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Participatory Surveillance with Social Software in Creative Projects

Master Thesis

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Abstract

In this master thesis where the activities in web-based social software environments that support social creative projects are studied. The focus of the study is on participatory surveillance (the practice of observation and collaboration) in these projects. The theoretical approach integrates social surveillance techniques with social software, participant behaviors in hybrid ecosystems, and also the new media art.

The diverse combination of new technologies into hybrid spaces, and utilization of knowledge of specific user behaviors in these spaces makes it possible to form a hybrid ecosystem that enables to trigger a diverse set of interests and motivations for people to join in and participate in novel creative art activities. This study is aimed to investigate how to create social artistic projects using social surveillance methods in social software environments. Surveillance is a concept that is recently overcoming a rapid change of interpretation (Pata, 2009). Initial surveillance term conveys a negative meaning – it means constantly watching persons, places or objects to collect information concerning the individual's activities and identities. This surveillance concept is related with security, city video cameras, and other data collecting devices. However, in social software environments the surveillance concept has obtained a new positive meaning – it is now considered a prerequisite for starting various activities in the web communities. It is supposed that using social surveillance techniques would enable people to easily create, manage, seek and share information. In this study three types of artistic activities are described from the surveillance perspective: writing narratives, promoting art activities, and creating participatory art projects where social surveillance method is participatory surveillance.

Keywords: social surveillance, participatory surveillance, social navigation, social awareness, social software, hybrid ecosystem, narrative ecology, swarming, collaborative filtering, mutual engagement, social graph, mash-up, ontobranding, social art.

1 INTRODUCTION

Web 2.0 is the new generation of internet network that is becoming more and more interactive and user friendly thanks to constant volunteering of IT programmers, specialists of human computer interactions and of common users. The Web 2.0 software developments and innovations of the last decade, such as real-time collaborative filtering and editing tools, social tagging and bookmarking systems, mash-ups, and web integrated mobile applications have opened a whole new dimension of experiencing diverse communication and promotion of ideas for the marketers, artists and storytellers. Basically it is shifting the processes of many creative and management specialties.

In this study the hybrid ecosystem concept is used for marking the cross-field between the physical environment that binds web and locative technologies, active people inhabiting this environment, and the contents that emerge as a result of their activities (Pata, in press). The most commonly used Web 2.0 software are currently blogs, microblogs (e.g. Twitter), social networks (e.g. Facebook), social repositories (e.g. photo storage site Flickr), instant messaging (e.g. MSN, Skype). One of the main characteristics of new software use practices is constructing personal networks with distributed architecture using various social software tools (e.g. RSS feeds). In these networks a different kind of online programs or applications can be connected with each other in different ways: for example, with help of feeds, pingbacks, tracebacks one blog content is being mashed with another and thus more layers of knowledge appearing. Software standards that enable the formation of the hybrid ecosystem are, for example: *online* services - FOAF, XML (Extensible Markup Language); *offline* or wireless services like Bluetooth, and Wi Fi; GPS (global positioning system). All mentioned services are priorities of using social networks and also considered as microcontent (Alexander & Levine, 2008). They empower the users to share photos, text and other media more effectively and creatively.

The web is becoming more and more democratic and lots of open source projects are becoming more available for common users who can create their own applications and extensions. It seems that in the future from endless tools- best ones will be chosen and constantly improved according to user preferences and wishes how to quickly exchange their information and data in convenient ways. Thus many tools are appearing to serve all kinds of social needs, such as participatory practices in web and locative media.

The given research observes social surveillance phenomenon from cultural and technical aspects: firstly, it is important for artists, who constantly create new visual art

forms, which are appearing in the environment full of different digital content. Secondly, this kind of technology unites people and offers to obtain something in social environment that has not been obtained earlier by the user: it offers more valuable knowledge layers, entertainment aspect and exposes user's individuality and creativity. In this study "art" is used as common word for creative activity. Thus the social art is a common term for music, art and events supported with web tools, because it is firstly an online collaboration of creators and users participating in social web. Regarding the web 2.0 metaphor "information finds us" (Gurrin & Smeaton, 2005) it is clear that with new social software people's online activities generate ideas and forces to actually bring these ideas to life. Also it should be added that social web is based on democratic behaviors allowing users pushing the content, e.g. promoting the content whatever it could be: art, music, ideas, or events. Social art phenomenon in hybrid ecosystem is for example, creation of collaborative art, and hybrid art forms combining new media art with social software.

The argument for problem statement is that there is not enough knowledge of the nature and user behaviors in the hybrid ecosystem. It is explored how to effectively use social surveillance phenomena (participatory surveillance) to create and run social art projects. Special accent in this master thesis is on participatory surveillance with locative and social media technologies, which offer people not only to follow each other, and to be always in the course of each other's life but also to collaborate on artistic projects.

The new technologies are constantly developing and enable people to communicate efficiently and become more creative in areas like art, music, and make marketing in Web 2.0 where the process of participatory surveillance is a key part of hybrid ecosystem based on social software environments. Hybrid ecosystem enables people to create, share, and mix content situated at different software places, combine this content across people and organize various activities. It became very simple and a common practice of enabling awareness and interactions between humans and creating and sharing digital media contents in personally managed networks. Following each other the users can find information of their interests. Being connected with each other by different kind of relationships, they can build their private or public environments. They can use these environments effectively for collaborative activities by means of social information retrieval (Vuorikari, 2009), content aggregation, real-time desktop and mobile tools. This puts social networks on a new level – "interest networking" (Spivack, 2008).

The main goal of the work is to design and investigate different creative social

surveillance practices such as social storytelling, -art, and -marketing for finding out how to use participatory surveillance effectively with the social software in social art projects.

Three sub-goals are:

1. To create and describe participatory surveillance scenarios with social software as means for creating social art (e.g. art, narratives, art event promotion).
2. To investigate empirically technical and behavioral aspects of using participatory surveillance with social software in these scenarios.
3. To generalize design principles for supporting social art with social software using participatory surveillance.

Three research questions were formulated:

1. Why and in which conditions people become involved in participatory surveillance with the social software?
2. Which participant behaviors enable doing social art with social software?
3. What are the characteristics of supportive technical environment for creating social art with social software?

In accordance with the problem, the design-based research methods were applied for developing, testing empirically and evaluating three social art scenarios in hybrid ecosystem.

2 LITERATURE REVIEW

In the thesis surveillance phenomena is studied in the context of online social networking where surveillance is considered as a practice of watching and being watched in a “playful” manner (Albrechtslund, 2005). Semantic Web 2.0 services and web integrated locative technologies have turned this practice into new context. Surveillance is now dealing with new ways of “control, care, empowerment, and entertainment” (Albrechtslund, 2007). Different kinds of complex information flows (swarming paradigm) that take place in hybrid ecosystems (Pata, in press) are based on new ways of finding, observing, filtering information by aggregating social applications, and collaborating. These observational and monitoring techniques are mainly called participatory surveillance in new social environment (Albrechtslund, 2005). Recently many specialists of new media and social navigation have discussed participatory surveillance (Borchorst, 2009) and semantic web (Lee, 2009) exposing its diverse perspectives. The author of this thesis is trying to construct a comprehensible concept of participatory surveillance in collaborative and creative aspects.

In general the literature chapter opens the background of social software that is aggregating the micro-content. It discusses the possibilities of sharing, mixing and creating stories, art, and make marketing by means of web 2.0. All these activities concentrate on hybrid ecosystem based not only on online activities framed with personal computer screen. The user activities are also connected with different kinds of locative devices wired to the web. The activities can be viewed as ubiquitous computing as well. The approach, built around the concept of Web 2.0 implies more active users, targeted for participation in content creation and using social tools to communicate and exchange their files online. With little technical knowledge users of Web 2.0 can construct and share their own media and information, build and handle social networks, tag information and “become deeply involved in immersive virtual web experiences” (Harrison & Barthel, 2009).

Almost all social software environments enable people to observe and follow others to some extent. Depending on settings any user is choosing in personal networks, social web provides automatic options to search, follow, aggregate, pull, push, mash the digital information, and track people (one-way or mutual tracing).

3.1 Social web

This chapter describes the notion of Web 2.0 – the second generation of Internet or as it may be said the new social dimension of our generation dominated by communication (Raffl et al., 2008) and emerging social software that enables people to participate in

this „techno-social” (Raffl et al., 2008) environment. Actually, the first people to use the concept “Web 2.0” were the O’Reilly Media experts ,specializing in information technology. It happened in 2004 when Web 2.0 started to be treated as a platform of online interactive services with “remixable data sources” (O’Reilly, 2005) where users would control their own data. Since that time, the scope of Web 2.0 technologies has expanded, displacing traditional Web-services. To name some of these changes: personal websites transforming into Blogs, static collections of links to services like social bookmarking and real-time search services like Technorati; appeared user generated information “domains” like Wikis and communities like social networks and the list goes on.

Editing capability of Web 2.0 actually appeared at the end of 1990s and was called the ‘read-write’ web by Dan Gillmor (2004). It meant that users became creators of web content without expecting to have knowledge of HTML language. It gave rise to the appearance of numerous user-generated sites that now constitute a large global virtual social platform: LiveJournal, WordPress, Google, Flickr, Digg, Myspace, Facebook etc. These sites are all gradually being connected with each other by aggregating and data-mining technologies featured with micro-content. Thus the emerging participatory culture of Web 2.0 enables people to expose and “connect” their environments to the network fostering ‘grass roots creativity’ and collaboration.

3.2 Media, art and participatory culture

There appeared mutual benefits between human and digital media: users became contributors and developers of social software. This meant to ensure the environment where “anyone can innovate, experiment or express themselves” (Surman, 2009).

It is historically proven that the audience of some media (books, television) becomes actively engaged “with the text on physical and psychological levels” (Harrison & Barthel, 2009, p.164). That means that the audience would interpret and construct their personal environment based on that media context.

Modern participatory culture of Web 2.0 creates “relationship of equality, respect and appreciation” as is stated by Foss and Griffin (Harrison & Barthel, 2009, p.173), and builds on their “invitational rhetoric” that balances *powers* of Internet users. According to the Web 2.0 approach of implying more active users in social software, the main change is democratization of technology or simply consideration of public benefit where notions of user and creator of content are blurred. Open source software supports successful collaboration happening in media environment by letting the users create their own comfortable ways of expression and interaction.

Firstly, in advertising industry it opens the new way for marketers to promote their products. The attraction of new audiences through internet became one of the most effective methods to raise awareness, e.g. “Next to Normal” musical hyped up by Twitter campaign (Newman, 2009).

Secondly, this is important issue for artists who constantly create new forms of art, incorporating software that can gather different media data to be creatively interpreted or combined. Artistic opportunities in this kind of environment are expanding into two categories: individual expressiveness and collective activism (Harrison & Barthel, 2009, p.170). Using social software everybody can simultaneously be an artist and the audience, and this is the ground where both may be mutually inspiring for participation. Participation in art is very challenging in mass media, because of diverse possibilities of creative expressionism and more difficult ways of controlling the participation (reciprocation between artist and audience) (Harrison & Barthel, 2009, p.171). Thus Brown (Taylor, 2005) has proposed the model that examines a community’s participation in art. It may perfectly suit to Internet art projects supported by hybrid ecosystems as its aim is to “inspire viewers to create their own work” (Harrison & Barthel, 2009). The model is facing five modes of creative control listed shortly:

“...with ‘inventiveness’ the creative bull’s eye in the middle, ranging outward from ‘interpretive’ acts of self-expression, ‘curatorial acts’ of selecting organizing and collecting, ‘observational’ arts experience that one chooses, and ‘ambient’ arts experiences that are encountered unconsciously”.

Thus, the shift in social art production is offering many ways of content manipulation and re-imagination (Harrison & Barthel, 2009, p.172).

Next, the essential technology of Web 2.0 empowering the participation in hybrid social media is explained. Numerous interactive web tools are letting people collaborate in virtual environment. All services and technologies mentioned below usefully empower the users to push, pull and mash media, monitor each other, and collaborate. In order to understand the essence of these processes, certain phenomena in social media, such as swarm paradigm, social navigation and storytelling in hybrid ecosystems are described. These phenomena constitute possible ways of creating and developing an efficient participatory environment in modern and highly interactive web.

3.3 Social software

Myspace, Facebook, Orkut and other social networks in the Internet are ubiquitous nowadays as millions of users are involved in creating and sharing content from their PCs. We also use mobiles, PDAs and other related devices every day, and most of

them are already “converged” with online activities by means of social software that keeps endless stream of information and provides filtered content in people’s social web profiles, where different media (audio, video, photos, blog posts, etc) can be mixed or mashed in many ways (O'Reilly, 2005). In common, the main technological phenomenon supporting these processes is named intelligent because no experts are involved in organizing the information – it is the sphere of intelligent web agents that work with each user individually helping people to find and filter their content. Gurrin and Smeaton have said that: “We can now make information find us” (Gurrin & Smeaton, 2005).

The most well-known manifestations of Web 2.0 that enable and sustain the formation of hybrid ecosystem are services working with metadata of social profiles (FOAF technology) and collaborative filtering, RSS feeds aggregation, tagging and geotagging, also web widgets, gadgets, and mash-up applications. The web sites that are primarily supported by those services are social networks, blogs, microblogs, and collaborative real-time editors (e.g. Google Docs). Mobile based services involved in hybrid ecosystem are protocols like Bluetooth, positioning system - GPS. Particularly, the following basic technologies that encourage and enable users to be constantly involved in artistic participatory activities allow forming a complex collaborative hybrid ecosystem. These services enable the user to create various personal networks, find people, send content from one system to another and monitor the other users’ activities. These are described in details below.

Technology FOAF (Friend of a Friend) is a semantic based or automatic metadata sharing system (Heery & Wagner, 2002). FOAF organizes the vast number of information, allowing integration of many applications in the web, and thus helping to find people by mutual contacts (Ellis, 2009), thereby, making use of the relationships within a social context. Because the connections are so vast in number, human interpretation of the information may not be the best way of analyzing them. FOAF is of help here: it allows people to subscribe to news and materials of other users who are in the so-called "friends list", it uses RDF (Reach Data Format) to describe the relationships people have to other people and the "things" around them in a distributed social and individual networks. FOAF permits intelligent mechanisms to make sense of the thousands of connections people have with each other (Brickley & Miller, 2009), their jobs and the items important to their lives; connections that may or may not be enumerated in searches using traditional web search engines.

RSS (Rich Site Summary) is a built web technique that monitors the changing content

on any site. People can subscribe to it and pull to own pages with information essential for individual use. Using RSS provides a possibility to stay informed. For example, gathering news, blog posts of interest.

Collaborative filtering is “digging” deeper – it is technology making personal recommendations (Achananuparp, 2006) to users because it connects and filters relevant content like interests, tagged photos, favorited videos, bookmarks, posts and even RSS feeds within social networks. So to say, it is aggregated grouping of large amount of information. It helps communities and users to collaborate, not only to find and handle desired information. And it is assumed that “a community makes better decisions than a handful of editors” (Saleem, 2008). When the data is aggregated and collected by these automatic agents based on large number of people’s favorite content, the collaboration takes place, and the right decision could be made based on this gathered content.

Sites of collaborative document usage allow users to simultaneously share documents where you can create modify, delete information that is available for public use. Using web applications eliminates the need to install software on local computers. In this area, Google Docs service is a leader.

Blogs might be called online networked diaries. Blogging offers one of the most striking examples of using the principles of Web 2.0. Much of the blog-content is created by the users, who are not the owners of the initial information resource that they reflect in their blog posts. For gathering information RSS feeds and FOAF are used extensively. Tags (labels, marks, categories) are used for the thematic structuring of the content uploaded to the blogs. This is useful to create so called pingbacks and tracebacks which are like personal advisors linking related content created by other users.

Microblogging is mainly an awareness providing tool. The microblogging sites like Twitter or Typepad allow users to post short messages or announcements, which are not taking much time comparing with blog post creations. These sites have more explicit and quick view on who are posting, allowing monitoring friends’ activities around. “Members may choose to make their updates public or available only to friends... Twitter allows a user A to “follow” updates from other members who are added as “friends”. An individual who is not a friend of user A but “follows” her updates is known as a “follower”. Thus, friendships can either be reciprocated or one-way.” (Java et al., 2007) Additionally, microblogging is functionally good for quick sharing its short updates and photos between other connected social networks with statuses that can be also simultaneously updated. Twitter is a good example of mutual and one way surveillance.

The study of microblogging held by American social media specialists (Java & Song et al., 2007) about Twitter showed high reciprocity that means close mutual acquaintances among its users.

Mash-up may be defined as a web application mixed with another and, thus, providing a hybridized service combining several functions. Mashing possibilities give a ground for a thought how to creatively use a mixed set of these technologies in collaborative web. For example, one of the recently highly rated mash-up is an application that unites Flickr and wiki functions in one (Flickr Wrapp).

The listed above are just a very small part of web 2.0 social software technologies currently being developed.

Not all networks' users are willing to share their private information with open public. That is why there are types of social networks that are so called "open" (everybody can see and monitor registered users, e.g. Livejournal or personal networks combined of various social software) and "closed" (only registered users can see each other, e.g. Facebook). Anyway both types may contain a choice of services listed above. These services constitute distributed social architecture (INRIA, 2007) of open-source software. Due to the fact that many applications are available and could be integrated with both types of networks a new space for "experiments" with mashing, pulling, geo-tagging and aggregating the content from various networks may be created. In this space information can penetrate the borders of closed networks enabling access to users' activities. One great solution of how to easily let participatory data flow in this architecture is to study so called "social graph" (Fitzpatrick, 2007) that is quite actual currently and investigating the social network portability (Fitzpatrick, 2007). *Social Graph* is "the global mapping of everybody and how they're related" coined by Fitzpatrick & Recordon in 2007. One of the users' problems that evoked the idea of developing such system is "being sick of inviting friends in different platforms" and also too many "login" movements if user has different social profile accounts. Social Graph's developers can utilize different social profile links of users but they still can only use public information (Fitzpatrick, 2007). It makes information about public connections between people easily available and useful. For participatory activities this might be also the gate for less time-wasting and more effective collaborations.

