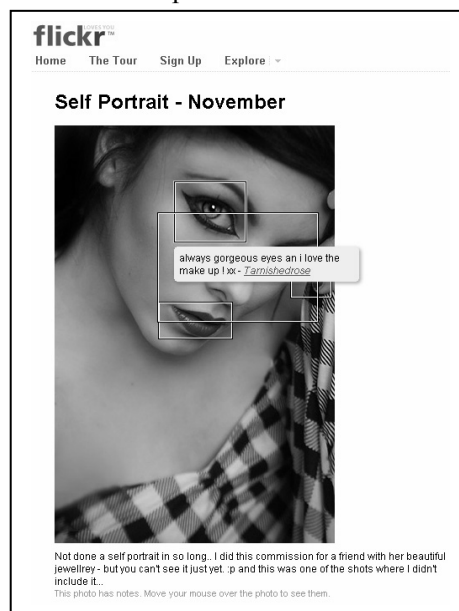
This service has become a gathering place for maintaining relationships, causing for many people to live their lives online and the whole social networking idea to go way deeper.

MySpace offers some innovative options, such as networking for business people and families, it uses a privacy control (allows the user to choose who can view their profile or contact them), members have the possibility of uploading music and videos from YouTube to their profiles, which showed to be an amazing opportunity for talented amateur bands to reach an audience (the famous cases of Lostprophets and Arctic Monkeys<sup>6</sup> who both went from a simple MySpace page to MTV popularity).

#### **DeviantArt (<http://www.deviantart.com/>)**

DeviantArt is an online artistic community with a motto: "DA: where Art meets application!" that provides a place for artists, photographers and writers to exhibit and discuss their works. DeviantArt is being visited by almost two million individuals per day who view 35 million pages daily<sup>7</sup>, offering an extensive category structure: from photography, digital and traditional art to literature, skins for applications and artisan crafts, just to name a few.

Picture 2: Flickr's marks and comments of a photo





DeviantArt offers extensive downloadable resources (tutorials, stock photography), and deviants have an opportunity to subscribe and turn their account into a commercial one. It offers some innovative options, such as a printstore for every member (with products varying from posters to mugs), wishlists, giving incentives for contributing – deviantDollars that can be spent in an official virtual store etc.

A huge problem on DeviantArt is copyright infringement, even bigger than on Flickr, because there is no full-size-photo protection. There are unfortunately numerous cases of purchases of certain prints which are afterwards being sold for a higher price and without giving any credit to the artist (their watermarks and other existing copyright get removed), not to mention finding one's works in other member's photo gallery with their name on it and/or some photo manipulation (e.g. change of colour, cropping).

DeviantArt has restrictions in deviation submissions that are protecting the youth (nude photography) and immediately bans members that stole someone's artwork, but other than that, there is no real help in copyright issues, just to mention the famous case of Lara Jade, whose photo taken at the age of 14 is being a title-page for an adult movie (it is being taken to court)<sup>8</sup>.

## Leisure Services

Even prior to the rise of the World Wide Web, the Internet was often used for leisure purposes. Multiplayer gaming had its predecessor in various MUDs, and Usenet groups held the niche of modern web forums. Both of those usages were receiving much of the main traffic, and both are somehow present even today as two main ways of leisure usage of the Internet: using services strictly created for spare time usage and misusing the services created for other purposes. While used in spare time, we can consider blogs and message boards as members of the second category.

While the usage of the WWW for leisure purposes has such a big impact on Internet traffic, some industries gained profits from it, mainly pornography, gambling industry and computer gaming industry. While the latter one is quite benign, many governments have attempted to put restrictions on the first two industries' use of the Internet – without bigger success in containing their actions or stopping their popularity.