Another distinctive fact is "interest networks" – new kind of social networks based on "substance", not on users (Spivack, 2008). Some examples: Twine and Friendfeed: networks concentrating on mutual interests aggregated from different social profiles of users. Despite of not so great popularity of these networks it is believed that they are

the next level of effective participatory collaborations in social web evolution.

3.4 Locative based publishing

Next, in the participatory context, the locative and web technology that is involved in mixing online\offline realities by means of mobile and other personal devices that are also wired to the Internet is explored. The reason of the emergence of locative technology is supposed to be the human need to “better manage time, operations, business productivity and mobile assets” (IGTI, Inc. 2002). Geographic and artistic mobile-based needs are being studied as well.

There are different options how humans interpret contexts and perspectives from different spaces and locations. Currently in new web and highly mobile and fast changing world, spaces and locations are being codified, tagged, marked and described in virtual environments and this information is transformed to the digital devices. Thus, there additionally appears a new dimension for usability, creativity, and knowledge expanding. There exist important locative based standards (Sen & Sengupta, 2004):

1. the Global Positioning System (GPS);
2. Geographic Information Systems (GIS);
3. Wireless data communications (e.g. Wi Fi, Bluetooth, 3G, 4G).

It is increasingly emerging tendency of geographical tagging of any content on the web and associating it with online collaborative activities:

- Geo-tagged images on the web give more possibility to be found and mixed with relevant images (emerging art projects, online museums, new visual layers of narrative information).
- Online maps also can be integrated with different applications and provide necessary information depending on the users' purposes (travel guide, mobile street maps).

Web technologies enabling geo-tagging are, for example, [Brightkite](#), [Flickr](#), [Twitter](#).

As for recent developments such location based services were elaborated in order to improve the portability and flexibility of information: 4G wireless (Sharma, 2009) and Markup Language for Interactive Geographic Information System, e.g. Google Maps for mobile and KML (Slawski, 2008).

Wireless and mobile communication environment is more “real” or “offline” where people can also exchange content but still it is private communicational level and it is challenging issue - to explore the potentiality of conversation practices and collaborative projects that incorporate this technology. Currently it is evident that mobile technologies are focusing mostly on improvement of web browsing and availability of networks and

web applications to the devices that creates more flexibility for following social profiles and being more creative with data transferring to different destinations. Several relevant projects are described in section 3.7

In general the various collaborative filtering applications, advanced mobile web browsing, microblogging, options of following friends, aggregating the data, publishing thoughts and locations are turning communication to more and more effective because it creates social transparency and thus flexibility in sharing the ideas. Particularly this is the environment where participatory surveillance is taking place.

3.5 Participatory Surveillance

The objective of this section is to study new type of social surveillance (actually very often overused in new media studies as meaning of control) that is happening in online social networking and locative media (Gotta, 2009). The studied concept of participatory surveillance is related to playful aspects of surveillance with mutuality, empowerment, subjectivity and information sharing (Gotta, 2009). The accent here is on the factor of people acting collaboratively in projects using Web 2.0 tools.

Firstly, the term of surveillance is discussed in order to find out how it is considered “participatory” by several authors in the field of social media. Traditional or simple surveillance is “associated with snooping, spying and privacy invasion” and it is a level when “I don’t know that I’m being watched”. This has a history framework connecting with Big Brother and Panopticon (Albrechtslund, 2008). The problem is that such activities do not match with the actual practice of online social networking. Studies of panoptical surveillance also use term “peer-to-peer surveillance” (Harkin, 2006) revealed by Foucault (Zimmer, 2007) which is a concept about participation between the “watchers and those placed under the gaze” (another level) and, thus, about blurring the entitlements of both sides. Web 2.0 has completely balanced participants’ roles with social software because this environment is constructed on equal rights, mutual benefits - benefits to share in order to support and improve the social network.

The new social environment gives users a glimpse into personal profiles. These observational features of new surveillance seem to be explained as following: people’s voyeuristic surveillance of each other’s everyday lives with a help of new social and locative technologies that individuals use to extract data or create own group knowledge networks (Zimmer, 2007). Thus, surveillance in social networking turns to be much more positive phenomenon: new technologies are not controlling but connecting people together; helping them to find new things never experienced or said before. Moreover, these technologies would provide fun, and support fruitful online\offline collaboration in

creating different art projects and marketing strategies to emerge. Thus the participatory surveillance is meant as a sub-category of social surveillance term where the focus is on collaboration and organizing projects.

It is evident that in real life it's not always that observable person starts interacting with observer. The participation in social software gives this opportunity and foster communication. There is good investigation about finding right person for collaboration by Jon Mell (2009) where he presents regarding priorities of social software:

- It can show feeds of people who read the same content as you.
- It can show feeds of people who contribute to the same content areas as you.
- It can show who knows and works with the people you know and work with.
- It allows people to describe themselves rather than official job title and role in the corporate hierarchy.
- People can signal what they are working on.
- People can blog about who they are and what they do (both in and outside of work – a volunteer in the Scouts could be useful if you are preparing a proposal for that organization).
- People (and their blog posts) can be tagged – e.g. “Chinese” to show up in relevant search results (Mell, 2009).

From the talks of Fitzpatrick & Recordon the term ‘netaveillance’ emerged (Zimmer, 2007). This term is precisely explaining the surveillance phenomena happening in Web 2.0. It highlights the new social norms in this new environment: people now more than ever are aware of what their online friends are doing, and while criticizing the technology, they anyway are eagerly revealing personal information and watch others.

With the advent and rise of collaborative tools currently online cooperation is more and more usual practice. However there is still lack of deep understanding of interaction and mutual engagement in participatory surveillance. The science that is closely studying these issues is social navigation. Important aspect here is that all users have different habits when searching and sharing information online, because of the different nature of identities and their interactions. In order to understand the role of such surveillance happening now in social networks and to develop suitable social web environment, it is needed, firstly, to understand the role of identity interaction, and how it is supporting social navigation in social web.

Identity talks are important topic surrounding the Web 2.0 movement because they are certainly in relation with the new ways of how the collaboration is happening in social media, and explain, what conditions should be created when developing social software

environments. Interaction in social software is happening depending on different identity types (Kurtz, 2009). These are very different and thus motivations of using social software are as well. Therefore it is quite complex study to determine what the best software for any effective collaborative activity is, and how the architecture of social environment should support all needs of users. Kurtz's study gave a clear overview of typical behaviors of identities socialization in social software. These types of interactions are:

1. The selection process (based on *characteristic-based* evaluation);
2. The mobilization process (based on *membership-based* evaluation);
3. The commitment process (based on *placement-based* evaluation).

Kurtz idea was to stress openness of software that enables these interaction processes to appear: actually these interactions are naturally surrounding collaborative open-source software that should be designed considering the needs and behaviors of those interacting (Kurtz, 2009).

Such openness is empowering for the usual user, "as the monitoring and registration facilitates new ways of constructing identity, meeting friends and colleagues" (Albrechtslund, 2008), as well as, showing themselves and promoting own creativity or whatever can be transmitted through their web environment. "This changes the role of the user from passive to active, since surveillance in this context offers opportunities to take action, seek information and communicate" (Albrechtslund , 2008).

It's also needed to distinct two types of participation: mutual and one way and, thus, surveillance can be direct and indirect. These cases could be explained in connection with swarming and social navigation theories that explain how users trace information of each other and form their knowledge environments.

3.5.1 Swarming and social navigation

More detailed exploration of participatory surveillance shows that it consists of many, so to say, micro-theories like swarming and social navigation that could be considered as a general human information-seeking behavior (Rabourn, 2002). Swarming and social navigation provide deeper understanding of users' engagement processes in hybrid environments and helps to reach effective networking in artistic, and marketing fields.

In new interactive and "transparent" web it is obvious that users are seeking, finding, generating and distributing information in various directions (also unintentionally by leaving digital traces), and roughly speaking this is gregariously *happening* in social environments and is forming various kind of collaborations.

Social navigation is taking place as a result of the information retrieval process (Kirsch, 2005) when users leave digital artifacts (photos, videos, etc) that can be used later by others (shared, distributed, or embedded). Social navigation is information foraging (Rabourn, 2002) that determined as indirect sharing of information. Then in socially meaningful spaces where people are more guided by cues and activities of others social awareness (Fagerberg, 2002) is emerging and it is constructing virtual community. There happens direct sharing of information.

The meaning of social navigation (Lee, 2000) is to show users in real and virtual information spaces how to find traces (ideas, hints, news, people) from other's activities and, realize their own ideas. Social navigation is focusing on virtual communities of practice and studying how to retrieve/locate information and motivate participation through social awareness and social interaction. Thus users and communication software are centrally codependent instruments in the distributed social software architecture.

Swarming is actually the part of social navigation and is considered in many studies as: self-organized system basing on obtaining of relative data; intelligent surfing through the web and a mechanism between the server and the surfer that filters necessary information for the user and with the help of a user (Wu & Aberer, 2003). That is why swarming theory is related to the studies of Web 2.0 information retrieval processes.

Swarming phenomena is derived from observations enabling to compare certain human behaviors in social media with a bio-metaphor of insects' swarming. This means that humans or better to say web users are not so different from insects in seeking the information as insects are seeking food. For example as shown in the table 1, Wu and Aberer (2003) made an analogue between biological and web societies, which are working as self-organized systems.

Table 1. Analogies of Insects and Web Servers. (Wu & Aberer, 2003)

Social Insects society	Web System
Ant	Web client/surfer
Food	Information on web pages
Hunting for food	Web browsing
Biological pheromone trail	Recorded web pheromone maintained by the web server
Interaction	Request from the client and reply from the server
Pheromone density	Popularity/importance of a web page

Swarm intelligence emerges through individual contributions of independent users and

this paradigm is working in participatory web and enables the new models of storytelling in hybrid web (Pata, in press). Ideally, a simple key to understand why swarming works is to imagine decentralized system with independent agents where agents are people who search information individually, and system is a mechanism of programmed applications gathering and filtering data that is further being transformed into complex behavior of, for instance, data seeking. So while people are searching individually, the swarming phenomenon is automatically happening by means of filtering mechanisms on meta-dimension of this search, and creates the arena for collective activities.

Mostly swarming is happening in the world of narrative environments featured with social software channels such as microblogging and social networks, where text can be interpreted or coexisting with images, audio or video, tagged, ranked or voted by users in social media. These provide the field of individual creative activities for a user but of course it is not enough for turning this environment into effective collaboration. Users need motivations to contribute (Pata, 2009, p.8). Those motivations studied are appearing in complex connections of hybrid ecosystem that are core part of distributed social software architecture.

3.6 New environment - hybrid ecosystem

Hybrid ecosystem (Pata, 2009) is studying hybrid environments that are multi-layered substance between narrative environments, social interaction, navigation, human identity, learning, arts, and locative digital devices, which are interconnected and explored in this section.

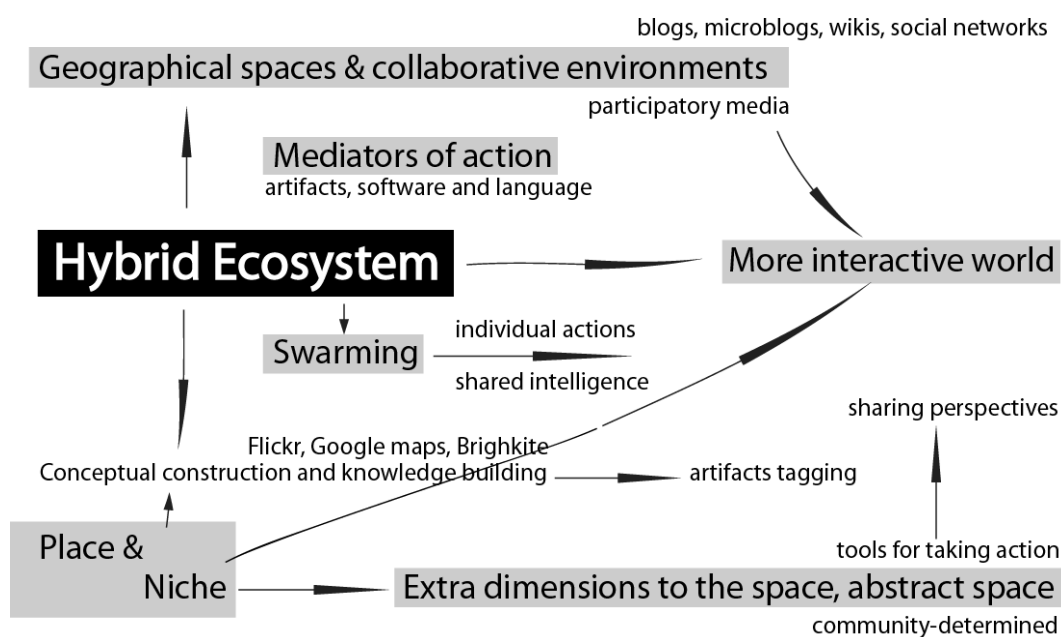


Figure 1. Hybrid ecosystem in process (Pata, 2009)

Regarding social dimensions of the new hybrid web as one suggested the Internet is

consisted of five fundamental parts (Udell, 2008):

1. People;
2. Interfaces (Web Pages);
3. Message Bus (HTTP);
4. Structured Data (Linked Data);
5. Intelligent Agents (Intelligent Processors of Linked Data).

Actually if to regard these parts as evolutionary process of web it may be assumed that we are between 4th and 5th phases trying to “structure” the environment and understand the effective connectivity and interactions while already using intelligent data mining.

These technologies are being developed to serve more flexible interactivity between media and human in order to improve the transferring of conveyed stories and foster participation.

3.6.1 Storytelling in 21st century

The meaning of narrative environment is explored according to some influential papers about narratives with social software and about narratives as such.

Humans were always entertained and forced to act by narratives and storytelling. They are always communicating stories by means of some media and new emergent technologies. Indeed, the contemporary narrative environments are rapidly being mediated with new communicational tools that people need to use for storytelling. If to imagine that ‘narrative’ and ‘environment’ are ‘culture’ and ‘nature’ (Parsons, 2009) it is more clear to see that people navigate in these environments perceiving things through one or another context (natural through the prism of cultural and vice versa): it is a contradiction of opposites like art and life or fictional and real as Parsons suggested. Thus, it is interesting to stress that ‘virtual’ & ‘real’ as ‘Internet’ & ‘real life’ are both environments that are being intersected, changing the way stories are told and perceived in hybrid environment. The stories supported by new communicational and locative based technologies (e.g. enabling to locate virtual stories in real environment) bring completely different perspectives than it was done by old media.

It is useful to clarify narratives meaning in the context of the 21st century world (Parsons, 2009), because it is the era of brands and new communicational innovations that are changing the way people interact with each other, comprehend, construct and experience this narrative environment that surrounds them every day.

There is broad science of narrative paradigm theory (NPT) which born in 1970s to prove “humans’ symbolic justification for action” (Cragan et all, p.150-151). The author of this theory, Walter Fisher (Docherty, 2004, p.847) calls humans *Homo Narrans* and sees

human communications as *stories*. The force of action is contained in every kind of narration: face-to-face conversations, group- or mass communications. The new social software is reordering the way people are engaged in these conversations and narratives: different styles of writing and different ways of using the software (web and locative based). This hybrid ecosystem may reshape the way people look at things in space, their relationships in these environments, and the standards of writing narratives because geographical aspect is becoming a dominating key in the concept of emerging hybrid environments (Pata, in press).

3.6.2 Hybrid marketing and ontobranding

New communication technologies are rapidly being integrated into business models that were using old media channels. New, conversational methods such as swarming are being used in hybrid environments. Shortly, the author is considering that conversational practice of marketing can be named as hidden marketing because it is to creatively transmit the message or the brand to people by people themselves. For example, the community created around the brand is constantly observing brand's messages, ideas and conversations and use it in their social profiles in accordance with their own benefits, talk about it making awareness by posting links and references and, thus, participating in creation of brand's image and marketing environment.

Examples of conversational marketing are demonstrating that actually many business fields are incorporating these new methods of communication and models for making awareness of a brand, name or product.

It seems to be the most effective and clever way of marketing and at the same time creates more complicated tasks for advertisers concerning users' behavior studies in these environments. As the narrative environments are full of conversations and swarming activities happening through different channels and media, there appears a new dimension for marketers and advertising agencies – hybrid marketing – the virtual environment where advertising gets into the mouth of users and is passed through their distributed social platforms. This way brands are promoting themselves. Ideally the process of swarming described above is the key of hybrid marketing efficiency. However, the challenge here is that social media is becoming more and more overloaded with noise information and open source nature of this environment can convey negative information and also create “deadbeat conversations” (Radigan, 2009). Thus, more investigations are needed to understand how to avoid negative effects and maximize positive ones when positioning a brand in participatory media. The feasible solutions supporting these investigations are interest networks and intelligent web

applications that filter information and help form niches and places in hybrid environment, where certain brand can gather exact target audience, who could help reaching needed level of awareness. This may be realized through the knowledge of:

- Users' online behavior in social media.
- Functionality or development of constantly evolving social software.
- Swarming theory.
- Entertaining conversational skills in social media.
- Need-based reasons and emotion creations (Marshall, 2009).

In swarming environments marketing gets another direction and allows to other principles, because users in these environments are not relying on authorities as it was with old advertising media – they, as a part of collective intelligence, rely on their neighbors and friends in a swarm (Brymer, 2008).

Social navigation is very important to be examined by new marketing specialists because it studies user groups and distinguishes how they can be guided and what kind of strategy can be used to attract users and what communities to use, etc.

Excellent demonstration of how to encourage users to participate is the “Ten Ways to Encourage the Tribe” by Michael Stephens (2009) where he listed activities that should be done when the social software environment is created for a brand or idea. The corresponding “British Library” case study is also proving his investigations. The author of “Zombie Walk” project came up with almost the same strategy using the concept of narrative ecology.

- Connect around a cause, a community or a concept.
- Use stories.
- Be transparent.
- Leverage the social tools.
- Remember the mission.
- Listen & talk (like a human).
- Create a culture of caring and trust.
- Value every member.
- All staff is encouraged to post, no matter their position.

Being transparent and usage of open source social software are one of the important characteristics in new marketing strategies currently studied. One of the main reasons why people have a tendency to promote themselves, tell stories, communicate is that they want to be open to the society. Modern culture that is highly mediated with

narrative environments enables people to release their will in a new and even more artistic ways. Artistic media got involved with such strategies as well because these hybrid environments gave hints to artists how to use it for promoting and also producing art. Here, however, the needed approach in order to involve participants in collaborative art projects is a bit different. The case here is that artists are not yet actively willing to handle existing software themselves (VanFossen, 2008) and *usual* users are not often motivated to produce art with such software in hybrid ecosystems. Art practice is arguable question in social art projects as mentioned (Democratic Innovation, 2009). It is considered by social media experts also as non-social. In current work some art projects incorporating social software are proving this statement and some other art projects examples are brought.

3.7 Art projects supported by participatory surveillance in social software environments

In this section several existing participatory projects incorporating social software and surveillance in collaborative web and locative technologies are presented and analyzed. Because of the pervasive participatory culture by means of social software the traditional art is being blended with Web 2.0 capabilities and becomes “participatory public art” (Harrison & Barthel, 2009). Many studied examples of participatory public art vary from internet-based collaborative art, augmented reality art (when ‘real life’ in a form of mobile devices is being added and the gap between space and time is somehow blurred), and artistic real-life actions determined and supported by online collaboration (events, happenings). Participatory surveillance in these kinds of art projects actually happens in the hybrid environment where social network activities and wireless locative based systems are mixed. Hence, there is a vast potential for artistic expressions – because there is different dimensions of space (virtual, geographical) and interaction (mutual or one way), it gives the opportunity to constant improvisation in such hybrid environments. Here are some examples of projects.

Online art based on participatory surveillance with social software:

- Tweeting Colors by Brian Piana - a public webpage consisted of “vertical color bars created by special tweets from Twitter users” (Piana, 2009). Any Twitter user can add bars by posting special tweet as shown in the directions.
- “Portwiture” – the application that aggregate Twitter and Flickr accounts of user, making visual representation of last Twitter posts of the user. E.g. <http://portwiture.com/levistova>
- “Man with a Movie Camera: The Global Remake, in which viewers are invited to

upload their own video clips to a website that archives, sequences and delivers submissions to a worldwide video montage that reinterprets the original 1929 film by Dziga Vertov, *Man with a Movie Camera*” (Bard, 2007).

Augmented reality art based on participatory surveillance with social software:

- “Yellow Chair Stories - a live service design intervention” (Jain, 2008). The project is based on wireless communication via free Wi Fi service created by Anab Jain. He is investigating how people are using the service and what features are attracting people’s engagement in this kind of environment.

- The Free Network Visible Network project – similarly with the previous example it “proposes to make visible the interchanged information between computers of a wireless network” (DÍAZ , 2005). It involves actions in urban landscape using free access to the Internet. The idea is to “create new meanings in the public domain revealing hidden connections of the communication technologies. Under the new meanings it is meant the “re-definition and re-vitalization of the concept of public space” because it is now possible to visually integrate the physical and the digital public spaces.

- Urban Cursor is a project facilitating “social interaction and play”. The object is oversized 3-dimensional computer cursor (pointer). Placed in a public space and embedded with GPS device it could be touched and moved even further the special “screen based” territory. It was all the time transmitting the coordinates to the website created by the author. Coordinates were mapped in Google Maps. So it was visible for participants how they collectively helped move the object around. “During the festival participants could also upload photos of the cursor at the website. The photos were automatically placed on the map by matching the photos' digital time stamp with the GPS coordinates” (Campion, 2009).

- Mobotag, by Marta Lwin, “reveals the hidden layers of a city through an active exchange of location based media and text messages via the cellphone” (Lwin, 2009). It is a collaborative phone tagging of the city. Part virtual graffiti, part walking tour, “mobotag” creates a spontaneous and easy way for tagging a neighborhood via the cellphone. Participants may respond with their mobile media “in the creative expression and mapping of their neighborhood” by sending and view messages, images, videos and sounds. A unique geocoding feature of Mobotag is uncovering other messages existing in people’s local area.

- Urban Dialogues - global collaboration project based on mixing art with social networking technologies “envisioning a future real public exhibition” (Bassin & Gill,

2009). People are simply posting into common blog of “Urban dialogues” and thus creating visual representation of how international collective of urban beings perceive this concept.

- Yellow Arrow project is another international narrative and visual way of exploring cities through “geospatial web” (Liebhold, 2005) built around the “general philosophy that every place is distinct and engaging if seen from a unique perspective. “Participants place uniquely-coded Yellow Arrow stickers to draw attention to different locations and objects - a favorite view of the city, an odd fire hydrant, the local bar. By sending an SMS from a mobile phone to the Yellow Arrow number beginning with the arrow's unique code, Yellow Arrow authors connect a story to the location where they place their sticker” (Counts Media, 2004).

- Organic city is a “collaborative project built on the interaction and efforts of a digital community”. The project seeks to connect with the community through the website where people can find and tell stories about local places “to create a collaborative digital storyworld centered on the downtown Oakland areas surrounding Lake Merritt” (Byrne, Mattern, 2006). The technology involved here is more diversified and thus offer more enjoyable experience to participants: choosing the story genres people can download a user-created mapped tours to iPods and mp3 players, and find and tell stories via mobiles website.

- Mikrogalleri.es – the project of ZKM Media Museum in Karlsruhe. “Visitors to the museum or anyone with an Internet connection can upload images which are manipulated and published with other user-supplied images”. The project goes further than Flickr: it does not only network the data of digital cameras as participatory images, but also the cameras itself and with them their physical and artistic context, place or space. The museum’s website supplies directions for creating a display of Internet images that can be projected at remote locations and on the Internet. As ZKM proclaims, this network of participatory production is a further step from ‘user generated content’ to ‘user created/shared media,’ a preview to the new generation of the web: the Internet of Things”. (Yang & Roch, 2007).

- Rephotography research project “Locate'n'Reshoot” created by group of students in Tallinn university. The idea is create a web platform “for historic photographs from public collections in order to have these places located and rephotographed, thereby creating knowledge layers on already existing photographs” (IFI7116, autumn 2008) and visually representing the history of places by using social software techniques - crowdsourcing rephotography.

- A Swarm Of Angels - a project that embraces the Web 2.0 landscape and announced as “Cinema 2.0” that is expected to be “a new type of participative media acting as bridge between user-generated content and traditional media creation” (Hanson, 2007). This collaborative film-making is challenging traditional film production “where the distinction between producer and consumer is dissolving” (Hanson, 2007). Participants have different levels of participation open to them: voting on key creative decisions, getting involved in scriptwriting, making music, modelling etc.

- Daisyphone – the collaborative music tool that is involving iPhone and iPod Touch technologies and announced as “the world's first ever mobile distributed collaborative music experience”. The author created this concept to research mutual engagement and design of collaborative environments. “Participants can co-create short loops of music with friends in real-time simply by pressing on little dots to create and remove notes. Once they've finished shared masterpiece they can save it to your iPhone by pressing on the central dot and dragging loops around” (Bryan-Kinns, 2009). However listed cases have different context and not all specifically targeted to use social software but are regarded as precedents to Web 2.0 content construction because the participants collaborate in the design. The individuals - designer or participants- often exchanging the roles because they have opportunity to add own materials to other collaborators' works and be simultaneously “spectators, participants and performers” (Bryan-Kinns, Sheridan, 2007). Therefore, it is suggested to consider such kinds of collaborations in web 2.0 social software projects implementation. Invitational rhetoric of Foss and Griffin discussed above (p. 8) may be considered as one option to develop participatory environment in both physical and virtual projects” (Harrison & Barthel, 2009).

Such examples as Mobotag, Free Network Visible Network, and Yellow Arrow are on the similar conceptual wave as Narrative ecology experiments where locative media and personal communication devices are main characters of data transmission that aggregate the new visions to the city and communication between people's social profiles and locative devices. It also corresponds with the experiments meaning to “see art, read stories, and watch a hidden layer of the city reveal itself” (Lwin, 2009).

The “Urban Dialogues” project is the most relevant for author's case study “Mixed Bodies” presented in the next chapter. It was inspired by narrative ecology experiment where almost all pictures were connected with urban life. It was interesting to come up with the concept revealing the new dimension of city life. The only distinction is that urban dialogues' concept is to mix art with social networks and mixing bodies' concept

is to create art with the help of social networks that is meant to attract more participation from users by providing easy instructions and things to do: take pictures, upload, and follow the results.

Collaborative film-making projects – “Man with a Movie Camera” and “A Swarm Of Angels” are also declaring the influence of participatory media and user generated content in modern art communities.

Additionally the last example of Collaborative music tool is investigating how mutual engagement method supports collaboration (Bryan-Kinns, Sheridan, 2007). To draw the similarity with narrative ecology studies, in the study of collaborative environment construction presented in their report paper about Daisyphone the authors were also identifying and distinguishing some transitions of participants’ mutual engagement and in parallel they explored “how to entice people into engaging collaborations”. The transitions were as follows:

- spectators;
- participants;
- performers.

Through the process of engagement they explored artifacts (e.g. narratives) of social interactions that supported these transitions (Supporting Mutual Engagement in Creative) and found that it is the process of “adjustment with community-suggested perspectives” that promotes the transitions.

To some extent flashmobs are also part of participatory social software projects. Traditionally flashmob is kind of a performance happening spontaneously with a collaborative efforts predetermined by online activity. They are supported by means of media through simple channels like email or forums. For example, to arrange huge collective freeze in some public space firstly the information is spread in the Internet and then happens activity in real life.

Flashmobs are very similar to swarming behavior concept and have interconnection between virtual and real swarming. It is agreed with Tom Vanderbilt who is writing about new-model flashmobs (Artforum International Magazine, 2004) that the flash mobs has historical start and connection with antecedents in Niven's short story and common thing is that they have always seemed to take place under the gaze of some media eye.

The swarming activities in flashmob events are worth to be mentioned in relation to participatory media as it represents the self-organized entertainment approach (Rheingold, 2003). There is a ground for experimenting with social software and social

behaviors and actually the popularity of peer-to-peer media is encouraging users to organize their entertainment by themselves. Thus there is appearing a good ground for user engagement in different advertising campaigns. As activity motivators flashmobs are effective as amusement guarantee gives people a chance to express themselves, to perform and be heard by the media. Probably flashmob idea could be taken as a metaphorical idea or promotional aspect in social projects or marketing campaigns.

So the art creation with social software is depending on concepts of art projects and levels of interactivity meant to be happen there. That is why there is lot of potential study of user behaviors and motivations for creative projects in social software environments.

3. THREE CASE STUDIES

In this chapter three hybrid ecosystem case studies are examined, where social software was used. In general it was investigated how participatory surveillance techniques of web 2.0 would apply in this environment that also incorporates locative media (e.g. mobile phones).

Three design experiments are presented: storytelling, art making, and art marketing. Each process of design is illustrated and analyzed. Common task of all cases is the development of the hybrid system. Mainly and technically every scenario has one common concept – “swarming” the awareness of the “idea” by means of participatory software: mixing and connecting tools, pulling the content and indirectly “forcing” users to join networks, following and participating. Activity of users (commenting, sharing) between implemented services are analyzed through survey and observations of author. As observed, the most visible activity is happening through Twitter, Facebook, Brighkite and Flickr.

The storytelling experiment - "Ecology of Narratives" conducted together with other students during the design-based courses, covers quite a broad research mainly concentrating on narratives. The author of this thesis participated in the course twice, individually focusing on particular aspects of interest. In two other projects it was investigated by the author of the thesis, how art and promotion of the event can be realized through hybrid ecosystem. The important difference in these experiments is that the art and marketing experiments held by the author were less extensive as the users' tasks of both studies were narrowed down and more conceptually defined (e.g. to upload photos, and to participate in the event). More concrete tasks of swarming members (participants) were the following: in art experiment it was intended to make a conceptual visual image of an urban body by means of social software. In marketing experiment it was aimed at making the art event promotion by implicit motivations (e.g. asking to commenting or upload concrete photos) that could turn to conversational marketing (Gillin, 2007) and at participating in the flashmob.

Social environments in three case studies were created by means of existing social software tools. According to the hypothetic strategy of information flow some visual and narrative participatory outcomes were expected.

Data was collected in two ways: with a qualitative approach by collecting and analyzing results, and with a quantitative approach by mean of questionnaire in the marketing case study.

3.1 Design based research to create social art scenarios

Design-based method was chosen for studying the cases. The target of the study was to answer on main three research questions.

Design-based research is a systematic and flexible learning method, which aim is repeated analysis, planning, development, and implementation. It is based on cooperation between the researchers and researched subjects (Peer Group, 2006).

Involvement of internet technology in society requires constant study of user experiences in order to create and develop new web applications and systems to motivate users for participation. In this work there are no applications being invented, except of just investigating and experimenting with existing applications and studying the theoretical background to understand the processes. Therefore, the best research method is design-based which concentrates on crossing the experimental ground of research with the theoretical elaboration of given environment. With this method it is important to understand how, when, and why theoretical findings work in practice.

Process of research includes the following steps:

- Description of projects.
- Methods and data gathering - developing the framework of possibilities.
- Technology – finding suitable components.
- Social navigation prototype - strategy of information flow (creating awareness).
- Analysis and Results according to Research Questions.

All the phases of research were facilitated with constantly updated theoretical knowledge and newly found applications. The theoretical assumptions about participatory cultures (Fischer, 2009) and contribution triggers (motivations of taking actions) in the social collaborative environments are studied.

The social navigation (figures 2, 4, and 6) in all three cases is illustrated to show the information flow and the user's activity. Black arrows on figures represent the possibilities to automatically integrate or mash applications, grey arrows represent the links that were added manually to these profiles and were expected to foster users' navigation and support more active information flow. Several monitoring possibilities are only employed by creator of the system, because some applications such as Mybloglog, Ning appeared not to be currently popular between target groups.

3.2 PARTICIPATORY EXPERIMENT I - Social Storytelling

3.2.1 Description

Hybrid Ecology of Social Storytelling or collaboratively writing narratives was the complex task of a group work conducted in a class of a "Narrative Ecology" course held

by Kai Pata and Anatole-Pierre Fuksas in Tallinn University. The intention for running such participatory design experiment came because this method supported the investigation of emergent user-generated practices with narratives in social and locative software systems. The goal of the experiment was to understand the nature of hybrid ecosystems from the narrative swarming point of view. Each participant had to create and interpret narratives in text, images and other media using swarming activity. Secondly, the study targeted to explore the new potentialities of storytelling standards in this hybrid environment (Pata, in press). One of the central research questions was: How can mashing different data formats bring stories visible and trigger collaboration? The user group involved in the experiment consisted with participants of the course aged 20-35.

3.2.2 Data gathering and technology

Devices: mobile phones, pc, laptops

Monitoring/filtering:

- Tag #narrativeecology, geo-tags.
- Brightkite, Zannel (place and friend feeds).
- Google maps, geolocate Twitter, <http://twitpic.com>

Collaborating:

- <http://search.Twitter.com> – mashing the tagged content.
- Brightkite, Zannel – pushing to Twitter, Flickr, and Facebook.
- Flickr RSS feed (place/friend/tags) – pulling and embedding to blogs.
- Wordpress (individual, joint blog) – aggregating.