Multiplayer gaming fits in pure spare time usage of Internet with fewer problems. Although multiplayer online gaming is frequently a prolongation of offline gaming, it is most often free of charge, as that fee is already paid while purchasing the game from the store. However, there are lots of games created strictly for the online usage, and as such are not free of charge. On the other hand, there are many free games that person can play without paying at all. While online gaming has been around since the 1970s, modern modes of online gaming began with services such as GameSpy and MPlayer, which players of games would typically subscribe to. Non-subscribers were limited to certain types of game play or certain games. This form of leisure activity creates communities that are not virtual more than the everyday communities are. From the role playing games and strategic games to the

first person shooters and classic games, online gaming revolutionized the way people interact and spend their free time on the Internet. From first MUDs to the present day, it was almost always the first area where the people embraced the ideas of real community in the virtual environment.

Of course, there is a great deal of the other type of leisure usage of the Internet. It is often used to access and download music, movies, programs and similar data, either from centralized servers or through peer-to-peer technologies. While not all people ask for permission to download data, there is a great deal of copyrighted data theft.

Yet, most of misuse of the service is quite benign. For example users are often accessing the news of their special interest like weather and sports reports, traffic schedules and such. People often use chat (ICQ, Google Talk), messaging and e-mail to stay in touch with friends, not only in the written but also in the voice form thus using the Internet infrastructure instead traditional telephone services (Skype).

We will illustrate two main categories of leisure usage of the Internet (using services strictly created for spare time usage and misusing the services created for other purposes), and look at their anonymity/publicity feature.

### **Services created strictly for the spare time usage**

#### **Twitter (<http://twitter.com/>)**

It is a free online service that enables users to broadcast short messages to their friends or “followers”. It is an interesting and usable real-time messaging system for groups. Twitter defines itself as a *global community of friends and strangers answering one simple question: “What are you doing?”*. It also lets people specify which Twitter users they want to follow so they can read their messages in one place. Twitter is designed to work on a mobile phone as well as on a computer. All Twitter messages, so called *twitts*, are limited to 140 characters, so each message can be sent as a single SMS alert. Part of the Twitter charm comes from that limited space for writing a note.

*Twitt* is a phonetic rendering of a small bird’s call. Hence, the *Twitter* is caller, place where people stop by and tweet about their presence and their, mostly short term, plans. When people send in a mobile text (SMS), Twitter sends it out to their group of friends and posts it to their Twitter page. Twitts are displayed on the user’s profile page and also instantly delivered to other users who have signed up to receive them. The sender can restrict delivery to those in his or her circle of friends (delivery to everyone is the default).

Twitter is useful for close-knit groups (although there are also some fairly large mobs on Twitter). If you follow your friends, and they follow each other, you can quickly communicate group-related items, such as “I’m going to the pub on Fourth Street, come on along”. If you enter items into Twitter, they can be private, so only friends you’ve authorized can see them. Items can also be made public, which means anyone who knows your Twitter ID can read and subscribe to them.

That also has a downside. As the Wall Street Journal says: “Fans say they (social networking services) are a good way to keep in touch with busy friends.” But some users are starting to feel ‘too’ connected, as they grapple with check-in messages at odd hours, higher cell phone bills and the need to tell acquaintances to stop announcing what they’re having for dinner.”

### **Group hug (<http://grouphug.us/>)**

Group hug is a website that publishes anonymous confessions. Readers of the site are encouraged to “confess” using a simple form. All confessions go through a lengthy public screening process before appearing on the main page. The site is quite popular, having more than 400,000 confessions, and claiming that this number is only one third of the posted number (the rest are discarded as unauthentic). Group hug administrators say that the point of their site is to offer a little bit of relief from one’s conscience.

### **Twitter vs. Group hug**

While looking at Twitter and Group hug, we are looking at two very similar, yet very different services. Their main pages look alike. Procedure of writing posts is roughly similar, although Group hug doesn’t require login. Posts are often short – Twitter is limited on 140 characters, Group hug isn’t but most posts are shorter than that.

The main difference isn’t technological, but a social one. The purpose of posting is different. On Group hug people post anonymous confessions, while on Twitter they post public twitts. While Twitter is mostly social service, Group hug is much more introversive.