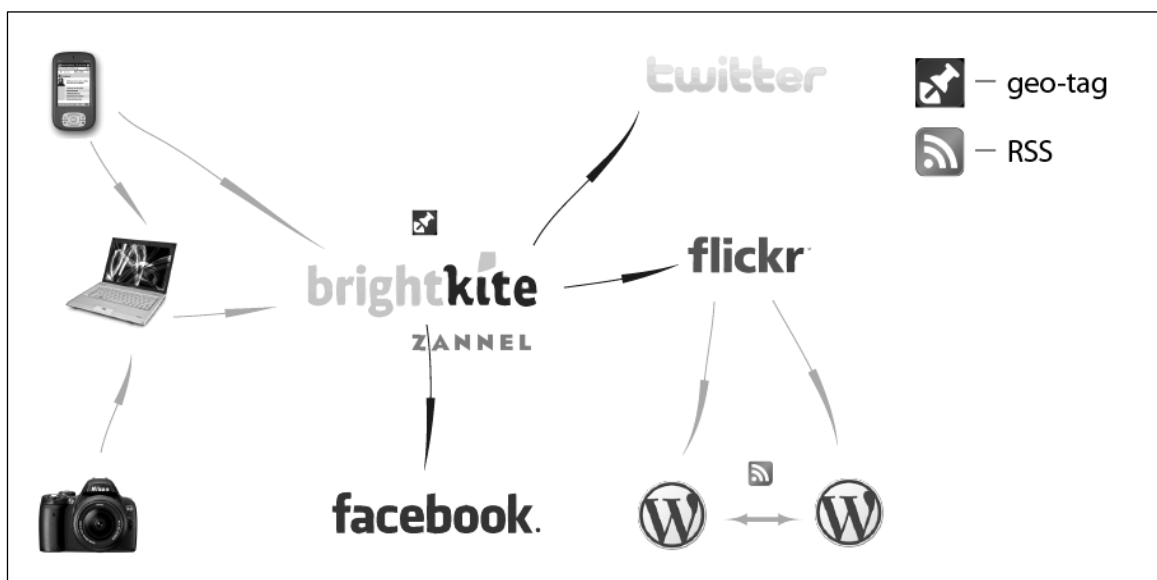


Figure 2: Social navigation Prototype of narrative ecology – the web-based system tested in a frame of Hybrid Ecology experiment

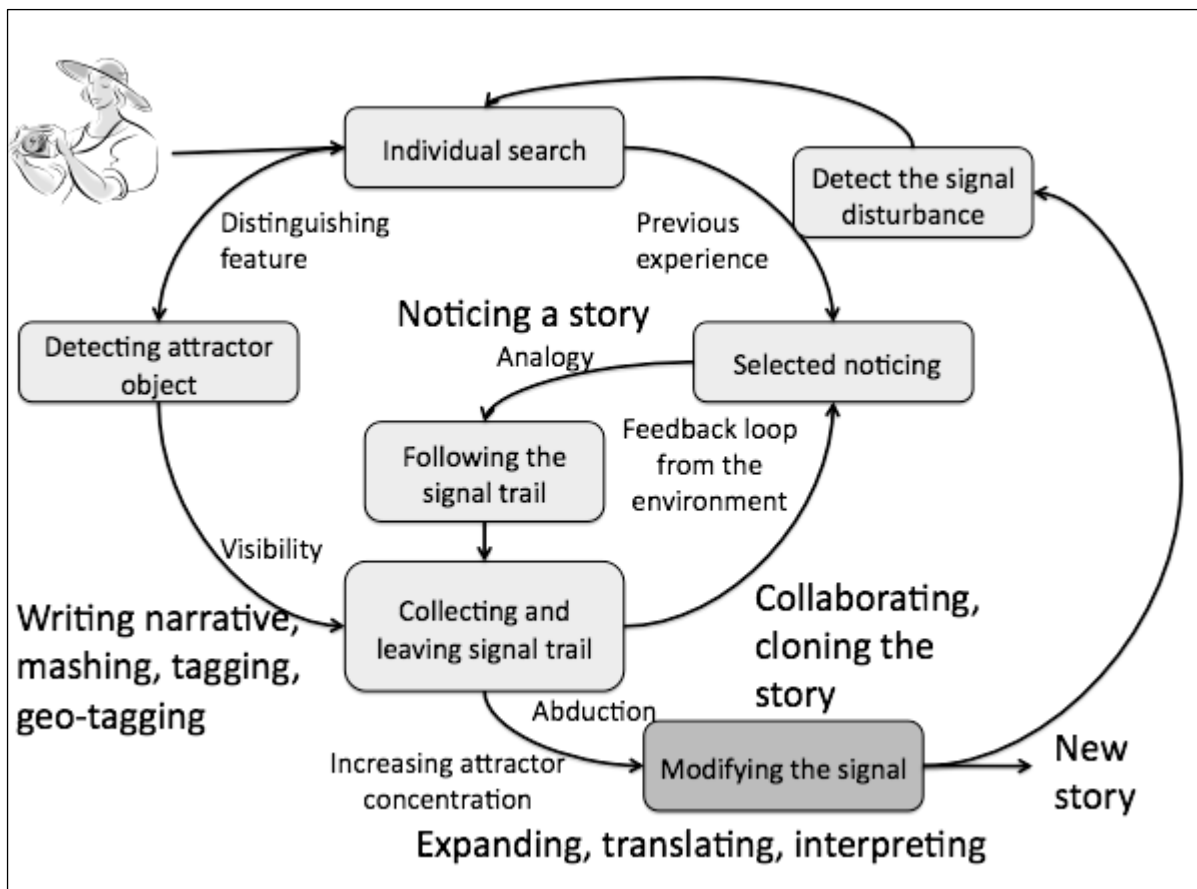


Figure 3. Best standards of web 2.0 storytelling as a swarm (Pata, in press)

3.2.3 Analysis of social storytelling experiment

The content was uploaded, tagged and shared in different social networks (Flickr, Facebook, Blogs). Practically, participants were leaving traces in the created environment by “extracting” others’ stories (pull), tagging them with keywords (e. g. #narrativeecology) and, thus, pushing the content to these networks. The tagging played a key role in how the content could be “mashed” or cut from different sites to be aggregated and monitored in other personal environments (e.g. mashing in microblogging environments like “Brightkite”-> pushing friendfeeds or Twitter.search.com with tags->pulling for monitoring in personal blogs as RSS feeds). Geo-tagging needed to connect content to the real life geography and form the new dimensions of the space (city): tags represented “how participants conceptualize these artifacts, how they use the space and artifacts for taking actions, how they give meaning to the places and GIS provided geocoordinates of the places. Such artifacts became searchable in the Flickr and Google maps with tags” (Pata, 2009).

Concerning some faulties in the planned system usage – users just sometimes forget adding tags to their content but the aggregation of content also worked if there were any

descriptions of images – thus it may be noted that some software like Flickr can filter images not only by tags. Also the networks like Facebook were not used actively, because the group mainly followed each other through brighkite, Flickr and blog environment while exploring this software.

3.2.3.1 Narrative writing principles and tendencies

Examining the narrative ecology in the process of experiment drove students to organize their own narrative environment and group works. During this process they acquired knowledge and constructed their own personal environments based on initially decided design solution. They elaborated the knowledge by discovering new sources and spaces for storing the content in the system basing on own group pages and research questions. In parallel participants explored different applications to find tools that have automatic options for supporting their activities in hybrid ecosystem. Some important questions analytically were to think in groups of “what benefits user could take from it” and “how it might be turned into collaboration” and pushed outside the Internet to influence relevant real life activities. Popular suggestions or options for such collaborative activities that could influence real life were traveling possibilities and communication with persons of the same interests. The technical aim was to figure out how to make all the data flow into an automatic process without wasting time on duplicating it in different profiles.

Individuals had different objectives for their narratives, such as mapping social activities (geographical interest: monitoring locations daily at different times so as to identify differences or identities, navigating in the city) and documenting special events (people having issues while parking or crossing the streets in wrong places, traffic jams), monitoring sites so as to follow the building environment’s process, documenting language issues, different lifestyles.

Concerning the research question “why people become involved in participatory surveillance with the social software” some hints were noticed in the reflections of participants: the process of finding meanings, similarity on pictures and connecting them to others was very engaging. Mostly it was personal emotions reflected in pictures and at the descriptions of them. For some of them it was a good motivation to try out other tools that can create traces and connect with each other. The strongest visual artifacts or popular perspectives were determined and presented on pictures: geometry, graffiti, drawings, virtual characters, lights, contrasts, signs, emotional artifacts, describing some emotions by photos, related meanings with some subjects, buildings everyday life such as food, clothes, people, city and urban surroundings were the most frequent

topics in personal narratives. The descriptions were mostly directly related to the content of image or indirectly related to emotions that were felt in that exact time of taking picture. The images wrapped with stories and meanings were notably divided into such attraction aspects: interesting, creative, similar.

3.2.3.2 Collaboration process

Participants were individually:

- Monitoring the content uploaded by other participants (eg. monitoring who's active where and how).
- Uploading without central coordination the content pieces (mainly images and texts) to their narratives.
- Tagging and geo-positioning story contents.
- Writing small bits of the story on a daily or weekly basis or just connecting pictures and music so as to have an emerging story;
- Comparing the state of the hybrid ecosystem day by day.

According to this observed chronology of participatory engagement and thinking about participant behaviors that may enable doing social art with social software it can be analyzed when the active collaboration is starting. At the beginning of the experiment participants were passive - they monitored online activity of friends using feeds. Next, they started leaving own artifacts such as uploaded photos, tags and created own story views. In the next phase some of them became engaged in collective storytelling when they started "using actively the traces left by others" (Pata, in press). Participants were contributing to the community niche and some of them became interested in exploring it further by active monitoring of other participants to be more engaged and "fit" to the community.

The active collaboration in a hybrid storytelling design started on perceptual level (microblogging) and when people were not passive observers but were engaged into active storytelling. The creation of users' own clear perspectives evoked "simultaneous observation and documentation of the process of writing narratives in hybrid ecosystem" (Pata, in press): it was the simple observation of participants' social profiles and making images\comments visible in hybrid ecosystem by aggregation of content with different applications - RSS feeds, Twitter search, Flickr and wordpress blogs. This collaborative process was facilitated by users adding others' matching images to their own or common locations and forming certain places within the community niche: similar perspectives of participants triggered the collection of similar content that also was reused in personal ways. So "the participatory design experiment enabled them to

collect some evidence about the nature of such shared places” (Pata, in press). Constant interpretation, and cloning of content depended on different views on things and the surrounding environment (different social profiles) and periodically changed the roles of participants from observers to narrators.

Analyzing actions of participants towards author’s created narrative perspectives (e.g. to collect photos with red color) some swarming activities were recognized (participants re-used and embedded author’s pictures in their own story environment). It evoked the idea to exploit collaborative art making in this environment. Thus author’s exploration of the hybrid ecosystem as part of the design experiment focused around the raised question: “what social software there exist that support collaborative art making” and then it was interesting “how are these stories visible in urban space”.

Several related experiments were found (e.g. Urban Dialogues) as an initial inspiration for author’s two narratives in the experiment: the “red narrative” and the “mixed bodies” (exposed in the next chapter). In the Red Narrative (Flickr photo set) author tried to express emotions visually (signs, letters, places, abstract shapes). This narrative was meant as a conceptual collection of “similar” photos labeled in “red”. It was a small art narrative within the Hybrid ecology course showing the visual narrative of person taking those pictures in urban environment. Afterwards it was intended to analyze as a characteristic of a “city personality” living in town. It was also expected to obtain pictures from others to make a collaborative collage. In this way it would have been possible to analyze the outcome as a collective mood of the “city personality”. However this narrative turned out to be collected mainly individually, and it did not attract active participants to add contents to this story. It only raised their interest to reuse some of the “red narrative” pictures in their own narratives.

Although geo-tagging appeared suitable to visualize the geospatial coordinates of artifacts (Flickr maps), the technical barriers of created system were that the written narratives as stories could not be traced as complete storylines within hybrid environment (Pata, in press) and besides the traces of participants were periodically lost.

In fact the main goal of particular design experiment was not to facilitate writing “stories as linear sequences”, but to discover how it really happens in hybrid ecosystem: to reveal some patterns of collaboration and characteristics of technical supportive environment of social software. One of the technical expectations in participatory experiment was using tags and trying to use the mapping tools to find out how locative tools could be used in writing stories. As for some participants it was too unnatural to

show their locations, there were few mapping activities, and besides it simply took too much time technically. It became obvious that the natural tagging would be for example, information publishing while traveling in order to remember some artifacts, its locations and personal impressions. So tagging activity is more depending on the goals of users rather than on project *rules*. It must be noted, that the potential of the creation level would be larger especially if automatic possibilities in pushing the data through all the hybrid system at once could be technically aided (e.g. how to bring automatic posting from Flickr to Blog or Brightkite/Twitter to function so that it would track new blog posts of the user or even would update the pushing of contents so that (geo)tags from Flickr were added to the blog post; also sometimes it is timesaving when user removes the post the contents would also be removed from all other connected channels).

Observed technical environment during the experiment revealed that the perceptual (in Brightkite, Twitter etc) level, and individual creative level (in Facebook, Flickr, Blog) emerged to be the standard way of composing narratives.

Concluding this analysis of developing narrative hybrid ecosystem the activity of mutual engagement (described in literature chapter) meant to “shift the community niche” and as a result it is expected that the system would offer more support for tracing the narrative signals for this community (e.g. locative tags in the hybrid ecosystem). As suggested this support might be a creation of more visual environments that could help perceiving the hybrid ecosystem as a whole (e.g. application mapping different community activities representing them as a whole). Further it should help to be more aware of community niches in order to find support in joint writing and sequencing personal stories. The supporting technical environment of this suggestion might be one common application aggregating and visualizing the participants’ activities. For instance, a mash-up like Google Wave with a flexible platform for integration of different applications.

3.3 PARTICIPATORY EXPERIMENT II Social Art

3.3.1 Description

“Mixed bodies in urban space” – a design experiment to compose collaborative visual narratives was inspired by Narrative Ecology experiment and took place as the author’s individual activity meant to attract collaborators. The outcome was expected as social art project, a kind of observation of mixed human body in the city.

The main objective of this experiment was to take pictures of different parts of body, upload them to photo-sharing accounts like Flickr, tag them, join the group, add them to group and see result on official page of the project (Levistova, website).

This web-based test was meant to attract the users of Narrative Ecology course and other users of author's social environment. It was expected to involve them in adding their photographs into the common hybrid media environment using directions. The experiment was also meant to be implemented as investigation field for those who would be interested in creating art in hybrid environment, to visualize themselves, and perhaps to show how they are visually changing under perspective of other participants. The main aim was to analyze the new social aspects of behavior and potential of creating art.

Author wanted to create the visual metaphor of a so-called "web sculpture" that was made of inhabitants' body parts in urban space. In this way it was possible to detect a new dimension of urban hybrid creature, which consisted of different people's points of view and looks, their perception and participation abilities. It was necessary to develop easy guidelines ("rules") on how participants could use the technological tools in this activity. The main issue was developing a common system of the social profiles and keywords (TAG's), which users should attach to each post, photograph or video clip, which they added to the web. Keywords were the following: #mixedbodies, head, foot, torso, arm, and preferably the geographical address of the user.

The simplicity of usage was meant to attract participants to try out the activity: they needed to have at least the mobile phone, photo or video camera, and Flickr accounts. They could also use some other social tools like Zannel.com, brightkite.com, ping.fm. For images tagging there were 4 options: (1) #mixedbodies head; (2) #mixedbodies foot; (3) #mixedbodies torso; (4) #mixedbodies arm.

The resulting "urban hybrid citizen" are visualized using social software design that implemented Flickr slideshows, FTP server and little bit of HTML coding. The visualization took place on author's site (Levistova, website). Experiment instructions were presented in the author's blog, Flickr group and Facebook Page.

3.3.2 Data gathering and technology

Devices: mobile phones, photo cameras, pc

Monitoring/filtering:

- Tag #mixedbodies, geo-tags.
- Zannel search (place and friend feeds) <http://www.zannel.com/searchupdates.htm?query=%23mixedbodies>
- Facebook fan page: <http://www.facebook.com/pages/Mixed-Bodies/206074806785#/pages/Mixed-Bodies/206074806785?v=info>
- blog <http://mixedbodies.wordpress.com>

- Twitter personal page.
- Flickr group <http://www.flickr.com/groups/mixedbodies>

Collaborating:

- Zannel – pushing to Flickr, Twitter and Facebook
- Flickr RSS feed (place/friend/tags) – pulling and embedding to blog
- wordpress (individual, joint blog) – aggregating

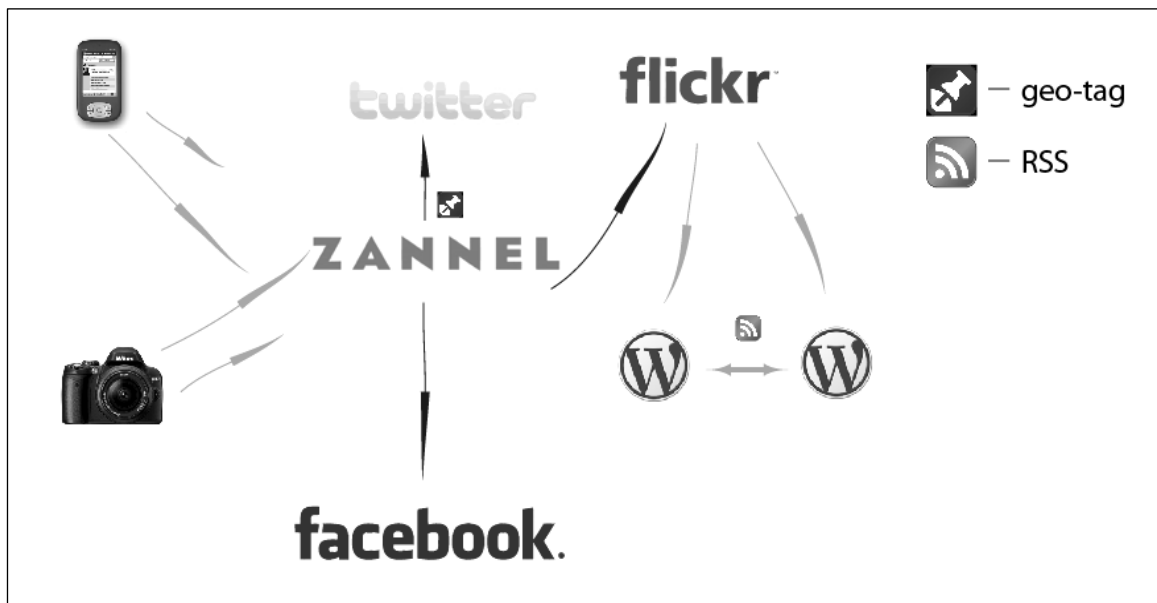


Figure 4. Social navigation prototype of Mixed Bodies – the web-based system created and tested individually by the author

Hypothetical source of awareness was expected to work through Flickr and blog. All the data flow processes had to go through the rest narrative ecosystem. The visual narrative performance had to begin in Flickr and was simultaneously created in the author's site.

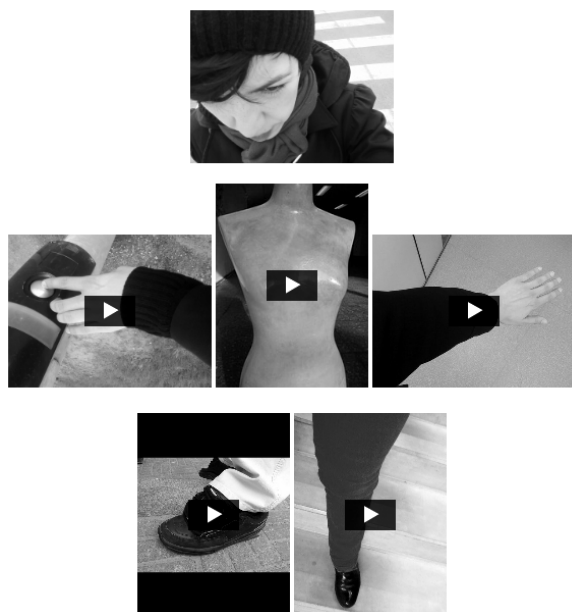


Figure 5. Visual result of art project

3.3.3 Analysis of social art experiment

In the case study it was expected that the collaboration to create hybrid urban citizen would emerge. The creation of collaborative identity in hybrid environment, where people could see or follow their everyday parts of body tagged geographically, was expected to motivate people participating in this activity.

Even though twelve invited author's friends joined the Flickr group, they stayed inactive for a long. However the activity has started from the user not being in author's social networks. It means the information has overcome the borders of given social environment and is one of the positive outcomes. In Facebook Fan page that was created the latest there are several fans (one fan per month without any active contributions to the project). Services like Zannel didn't become useful between target group and it was decided to ease the directions using only Flickr.

The results of that experiment indicated that it is quite a long process to foster active collaboration in creating such kind of online art. There has been no concentration on users' benefits apart from just revealing their body parts. Probably there is need to establish user groups (e.g. photographer communities). From participants' point of view the motivations to be involved in other people's projects are quite low. It may be that people are more interested in following their own aims in such hybrid environments, but if these aims happen to be similar with some other people, the collaboration will appear on a swarm level phenomenon. Secondly, people don't bother to use all system's social sites and often forget tagging. Probably the reason also hides in unsocial routes that lie in art creation (Democratic Innovation, 2009): not all people are interested in art and

participation from the beginning; they just want to observe, and see the results.

Therefore, there is need to find more motivations to engage participants and automatic, easy system for making the whole thing working. Besides it is suggested to create more interactivity such as linking the slideshows to original photo sources and Google or Flickr map.

Evidently, such kind of online art collaboration should consist of a lot more complex set of “attractors” and ways of motivations in order to get more active participants. Also, the visual results should inspire for participation from the beginning. The involvement in the experiment requires many actions to do, so another option for motivation might be a mash-up application that of course eases the process. There are possibilities to mash some social profiles and applications in one. For example, mixing Google maps with Flickr slideshows and create links to other narrative sources in this hybrid environment or let users upload images through Zannel email service. In order to compose a more participatory engaging system, it is needed to make clear and comprehensible application with attractive mission for users, so that it also could be used in another context, more interactive and beneficial for audience (e.g. as an interactive installation with screens and photo capturing technology).

3.4 PARTICIPATORY EXPERIMENT III Social marketing – “Zombie Walk”

3.4.1 Description

The marketing experiment is demonstrating the promotion of flashmob idea in social environment. The idea was spread in social software as attractor for participation in the created hybrid space and as experimental environment where users were expected to rise the awareness, to “propagate” the event - push the info, create variety of relevant connected sources in a swarm manner.

Marketing the first Estonian Zombie Walk in hybrid ecology was aimed to attract people (mostly aged from 18-30) to a flashmob event, and foster swarming behaviors in the constructed hybrid ecosystem. This event was organized partially by the author of thesis. Thus, there was good field for investigation in social environment how the chosen event could be promoted. There was a hypothetical assumption that swarming participation might facilitate the creation of awareness, and some practices of conversational marketing might be effective for promotion of Zombie Walk in the chosen target audience’s environment.

Different Web 2.0 applications and sites were chosen as “influencers” of participation (Twitter, Facebook pages, ping.fm, Flickr group). The elements of attraction to these pages were created. These attractor spots had to raise interest to particular topic and

promote attracted users to continue conversations around the promoted event. For example, Facebook games, quizzes about zombies, and the quiz results could be shared with info and links relevant to the event. Also corporate attributes (logos, press-releases) were distributed in microblogs and social sites.

3.4.2 Data gathering and technology

Devices: pc, laptops

Monitoring/filtering:

- Tag #zombiewalkest.
- Ping.fm (place and friend feeds).
- BrightKite <http://brightkite.com/people/zombiewalkest>
- Twitter <http://Twitter.com/ZombieWalkEst>,
- Flickr <http://www.Flickr.com/photos/zombiewalkest/>
- Blog <http://zombiewalkest.wordpress.com/>,
- Facebook (page and group), Orkut, Vkontakte.
- Ning - <http://zombiewalkest.ning.com/>
- Applications like Facebook quizzes and games, other Twitter tools (e.g. TweetPic)
- MyblogLog <http://www.mybloglog.com/buzz/members/zombiewalkest/>

Collaborating:

- mashing the tagged content.
- ping.fm email service – pushing to Twitter, Flickr, Ning, Blog, and Facebook
- LetterMeLater - e-mail service for scheduled posts.
- Twitter and Flickr RSS feed (place/friend/tags) – pulling and embedding to blog and Ning.
- wordpress (individual) – aggregating.

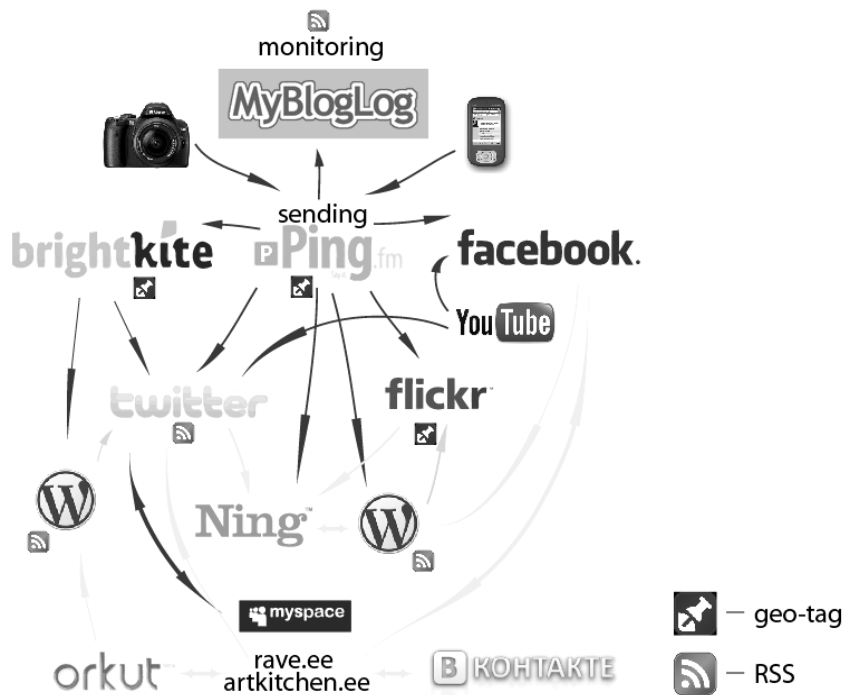


Figure 6. Social navigation Prototype of Zombie Walk Event

In this experiment technological process of swarming was implemented in more complex social software navigation system so as to have an opportunity to see how people, interested in the event, are active with these tools.

Main problem of survey was the lack of knowledge of how participatory surveillance is occurring in the social software in order to create effective social art promotion environment. One of the existing local examples is the promotional campaign of “Rahvuspapud” which success started with Twitter (Alas, 2009).

Main goal of survey was to investigate technical and behavioral aspects of using participatory surveillance with social software in given case.

Participants of created promotional hybrid ecosystem were expected to contribute to social networks where this event was advertised. Participants also were expected to use common tag #zombiewalkest in their posts, but it worked out only for organizers, who used it in all updates that were happening through ping.fm’s mobile/email service. Beside the author there were two more active promoters who got the directions of sending announcements through this service. The promotion period lasted approximately two weeks before the event while the hybrid system was actively implemented.

Besides observations and reflection of activities an online survey instrument was developed (see annex 1) that was presented to all targeted users after the Zombie Walk

Event in order to find out the patterns of behavior in this promotion ecosystem. Targeted users were all friends in author's social environment in Facebook, Twitter, Orkut, Google and Hotmail accounts; some people were contacted through Myspace.

The questionnaire was distributed to the users who were involved in created social system (author's own circle of social accounts and networks where this event was advertised). Mainly users in author's social web environment are between 18 and 30 years old. This is showing that they are actively contributing and spend much time in social networks. Total amount of answered questionnaires was 112, four of which were skipped. People approximately were answering during the two weeks.

Answers were analyzed in 3 phases:

1. The main options of answers, marked by users, were counted and presented in diagrams showing the percentage of people answered. For this the amount of respondents was calculated, then the percentage of respondents in every answer was calculated, and finally the descriptive general summary was written.
2. The option "other", and question 13 and 14 were analyzed with content analysis method and the answers were divided to the sub-categories. Counting was based on the amount of mentioned categories in the answers. Analysis was the following: the amount of mentioned categories was calculated, the percentage of the most popular categories were found that were essential in concerns of research questions was calculated, and the general descriptive summary with examples was written.
3. The certain relevant survey questions that were expected to reveal research issues of the thesis were analyzed in pairs. The cross-tabulation was performed to see the connection between users' answers.

3.4.3 Analysis of social marketing experiment and survey

According to the previous experience of narrative ecosystem's mutual engagement process the strategy of information flow was also developed. Firstly, information about Zombie Walk was distributed in social networks - Facebook and Vkontakte. Blog and Twitter accounts for promoting the event were created a bit later. It was planned to create the target group awareness gradually (not to overwhelm the audience by giving many info sources at once), and follow how fast people would be involved and started to follow. Every chosen channel specializes on different quality of information: Facebook is a main info source for communities, but it is more limited in terms of user privacy, Twitter is more suitable for small or urgent announcements/alerts, and blogs offer best options for main info publishing.

Storytelling was also meant to take place in this project. Author tried to begin telling

“stories” to get any feedback from followers about the event mainly in Twitter and Brightkite. It was observed that the only action people took was that they surfed through links of “other pages” as these were not so actual sources of storytelling, but served as good motivators for event observation, participation and maintaining the awareness.

Facebook pages, Twitter, Wordpress, Ning, Flickr and Brightkite of Zombie Walk had direct ping.fm integration that enabled updating simultaneously different sources of information – besides connections to many social networks, repositories, blogs it created connections to messengers, and had a possibility of sending images with tags. Thus comparing with Zannel.com Ping.fm appeared as a more diverse service with automatic duplication of content on different sites with different audience following these sites and was updated during the promotion period. Other relevant and possibly more convenient service found is pixelpipe.com with easy setup of destinations for pulling posts into exact destinations of social networks.

All these connections and digital and geographical artifacts were meant to create a dynamic promotion circulating within the hybrid ecosystem by fostering awareness and actions of participants in different social profiles and through other sources (e.g. organizers’ pages: artkitchen.ee, rave.ee with visually attractive links to all social networks of the event). Basically this process is described as a feedback loop that “influences the evolution of communities and determines their interaction in this space” (Pata, in press).

Concrete engagement tasks people were expected to do were the following: talk about the event not only in media like forums, participate in communities, join flashmob social pages, tell stories about zombies etc. Expected swarming behavior was to write narratives beyond the “closed” communities and posting links, taking photos on the given theme and uploading it to social repositories like Flickr. Observed situation was that the social communities like Orkut and Russian social network Vkontakte were mostly “alienated” from the process of hybrid information sharing because they have no connections with microblogging or other interactive social applications. Additionally, lots of important “Zombie Walk” arrangement conversations were happening only in Vkontakte. Therefore, in the multinational community of Zombie walk, the bigger part of targeted audience (Estonians) was unaware or less aware of these conversations.

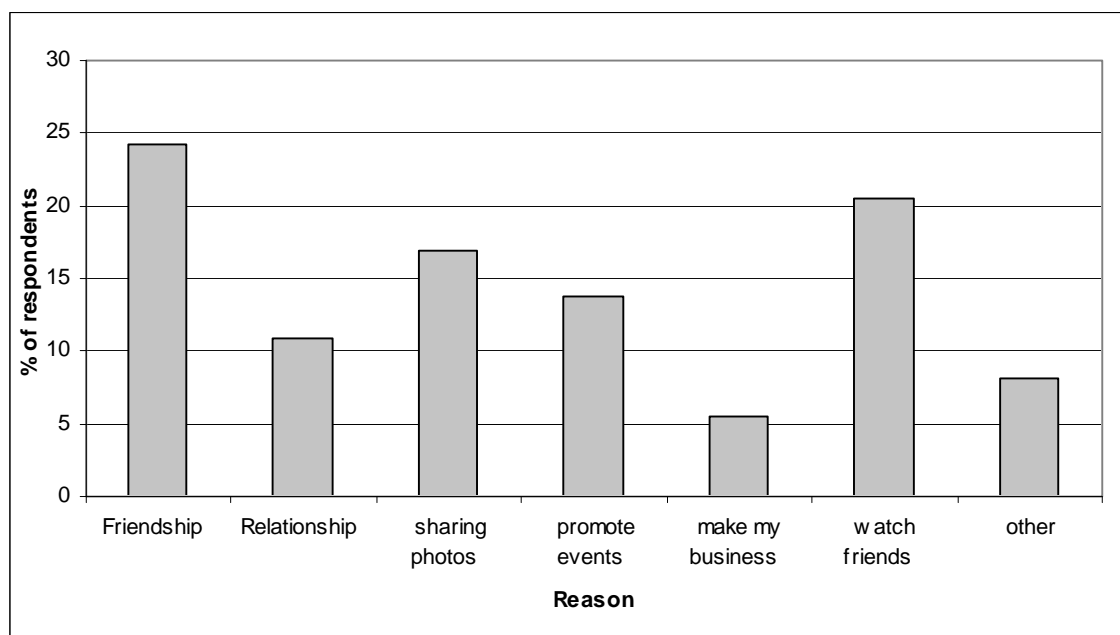
Most evident activity until the time of writing of the thesis was the growing number of followers on Zombie Walk Twitter page. It turned to be the most active social site in terms of joining users. Some commercial companies from other countries joined as well that can be regarded as the benefit for both sides because they are seeing there the

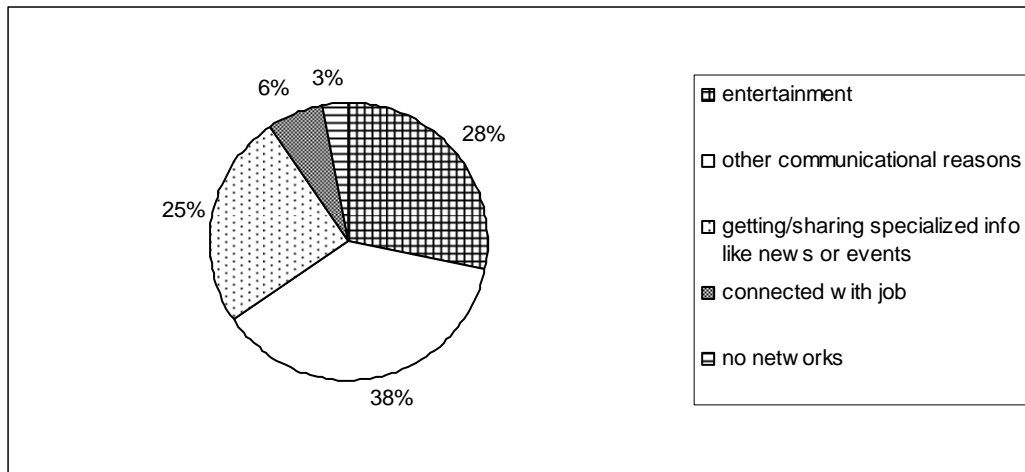
opportunity to expand contact list for further promotion.

Analysis of questionnaire (Main diagrams and “Other” option analysis)

Figures (% of respondents) of main diagrams are not taking into account opinions of respondents because in “other” answers there were sometimes typed variants already offered in answer options (repeated meaning) or just words “nothing” or “none” that were automatically counted and included in total summa. Therefore text answers were separately analyzed and categorized to bring out similar, and most frequent characteristics. These then were compared with main options. The reasons for using this method is that text answers were quite reach and needed to be categorized: same meanings in all answers were distributed into separate categories. The counting here is basing not on amount of users but on amount of mentioned "category" in answers. For example, in one answer there were several categories.

Also new options that should also have been put to the questionnaire are discovered from “other” responses. Thus new and more exact information is subtracted: how else people were aware of the event, with what behavior they discovered the information, and contributed in social media. Mostly “other” answers consisted of opinions simultaneously with several more categories and thus there it is counted how many times concrete category was mentioned, not the percentage of respondents. Users noticed information about the event because are mostly concentrated on watching and following friends and contacts. Those who usually more concentrated on promotion of their events or exhibiting (photos) become involved in social software more.