## **Services created for other purposes, but used for leisure**

### **YouTube (<http://www.youtube.com/>)**

YouTube is a popular video sharing website where users can upload, view, and share video clips. YouTube was created in mid February 2005. In the first year, the site collected around 45 terabytes of videos, and total time people spent watching YouTube was around 10,000 years. And that was prior the October 2006, when the Google bought it. The wide variety of site content includes movie and TV clips and music videos, as well as amateur content such as video blogging and short original videos. Unregistered users can watch most videos on the site; registered users have the ability to upload an unlimited number of videos. Related videos, determined by the title and tags, appear to the right of the video. In the site’s second year, functions were added which provide the ability to post video ‘responses’ and subscribe to content feeds for a particular user or users. Currently, YouTube is ranked 14th site in the world by attendance.

Although really a new thing, YouTube have a significant social impact. A number of figures have grown to prominence and become the Internet phenomenon on the

basis of their appearance in YouTube videos.<sup>9</sup> YouTube has also become a means of promoting bands and their music. Users of YouTube periodically hold public gatherings to celebrate the video sharing community.

YouTube awards videos with honors, the most popular of which is “most viewed” which consists of today, this week, this month and all time. Honors include: most viewed, top rated, most discussed, top favorites, most linked, recently featured and most responded. Starting in 2006, YouTube has presented the annual YouTube Video Awards. Categories include “most adorable’ video ever” and “most creative”. YouTube nominates the contenders, and users decide the winners. Only original, user created videos, are nominated. So as we can see, YouTube went far beyond its initial plan, to be the service for quick sharing of video information. Most of its videos are quite irrelevant for anything else than the pure leisure usage, and most of its users are people interested mainly for fun and spending their spare time.

### **Various Blogs**

It is hard to define the term *blog* without oversimplifying or over complicating it. Matisse Enzer’s Glossary of Internet Terms puts it this way:

Blog – (weB LOG) A blog is basically a journal that is available on the *web*. The activity of updating a blog is “blogging” and someone who keeps a blog is a “blogger.” Blogs are typically updated daily using software that allows people with little or no technical background to update and maintain the blog.

*(Matisse Enzer’s Glossary of Internet Terms, s.v. Blog)*

Blog is a frequent, chronological publication of personal thoughts and Web links. It is often a mixture of what is happening in a person’s life and what is happening on the Web, a kind of hybrid diary/guide site, although there are as many unique types of blogs as there are people. People maintained blogs long before the term was coined, but the trend gained momentum with the introduction of automated published systems, most notably Blogger at blogger.com. Thousands of people use services such as Blogger to simplify and accelerate the publishing process. Today we are seeing not expansion, but explosion of blogging. In May 2007, blog search engine Technorati was tracking more than 71 million blogs.

Blogs are “post-centric” – the posting is the key unit – rather than “page-centric,” as with more traditional websites<sup>10</sup>. Weblogs typically link to other websites and blog postings, and many allow readers to comment on the original post, thereby allowing audience discussions.

Blogs run a wide variety of topics. One may be a running commentary on current events in a specific arena. It may be a series of personal musings. It may be a purely political tract, as with Joshua Micah Marshall’s TalkingPointsMemo.com. It may be pointers to other people’s work or products, such as Gizmodo, a site devoted to the latest and greatest gadgets. Or it may be a constantly updated “what’s new” by a domain expert, such as Glenn Fleishman’s excellent WiFi news

and commentary page. While some blogging software permits readers to post their own comments, this feature has to be turned on by the blogger, and a significant number of prominent bloggers have not enabled the comment feature. At the other extreme, the Slashdot weblog, featuring news about technology and tech policy, is essentially written by its audience. As we can see the important feature of blog is the possibility for readers to post comments.