Figures 7-8. Question 4 – Why are you in social networks (like Facebook, Orkut, Vkontakte, Myspace, etc)?

Mostly, participants of the experiment were motivated to join in the social networks for three reasons: friendship, watching friends’ activities, and sharing photos (figure 7). “Other” section revealed the most popular sub-category (figure 8) - other communicational reasons (e.g. keeping contacts).

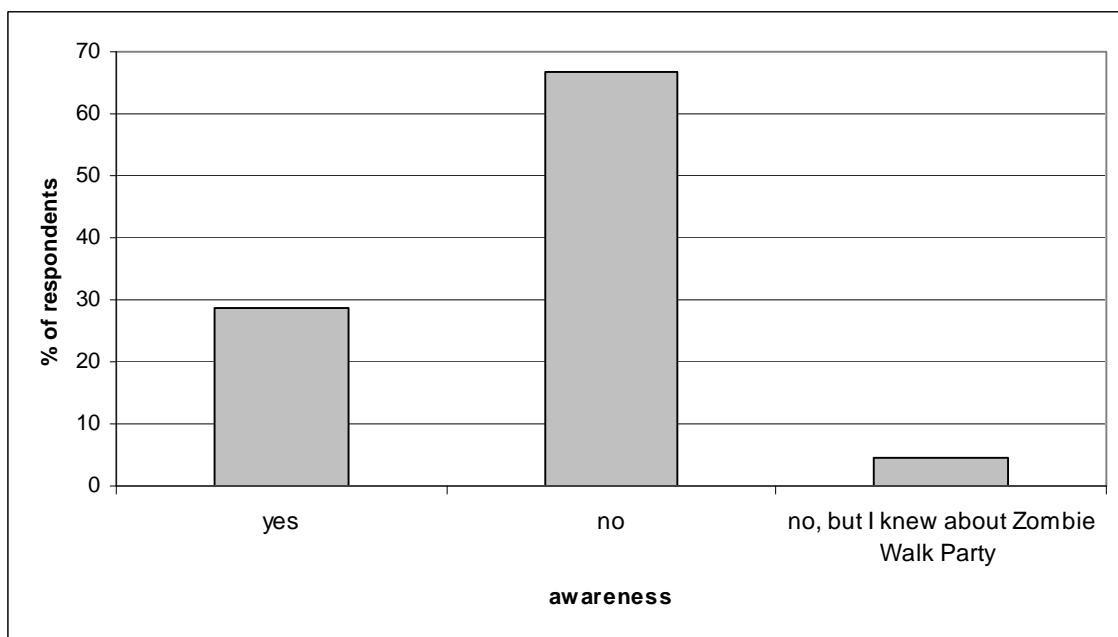
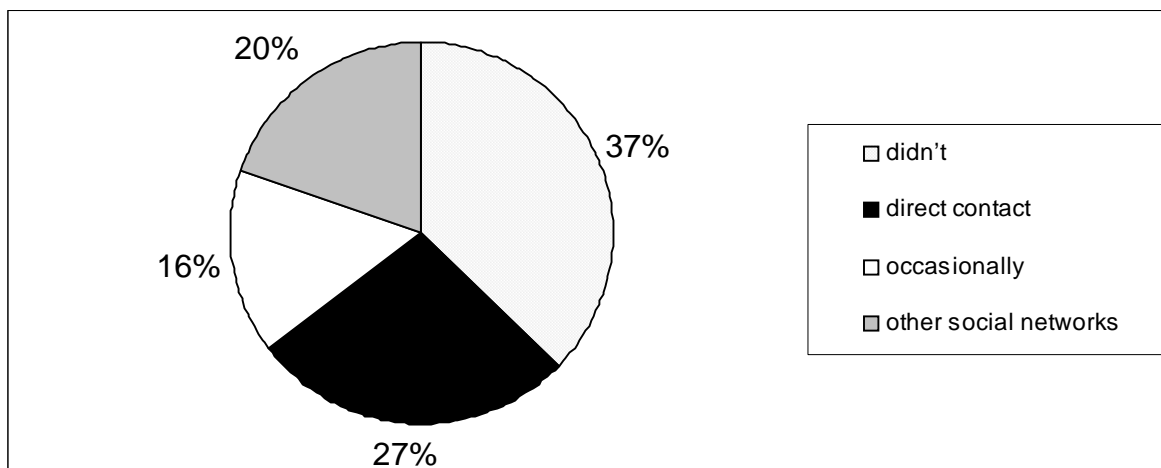
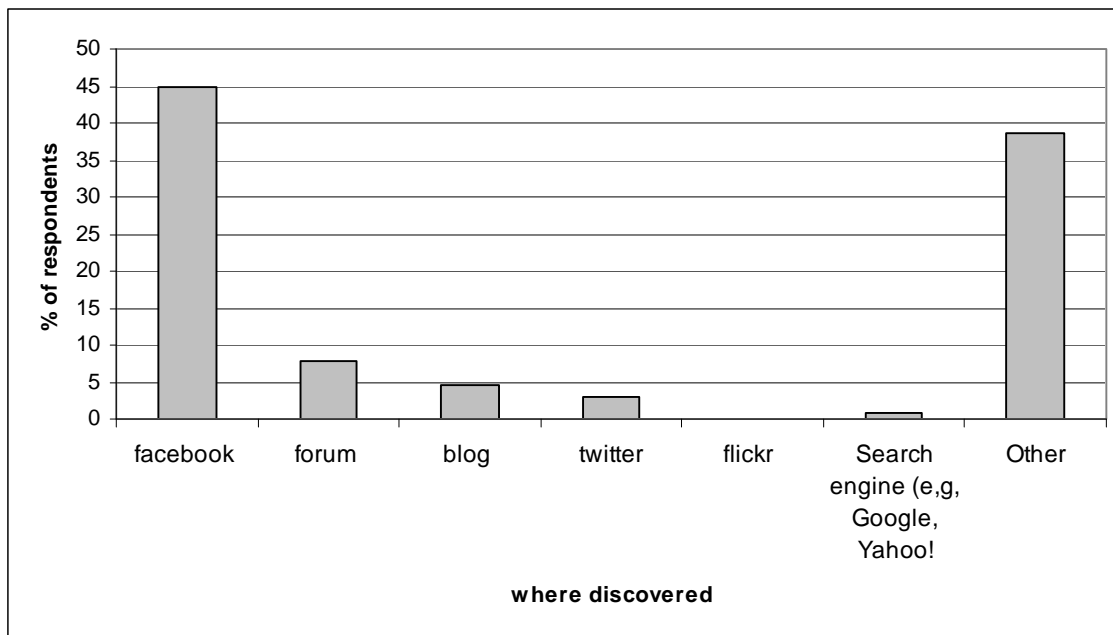


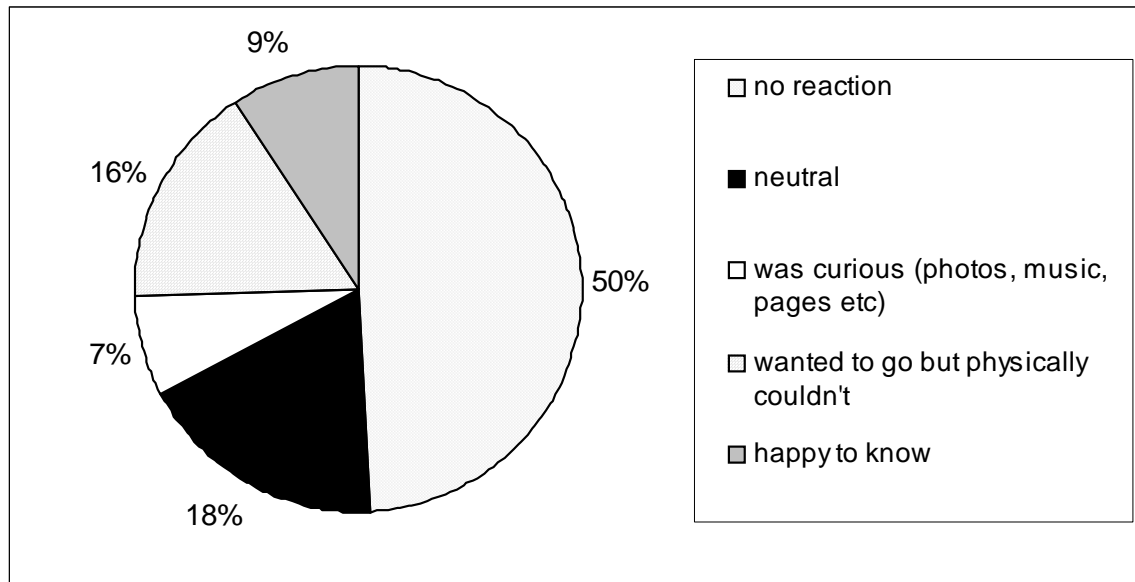
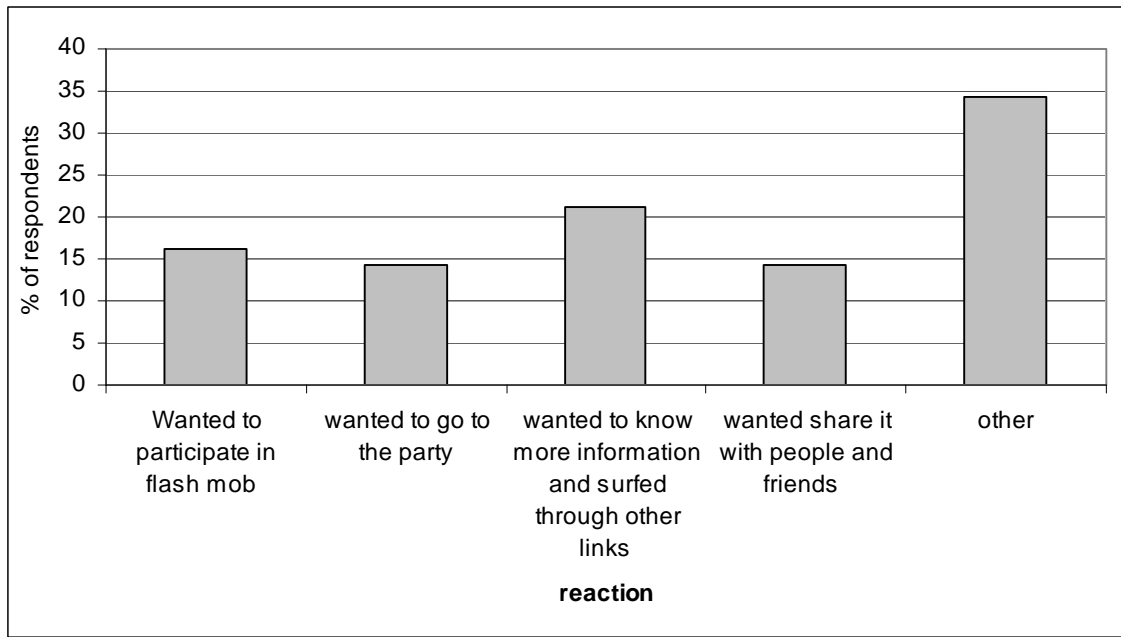
Figure 9. Question 5 – Did you know about the Estonian event “Zombie Walk” flash mob on 31.10.09 before you found it in social network?

It appeared that generally users did not know about the Zombie Walk before they found it in social networks. 67% of questioned people did not found Zombie Walk information. Those people who knew about the event outside of social networks are analyzed below.



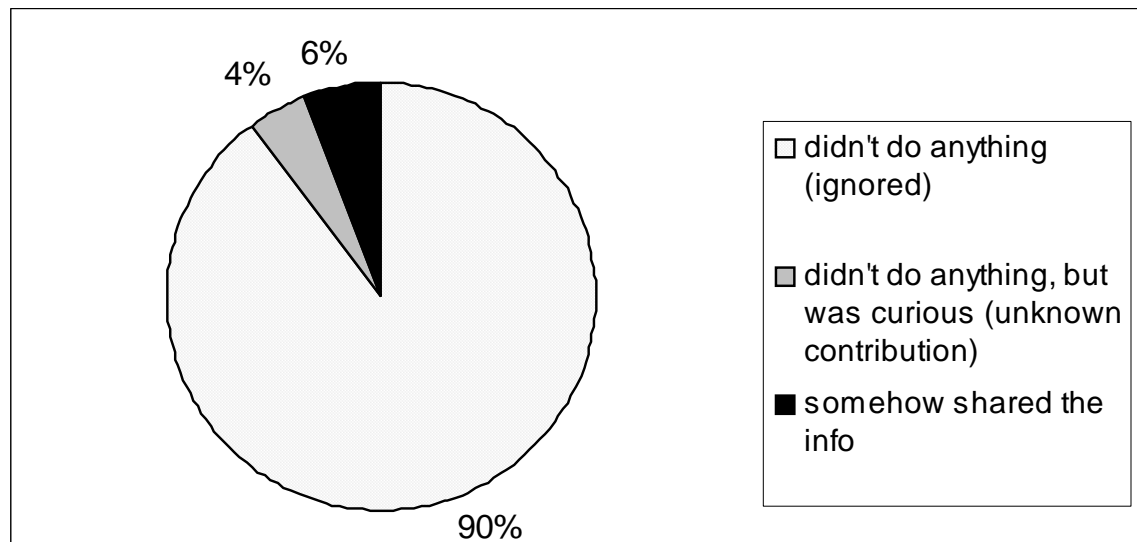
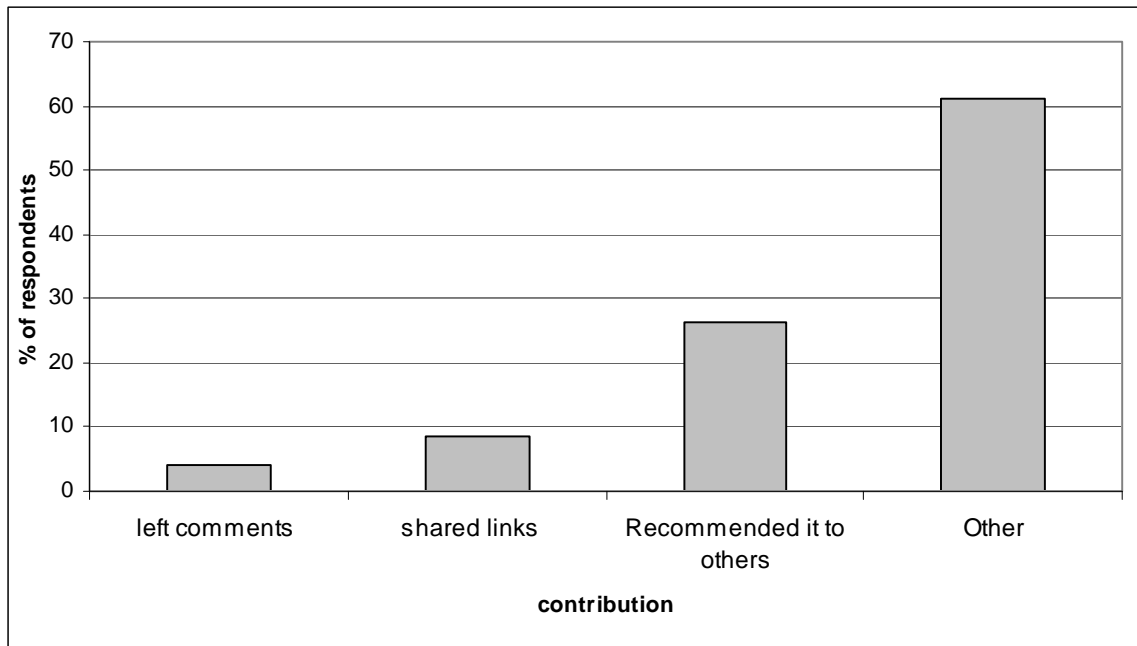
Figures 10-11. Question 6 – How did you discover Estonian Zombie Walk advertisements?

Facebook is the most general information source; forums are still working as “manual” ways of discovering events (figure 10). “Other” category on this graphic contains huge % of “noise” answers like “none or didn’t know”. This category also contained random or unclear answers and it was decided to count frequency of mentioned characteristics there. On the figure 11 it is visible that other sources of awareness were mostly direct contact (word of mouth) and other social networks (Vkontakte and Livejournal).



Figures 12- 13. Question 7 – What was your reaction\thought?

The reaction was mostly positive: people wanted to know the information and to share it with others (figure 12). In the “other” category people mostly were written comments like “didn't know anything about the Estonian Zombie Walk” (no reaction, 50%), “didn't react, just watched pictures”, “scary” (neutral, 18%), “Could not go, had other plans” (wanted to go but physically couldn't, 16%), and the interest (7%) was expressed like that: “wanted to see”, “was interested in artists playing on the after party”, “was interested in created event's web 2.0 environment” (figure 13).



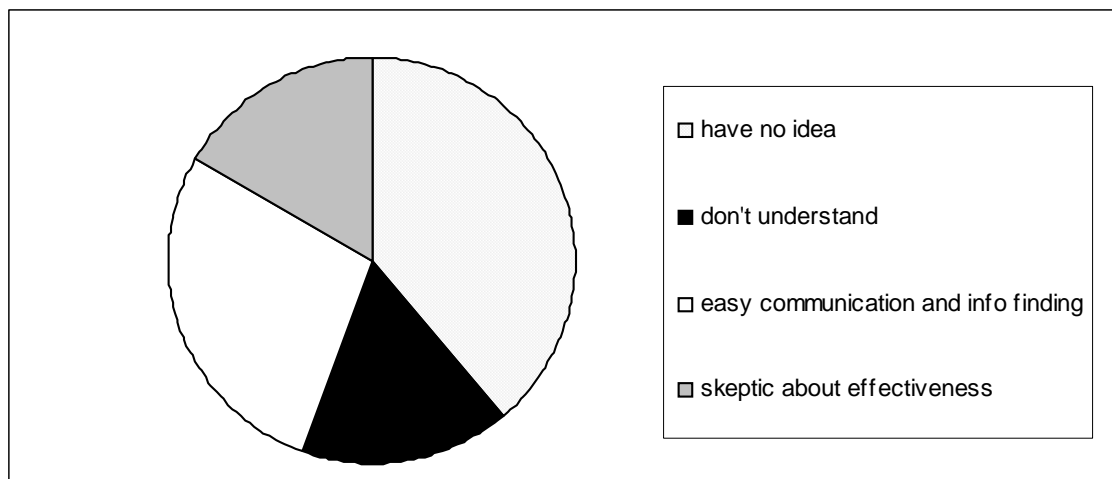
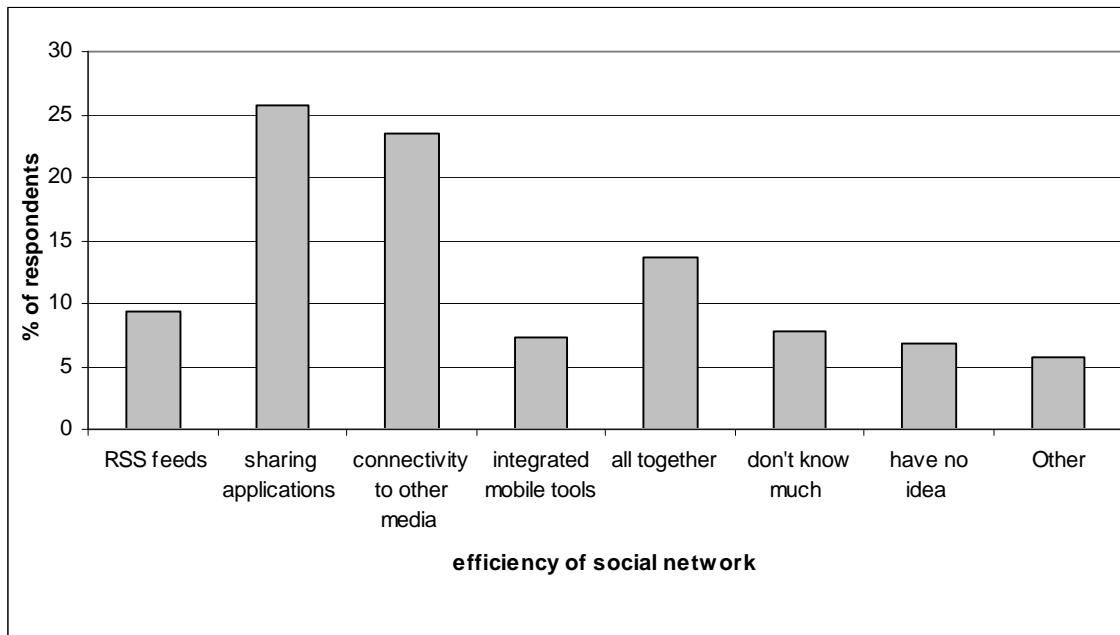
Figures 14-15. Question 8 – How did you contribute to the social network when seeing the Zombie walk advertisement?

26% of people recommended the event to others, 4% - left comments (figure 14). “Other” category appeared to be the same as in the previous question in addition with 6% of participants who shared answered “posted the event on my Facebook wall”, “recommended after party” or just “somehow shared” (figure 15).

Some people were thinking not only about social network contribution or reactions towards software, they sometimes answered what they thought about the event. So that is why some answers were put under category “didn’t, no reaction, and didn’t do anything” which are presented in above pie figures.

One user answered all the questions imagining the event is still to come (he just discovered the event while filling in the survey). But it doesn’t change the results

because it shows that he would participate.

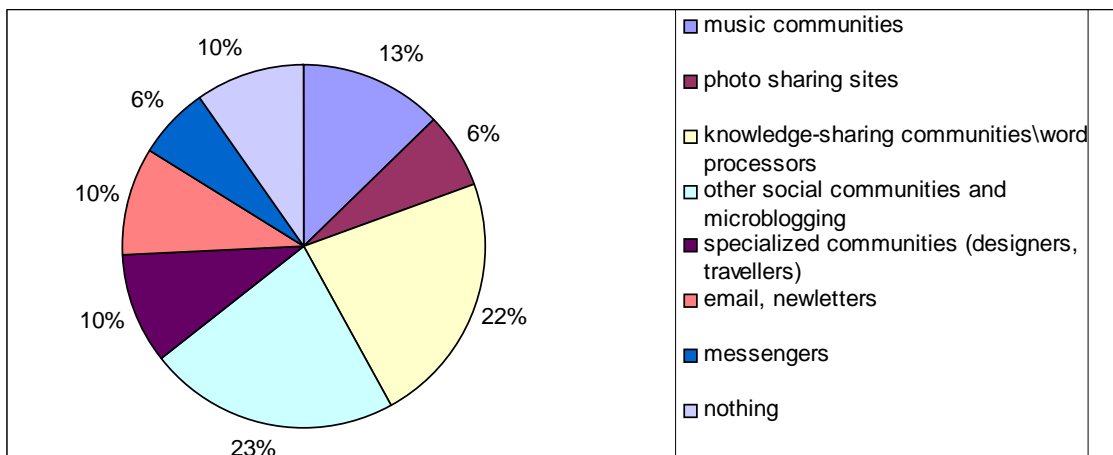
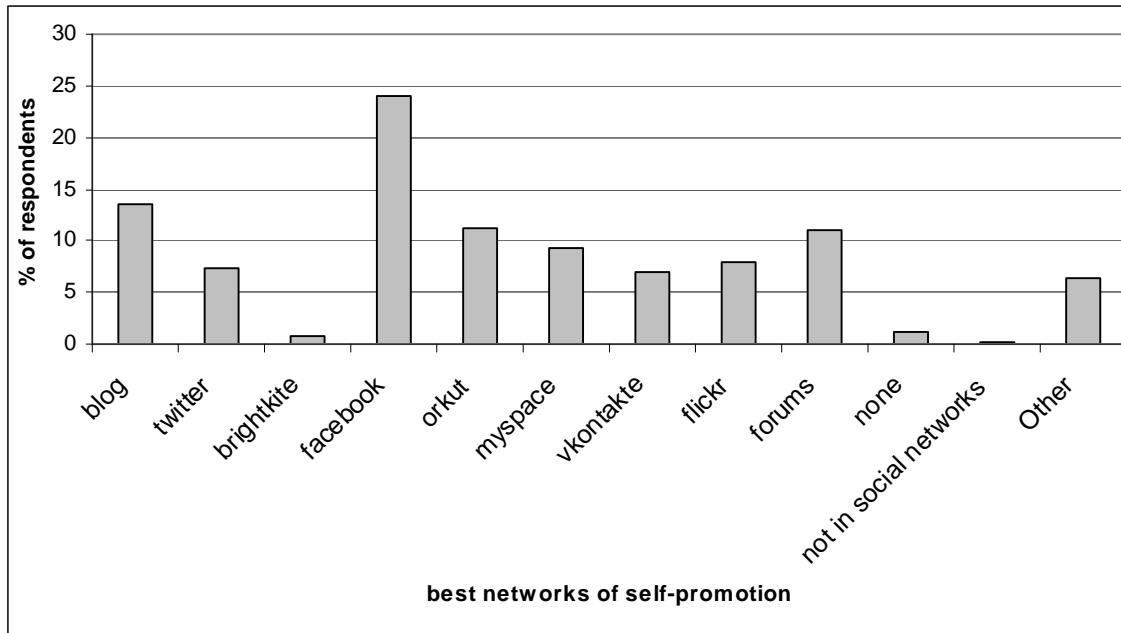


Figures 16 - 17. Question 9 – What do you mean under efficient social network (what options do you prefer to use to create your network)?

64% of recipients are commonly preferring “sharing applications”, “connectivity to other media” and “all together” (figure 16) – the synergy of all interactive useful applications helping to find and filter information and easy communicate (partially explained in “other” category). “Other category” (6%) also contained explanation why they “have no idea” and why they didn’t understand question (figure 17).

This question was the most complicated for some users who didn’t understand the question and some even skipped answering. The phrase “effective social network”: that is understood differently by different people. Indeed, the question should be corrected: “How you understand “ideal social network” that meets your preferences of communication in social web?” Answers were quite random, not about options

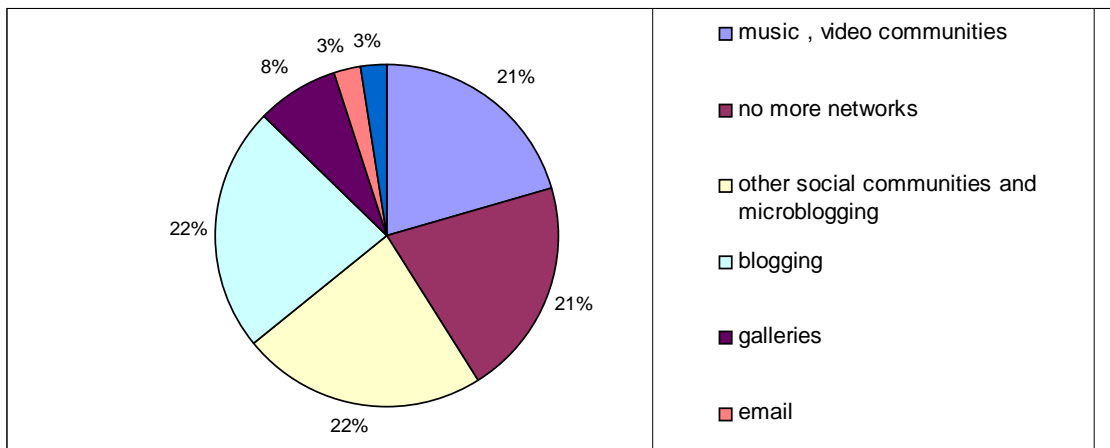
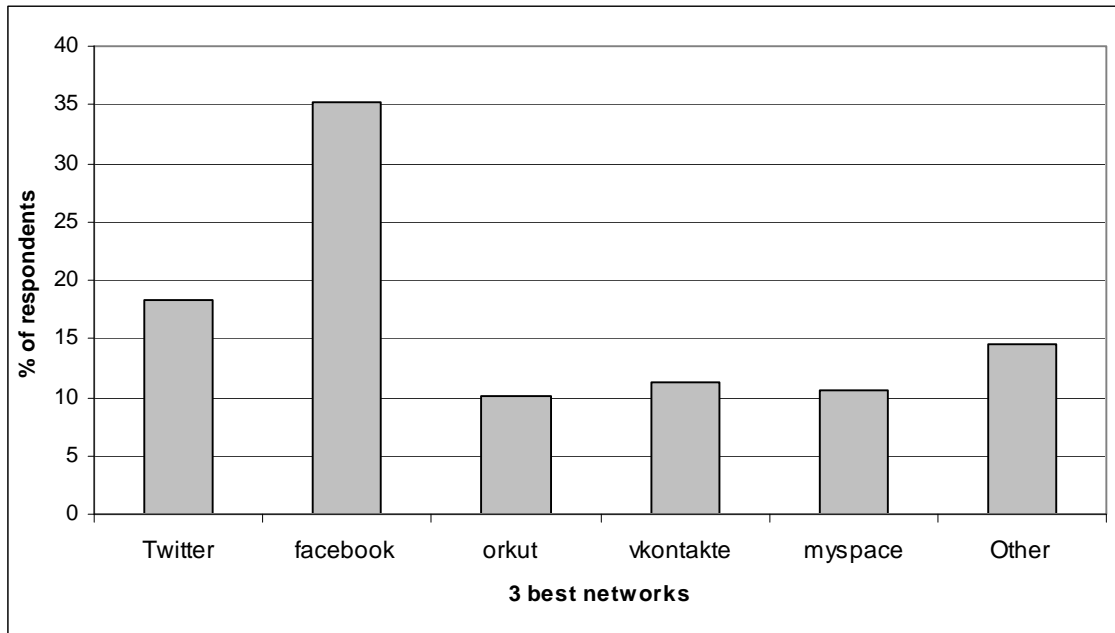
expected; some expressed his opinion about effectiveness and what it depends on, and some named just sites they think should be in good network (Facebook and blogs for example) or named just what they use. However answers are quite related to questions 4, 10, and 13. And the 9th question should have logically been placed after the next question (too technical question right after “zombie walk” questions).



Figures 18-19. Question 10 – Name networks that you use to promote or share your events or “ideas”?

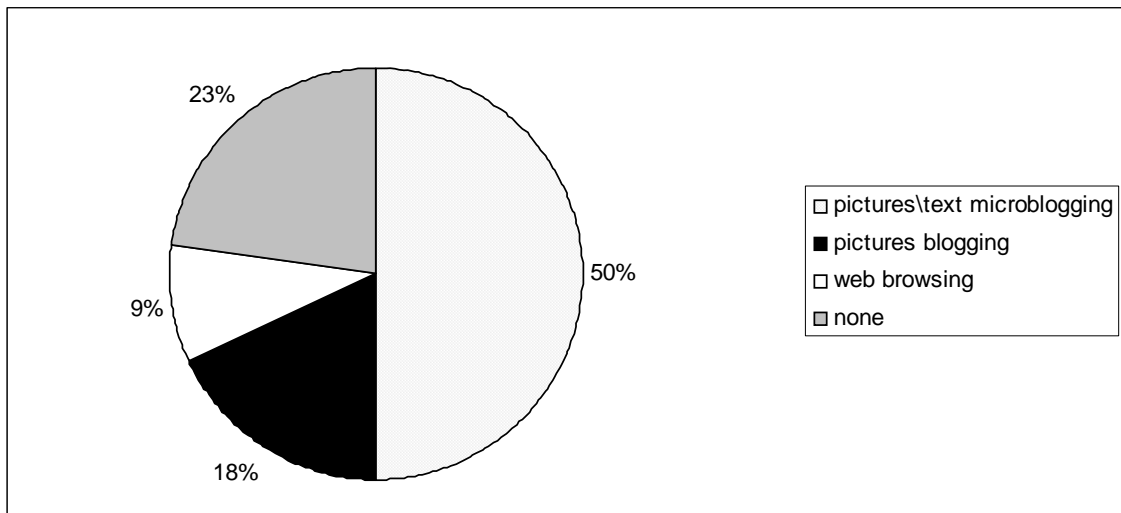
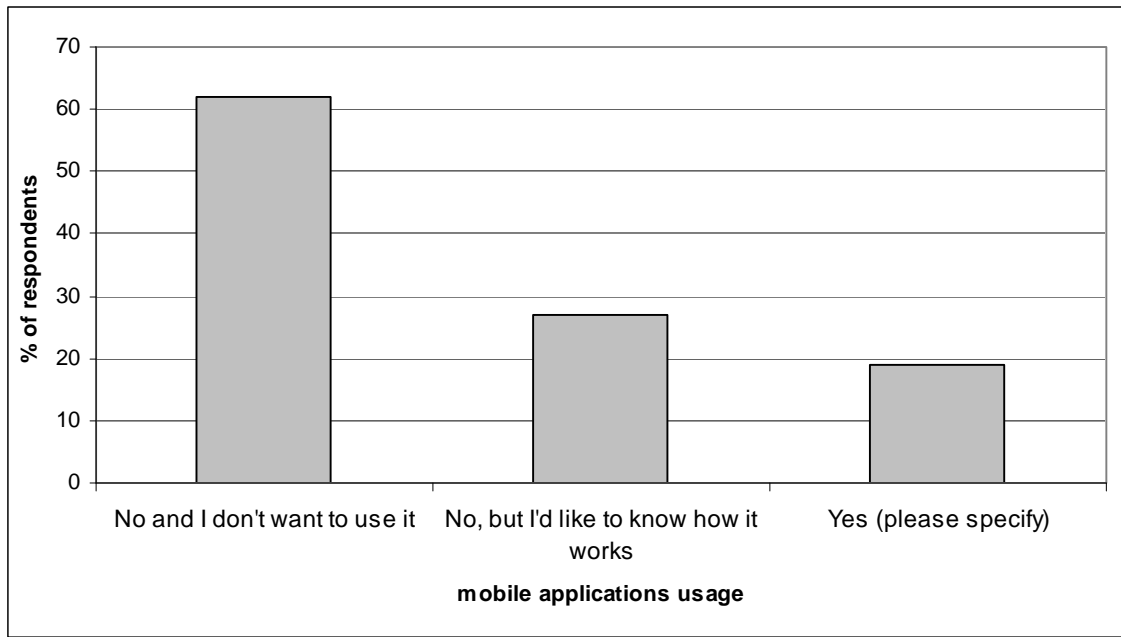
After Facebook (24%), forums (11%) and Blogs (14%) are mostly working for recipients. Orkut, Myspace, and Flickr are also quite favorable field of self-promotion. The “other” category revealed much more channels that means people are searching best ways of self-promotion and are eager to share their information in many ways: “other social communities and microblogging” (23%) such as Livejournal and Odnoklassniki, knowledge-sharing communities/word processors (22%) such as LinkedIn, Tagged, Ning, Lookatme, Google Groups. Quite “motivational” category is “Music Communities”

(13%) that some people are marking as “getting access to music”.



Figures 20-21. Question 11 – Please name 3 best networks that work efficiently (for your promotional purposes) on your opinion

Answering on the question users were basing commonly on own aims of socialization in Internet and the best networks are Facebook, Twitter and according to “other” category “other social communities” such as Livejournal (22%), “blogging” (22%, some recipient even explained: “Blogs, it works in Estonia”), and “music, video communities” were the most popular sub-categories.