The emergence of blogging has brought a range of legal liabilities and other often unforeseen consequences. One area of concern is the issue of bloggers releasing proprietary or confidential information. Another area of concern is blogging and defamation. A third area of concern is employees who write about aspects of their place of employment or their personal lives, and then face loss of employment or other adverse consequences.

We can broadly classify blogs by their purpose, although that is somehow a vain effort because there are as many types of blogs as there are different people. Nevertheless, there are three main categories: News, Commentaries and Diaries.

Example of a blog whose purpose is providing news to the people is SophosLabs blog. It is the blog with all the newest information from different fields of life (sports, politics, IT, culture, etc.). Important issue of blogs dealing with news is question of credibility. Simply put, there is no governing body that will guaranty for information found in a blog.

A good example of a blog created as a commentary is Pollitika. Such blogs often have agenda, and try to act as the opinion makers while giving their view of different day-to-day issues.

The example of the third category, the diaries, is Jimblog. It is the most often seen type, and mostly fits in the spare time usage of the Internet. While always reflecting blogger's inner world, it very often provides his/her comment of the outside world as well. The main difference between the blog created as a commentary and the one created as a diary is in the different thematic. Yet that line is often very thin.

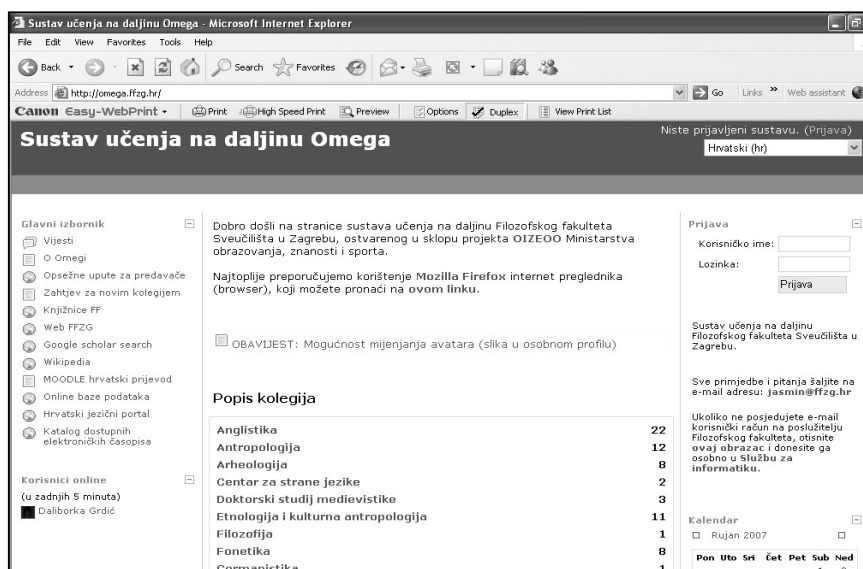
## **E-learning services**

Knowledge is supposed to be the result of interactivity. E-learning is spreading worldwide and not only the universities, but also many corporations (Cisco Systems, Circuit City) use it.<sup>11</sup> E-learning services provide learning from any location connected to the Internet, therefore from home too. Users often need only basic computer knowledge. Students communicate with teachers and other students by forum, exchanging information, news about exams, activities, literature etc. We will show the main characteristics of e-learning services on the example of the Croatian version of Moodle<sup>12</sup>, called Omega.

### Omega e-learning

Omega is an educational web service at the Faculty of Humanities and Social Sciences at the University of Zagreb (Picture 3). Omega contains various interactive tools (Database, Wikipedia, Google, News). Omega's homepage also contains the main menu (news, facts about Omega, guides, links on libraries and homepage of the Faculty's web-page; Picture 4), online users, calendar and the fields for login. Information is available without time or space limit<sup>13</sup>. Students can upload files, adding citations, forums, glossary terms etc. Besides that, professors can add web links, quizzes, interactive lessons with true/false and multiple choice answers, and enable download of various resources (lessons, literature etc.) and upload of homework (Picture 5). Those resources are accessible anytime.

Picture 3: Omega e-learning



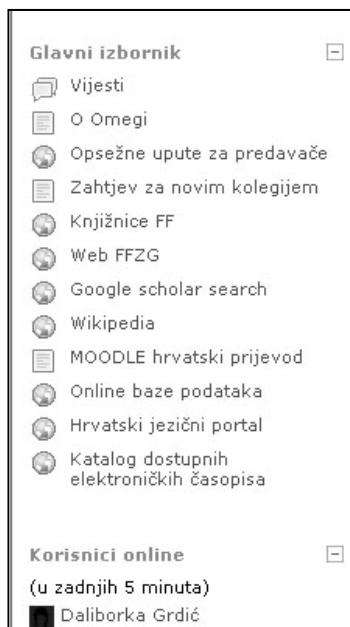
Students prefer (not to say expect) faster feedback about their success, and often in odd hours too.

Professors can easily supervise different aspects of students' progress or activities (Picture 6). It's easy and quick to edit test results and publish the results.

It is proved that online discussions are good for shy and ineloquent students where they usually discuss matters more freely.<sup>14</sup>

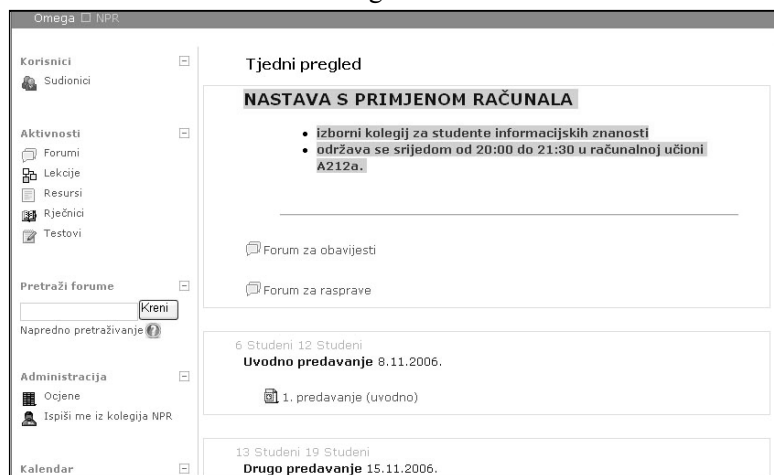
The negative sides of e-learning services are spending most of the time in a virtual space. Messages can be delayed for several hours, sometimes even days. The system can be slow or crash down so the students cannot completely rely on it. System crashes are possible and the system administrators often update Omega, which makes e-learning unavailable at the time. There is also a problem with

Picture 4: Omega's main menu



authorities. Access to Omega have system administrators, professors and only students who get the key. Guests cannot participate as they are not regular students. Face-to-face interaction is missing. There is also a lack of class collectivity. Even today some students still have problems with computer and Internet access. E-learning (also called distance and flexible learning<sup>15</sup>) develops the quality of learning and makes communication easier but cannot completely replace a professor. The learning process needs social interaction and experts play an important role here<sup>16</sup>.

Picture 5: Omega lessons' view



Picture 6: Supervision of the students' progress

Nastava s primjenom racunala										Prijavljeni ste
Omega <input type="checkbox"/> NPR <input type="checkbox"/> Ocjene										
primjer	primjer	KIF	Anita	Učenje	Test:	Anketa	Test	Povijest	Test	Ocjene ?
2 - anketa	2.5 - test	(Mladen Šulekić)	Salopek:Test kulture hrvatskog jezika	talijanskog online (Andrijana Jerneić)	Štitar (Ivica Buzov)	Matica hrvatska (Andrea Radošević)	Forum Romanum (Martina Kolarec)	Filozofije - test (Jirsak)	(Katarina Posilović)	
10	10	10	10	10	10	10	10	10	10	10
-	-	-	-	-	-	-	-	-	-	-
Prijavljeni ste sustavu kao Anita Salopek (Odjava)										
<input type="button" value="NPR"/>										

## Conclusion

The comparative analysis of interactive web services showed that those services can be classified in at least four broad classes: information retrieval services, interactive web community services, leisure services and e-learning services. Information retrieval services nowadays provide all kinds of different, highly customizable features in order to interact with the users according to their specific interests, and enable personalization by saving users' preferences. Credibility of the results, position of the important ones on the results lists, and the non-possibility of deep-web searching are among the most important questions in the area of information retrieval. While search engines have interactive elements, they are more oriented to individual users. Interactive web community services are more community-oriented. Users can express themselves freely and have feedback in the form of social discussions on the topic they raised. They can maintain virtual relationships, discuss, exhibit, upload, download, earn, spend (even virtual money) but at the same time they can be exposed to fraud and copyright infringement. The users of leisure services are usually either using the services strictly created for spare time usage or misusing the services created for other purposes. Finally, e-learning services, as shown on the example of Omega, the educational web service of the Faculty of Humanities and Social Sciences at the University of Zagreb, show great interactivity possibilities in creation of closed on-line communities, reserved for the students of a course only, with the aim of professional advancement. Members of this type of communities, contrary to the members of the other, previously explained communities, often state that in some segments they lack face-to-face interactivity. This was expected because other researches showed that the best way to upgrade an educational system is to complement it, rather than substitute it, with an interactive e-learning service. Taking all this into consideration, the analysis showed the present state of interactive web services, their possibilities, and positive and negative sides. It also



showed their great influence on the information society of today and the expectations users have considering the possibilities to acquire, exchange or comment on information, and shortness of response time.

## ENDNOTES:

- <sup>1</sup> Jörg Eberspächer, Udo Hertz (2002) *Leben in der e-Society: Computerintelligenz für den Alltag*, Springer, 43.
- <sup>2</sup> Maciuba-Koppel, Darlene (2002) *The Web Writer's Guide*, Focal Press, 60.
- <sup>3</sup> Wikipedia, s.v. Virtual community, [http://en.wikipedia.org/wiki/Virtual\\_community](http://en.wikipedia.org/wiki/Virtual_community) (12.11.2007).
- <sup>4</sup> FlickrR, <http://www.flickr.com/help/> (12.11.2007).
- <sup>5</sup> MySpace, <http://www.myspace.com/index.cfm?fuseaction=misc.faq> (12.11.2007).
- <sup>6</sup> More about this topic you can find at: <http://www.zamirzine.net/spip.php?article3859> (14.11.2007).
- <sup>7</sup> DeviantArt, <http://help.deviantart.com/> (12.11.2007).
- <sup>8</sup> More about this topic you can find at: <http://www.parentdish.com/2007/08/02/teen-finds-herself-on-a-porno-movie/> (14.11.2007).
- <sup>9</sup> Krahel, Magdalena, *You Tube Displays Nina Duong Collection*, <http://www.pressmediawire.com/article.cfm?articleID=1921> (19.9.2007)
- <sup>10</sup> Gillmor, Dan (2004) *We the media*, <http://www.phillyfuture.org/book/export/html/55> (10.08.2007)
- <sup>11</sup> Charp, Sylvia. *Online learning. The journal*. <http://www2.thejournal.com/articles/15843>, March 2002.
- <sup>12</sup> Free CMS open source software package created to develop e- learning communities, <http://moodle.org/>
- <sup>13</sup> Charp, Sylvia. *Online learning. The journal*. <http://www2.thejournal.com/articles/15843>, March 2002.
- <sup>14</sup> *E-learning and education*, [http://www2.thejournal.com/articles/15843\\_3](http://www2.thejournal.com/articles/15843_3)
- <sup>15</sup> Wikipedia, s.v. E-learning, <http://en.wikipedia.org/wiki/E-learning>
- <sup>16</sup> Bennett, Chris. Founder and CEO, Ah Ha! Media

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## REFERENCES:

- Bell, Lori. Peters, Tom (2007) "MUVEing toward accessibility", *Computers in Libraries*, 27 (4): 34-36. URL: <http://www.encyclopedia.com/doc/1G1-161981685.html> (12.11.2007).
- Bennett, Chris. "How Long Should an E-learning Course Be?", *eLearn Magazine*, [http://www.elearnmag.org/subpage.cfm?section=best\\_practices&article=41-1](http://www.elearnmag.org/subpage.cfm?section=best_practices&article=41-1)
- Bishop, Jonathan (2007) "Increasing participation in online communities: A framework for human-computer interaction", *Computers in Human Behavior*,

- 23(4): 1881-1893. URL: <http://portal.acm.org/citation.cfm?id=1225110&coll=Portal&dl=GUIDE&CFID=44323754&CFTOKEN=55678940> (12.11.2007).
- Bidgoli, H. (2004) *The Internet Encyclopedia*. John Wiley and Sons
- comScore, <http://www.comscore.com> (10.10.2007)
- Dearstyne, Bruce W. (2007) "Blogs, Mashups, & Wikis Oh, My!", *Information Management Journal*, 41 (4), 24-33.
- DeviantArt, <http://www.deviantart.com> (08.09.2007)
- Eberspächer, J. and Hertz U. (2002) *Leben in der e-Society: Computerintelligenz für den Alltag*. Berlin: Springer.
- E-learning, <http://agelesslearner.com/intros/elearning.html> (12.03.2007)
- E-learning, [http://www.elearnmag.org/subpage.cfm?section=best\\_practices&article=41-1](http://www.elearnmag.org/subpage.cfm?section=best_practices&article=41-1) (15.03.2007)
- E-learning and education, [http://www.direct.gov.uk/en/EducationAndLearning/AdultLearning/LearningOutsideTheClassroom/DG\\_4016860](http://www.direct.gov.uk/en/EducationAndLearning/AdultLearning/LearningOutsideTheClassroom/DG_4016860) (19.03.2007)
- E-learning course, <http://communication.howstuffworks.com/elearning1.htm> (18.03.2007)
- Fleishman, Glenn, *Wi-Fi Networking News*, <http://www.wifinetnews.com>
- FlickrR, <http://flickr.com> (08.09.2007)
- Gillmor, Dan (2004) *We the media*, <http://www.phillyfuture.org/book/export/html/55> (10.08.2007)
- Glossbrenner, A. & Glossbrenner, E. (2001) *Search Engines for the World Wide Web*. Berkeley: Peachpit Press.
- Gizmodo, <http://www.gizmodo.com> (17.5.2007)
- Group Hug, <http://grouphug.us> (10.05.2007)
- Jimblog, <http://jimbo.blog.hr> (05.05.2007)
- Kenney, Brian (2007) "You 2.0", *School Library Journal*, 53 (1), 11-11.
- Krahel, Magdalena, *You Tube Displays Nina Duong Collection*, <http://www.pressmediawire.com/article.cfm?articleID=1921> (19.9.2007)
- Lopresti, Michael (2007) "Taking it Off the Streets: Activism Goes Online", *EContent*, 30 (7), 14-14.
- Maciuba-Koppel, Darlene (2002) *The Web Writer's Guide*. Amsterdam/New York: Focal Press.
- Matisse Enzer's Glossary of Internet Terms*, s.v. Blog, <http://www.matisse.net/files/glossary.html> (20.04.2007)
- "Messaging in a 2.0 World", *Library Technology Reports*, 43 (5), 2007, 62-66.
- MySpace, <http://www.myspace.com> (08.09.2007)
- Moodle, <http://moodle.org/> (09.03.2007)

- Nybråten, F. B. & Arntzen, J. S. (2007) "Participation and Interaction", *Scandinavian Public Library Quarterly*, 40 (1), 14-15.
- Omega, <http://omega.ffzg.hr> (10.12.2006)
- Pogodak, <http://www.pogodak.hr>
- Pollitika, <http://www.pollitika.com>
- Quantcast, <http://www.quantcast.com>
- Quint, Barbara (2007) "Be Careful What You Wish for: User-Generated Content Demands", *Information Today*, 24 (8), 7-8.
- Roher, Eric (2007) "The Darkside of Facebook, YouTube and MySpace Cyberbullying in Schools", *Teaching Librarian*, 15 (1), 20-21.
- SEOmoz, <http://www.seomoz.org>
- "Social Video Videoblogging & YouTube", *Library Technology Reports*, 43 (5), 2007, 52-57.
- SophosLabs, <http://www.sophos.com/security/blog/>
- Technorati, <http://technorati.com/>
- Twitter, <http://twitter.com>
- Webber, Sheila (2007) "Blogosphere", *Information World Review*, 239, 22-22.
- Wikipedia, <http://www.wikipedia.com> (08.09.2007)
- E-learning, <http://en.wikipedia.org/wiki/E-learning> (11.03.2007)
- Virtual community, [http://en.wikipedia.org/wiki/Virtual\\_community](http://en.wikipedia.org/wiki/Virtual_community) (12.11.2007)
- YouTube, <http://www.youtube.com>
- 

## Usporedna analiza interaktivnih mrežnih servisa

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**Dina Crnec, Stjepan Mateljan, Anita Salopek, Dijana Sanković**

### SAŽETAK

Činjenica da interaktivni mrežni servisi prožimaju sva područja današnjeg života potaknula je autore da analiziraju kolaborativne medije i njihov utjecaj na

moderno informacijsko društvo. U radu su prikazani rezultati dobiveni metodom usporedne analize kolaborativnih medija. Interaktivnost je pritom smatrana jednim od najvažnijih kriterija za odabir mrežnih servisa koji će biti uključeni u istraživanje. Autori su analizirali glavne karakteristike odabranih servisa, klasificirali ih u skupine te ih unutar njih usporedili. Posebno je uzeta u obzir važnost utjecaja najpoznatijih internetskih servisa današnjice, počevši od pretraživača, raznih vrsta online zajednica, zatim servisa namijenjenih zabavi, do servisa specijaliziranih za izobrazbu u elektroničkoj okolini, na ponašanje i očekivanja svih sudionika u globalnoj komunikaciji utemeljenoj na internetskoj tehnologiji. Pretraživači su analizirani prema rangiranju i vjerodostojnosti ponuđenih rezultata. S druge strane, online zajednice analizirane su prema raznim ponuđenim mogućnostima interakcije i komunikacije. Kategorija “zabavnih” servisa obrađena je u dva oblika – jednom, u kojem su bili servisi za zabavu, te drugom, u kojem su se našli servisi koji nisu namijenjeni zabavi, ali se za nju koriste. Naposljetku su analizirani interaktivni servisi najveće hrvatske implementacije sustava za e-učenje – one na Filozofskom fakultetu Sveučilišta u Zagrebu.

Autori su usporedili i sintetizirali pozitivne i negativne strane analiziranih interaktivnih servisa unutar svake skupine, a zatim su analizirali njihov utjecaj na razvoj medija i društva općenito. Autori su istraživanjem pokušali istaknuti današnji velik utjecaj interneta i njegovih servisa na društvo. Pritom su pokazali kako društvo snažno utječe na rast interneta, ali internet ima još veći utjecaj na odnose i aktivnosti u društvu. Stoga ovaj članak ne prikazuje samo rezultate usporedne analize interaktivnih mrežnih servisa nego također međusobni utjecaj kolaborativnih medija i ljudske kreativnosti na razvoj informacijskog društva.

**Ključne riječi:** kolaborativni mediji, interaktivni mrežni servisi, pretraživači, online zajednice, servisi za zabavu, elektronička edukacija