Figures 22-23. Question 12 – Do you use mobile phone to share pictures and texts in internet? If yes, name those services or applications

People, who would like to know how mobile tools are working, described what software is connected in their profiles (figure 23): mostly it is microblogging connection with picture galleries (Picasa-Facebook, Twitter-Flickr), usage of Facebook for iPhone applications, and mobile web browsers (Operamini, Snaptü).

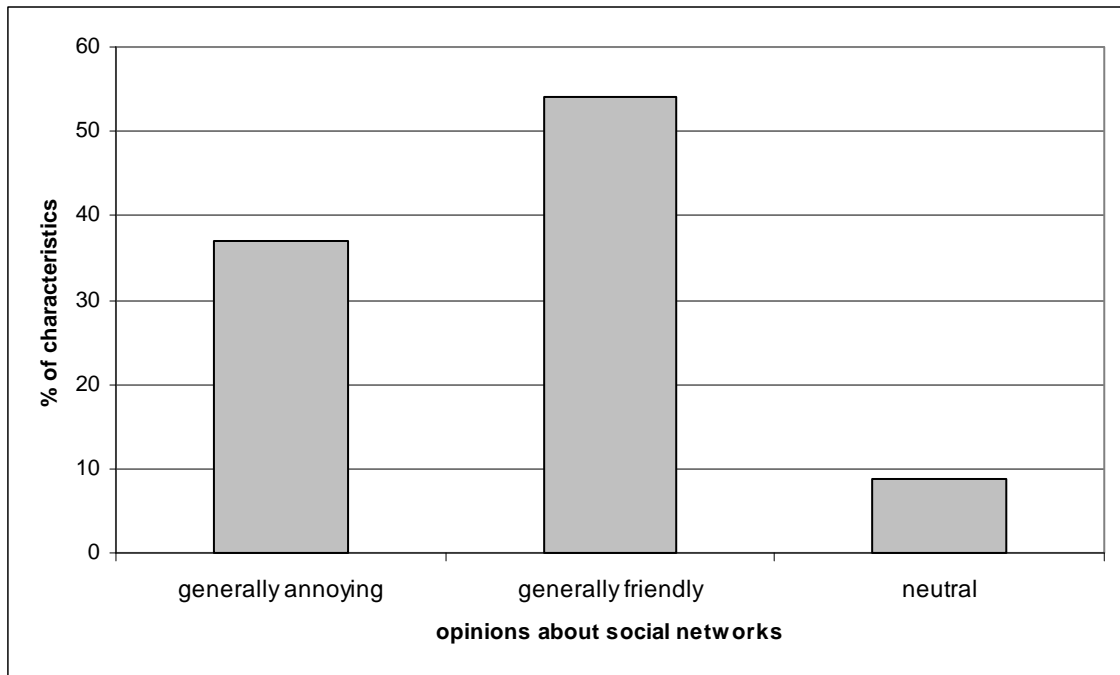
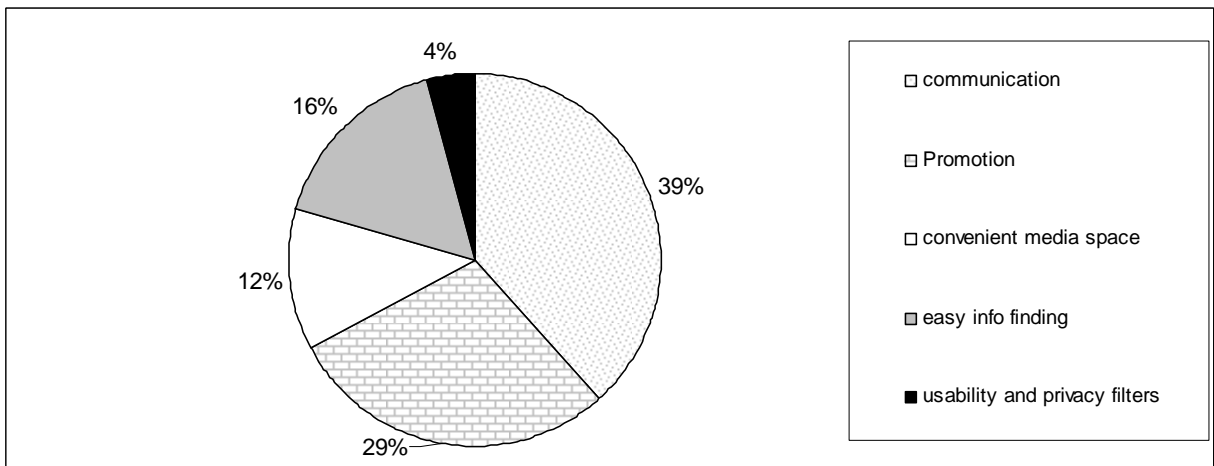


Figure 24. Question 13 – Do you think social networks are user friendly or annoying? What is good and bad about those networks?

Almost everybody were expressing both what is good and bad (figures 25-26), differencing by what they like and dislike, would like to add there, wrote short superficial answers (e.g. just good or just bad), opinions about social life in internet. These are quite interesting opinions and even suggestions. All answers contained good and bad opinions were distributed into “generally friendly” (54%), “generally annoying” (37%) and short superficial answers into “neutral” (8%). According to these opinions there have been shown sub-categories of positive and negative categories (figures 25-26). In “Neutral” category there are answers such as: “mostly usable”, “just good”, “both”, without clarification. It may mean that these users may fit to positive categories and be considered as loyal audience for future promotional activities.



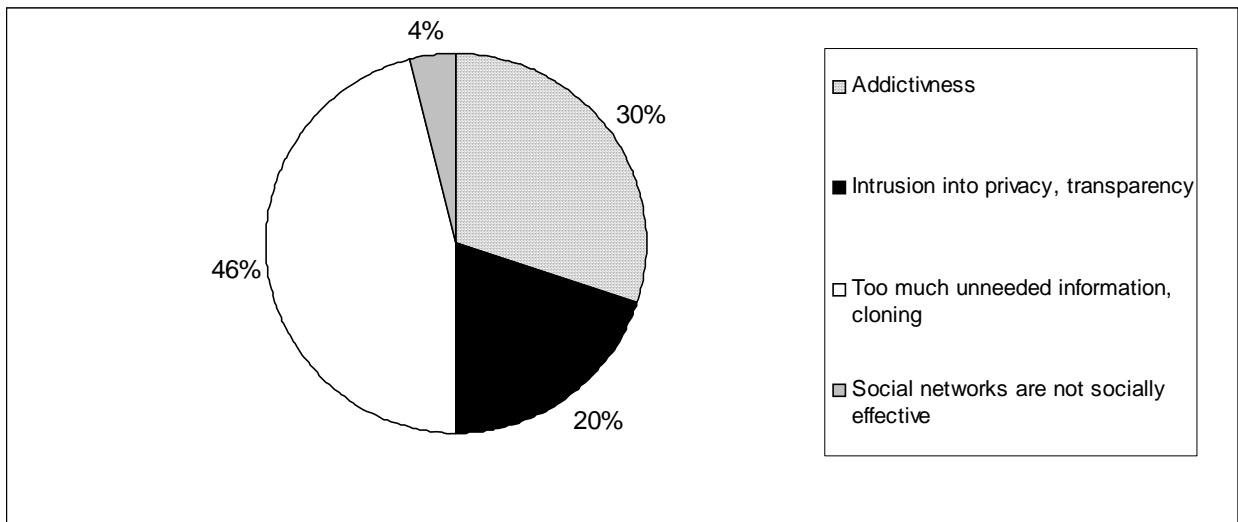


Figure 25-26. Percentage of mentioned positive, and negative characteristics

“Communication”, “promotion”, and “Easy info finding” are the most popular positive characteristics of why users are involved in social networks but in turn the same users are expressing negative sides such as: “too much unneeded information”, “Intrusion into privacy” and as the huge percent of participants mentioned “Addictiveness” in their answers it means this fact is quite strong to keep this audience involved in this participatory software. The “addictiveness” is supported by the most popular categories of Question 4 (figures 7-8): “Friendship”, “Entertainment” and “info filtering”

Analyzing answers of 13 and 14 questions common category was noticed: suggestions how to make tools better or general proposals what he or she would like to use\see\create with the help of social software, and general opinions about social online life. Suggestions (or wishes of making social networks user-friendly) as it was supportive opinions of why they think some social networks annoying or friendly. For example: “*Pictures and also teens and children are starting to overrun the Orkut (wish they'd stay in rate.ee or some other children's portal)*”; “*depends on application*”; “*should provide better information filters*”; “*need to create social networks for work purposes*”; “*should pay attention on privacy and know that there are more an more children online*”; “*modern internet are almost all consisted of social networks with tracing features*”. This is useful information for discussion about social networks in general and to understand the treatment of the user to this environment.

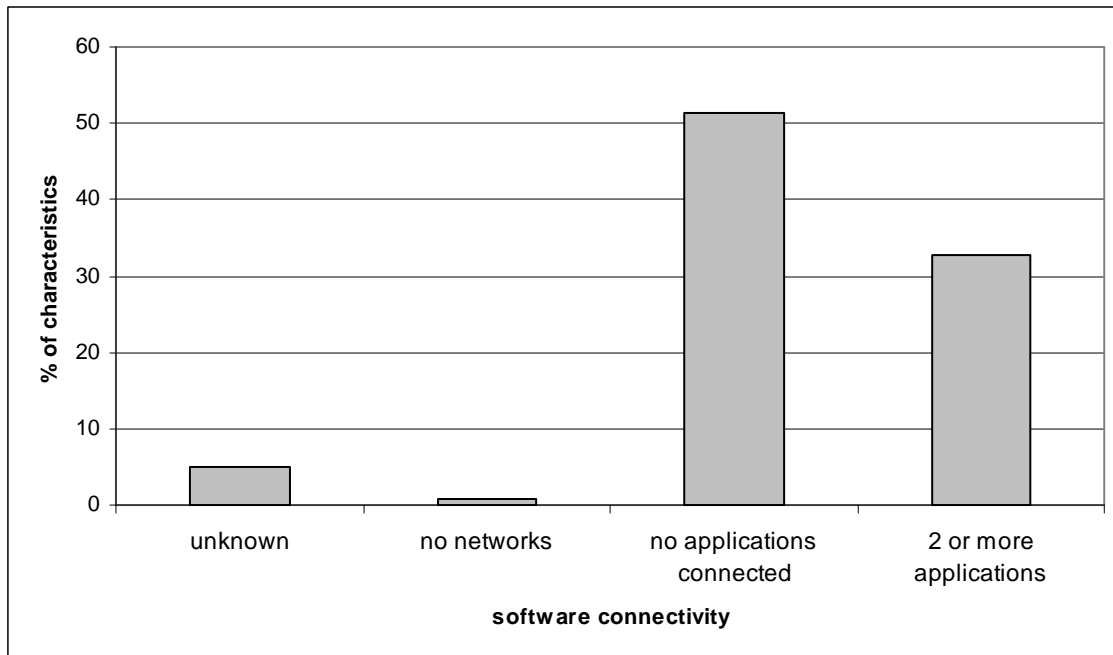


Figure 27. Question 14 - Describe what software is connected in your personal web environment (social networks), and how are the tools connected?

The last question brought the most informative and useful feedback from respondents as they described more detailed software services they use apart from mobile applications. Unknown category is consisted of empty or not relevant answers.

Users reported their opinions about social software they use, why such connection, why the connection is good and bad. For example, *“Twitter for status updates; WordPress for posts; Flickr for images; YouTube (mostly) for videos; SoundCloud for sound. The remaining social networks mostly aggregate these media / info feeds. I find TweetDeck useful for status updates across websites, but this kind of tool could be much more powerful, and include photos/video/sound/blog posts/etc”*; *“connected: Brightkite + twitter + Flickr. Facebook is simple way to connect different networks and to post information there at once”*. The amount of respondents who are using two or more applications counted manually and the figure 27 is showing that 33% of respondents had listed some applications connected in their environment. More examples that could be useful to take into account when creating hybrid ecosystem: *“Picasa and YouTube connected to Facebook. Home pages connected to FB, Picasa, and Blogger. Mobile versions of FB, YouTube, Picasa and Blogger in use”*, *“vimeo <-facebook, flickr -> facebook”*, *“Netvibes.com as RSS-reader, tweets are going to FB status, some web links marked with dig are automatically going to delicious”*, *“Facebook + twitter + google desktop, in order to follow needed news and subscriptions without going to particular social profile”*.

Crossed-tabulation analysis

This analysis (two questions together – more detailed and logical conclusion, e.g. what particular user with particular option answered on another certain question) gives even more exact overview to understand the impact of used technology, participation activities and potential directions of idea promotion. And of course it is interesting to follow how real intentions of users were intersected with the web environment and probably this is the way how to distinct some target hybrid spaces where and how users are much eager to share or pass information.

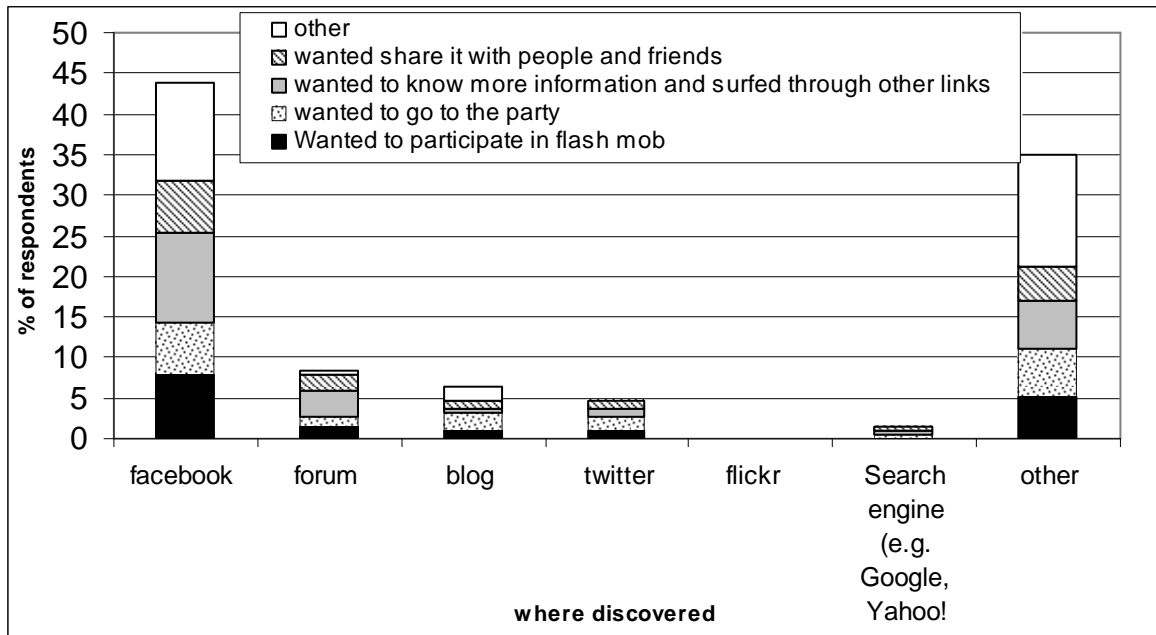


Figure 30. Cross tabulation between 6th and 7th questions

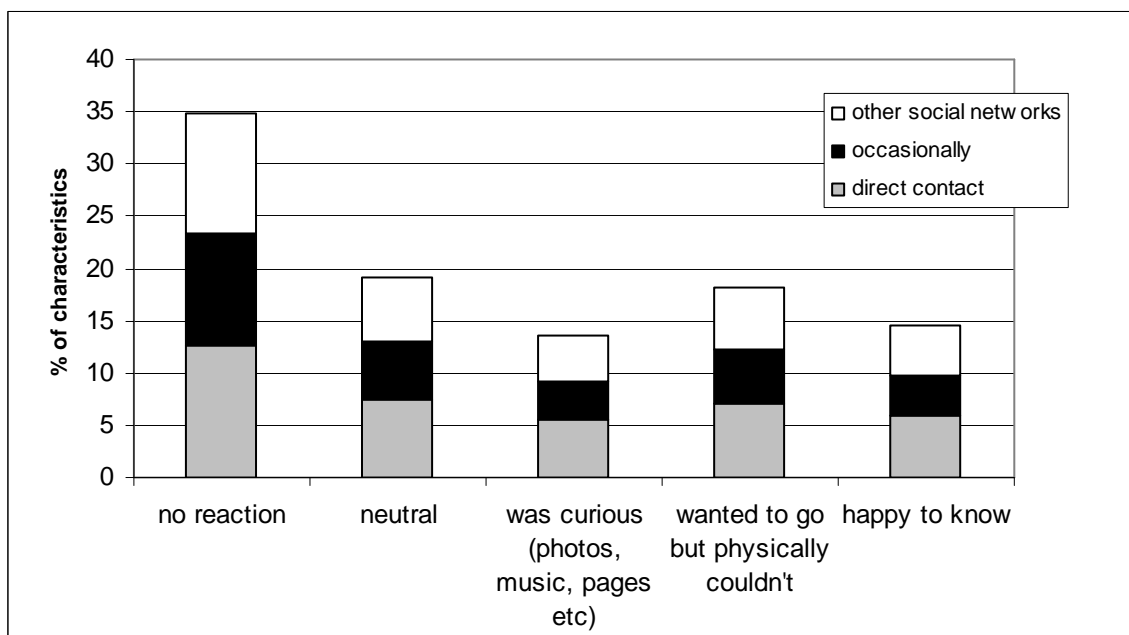


Figure 31. Cross tabulation between 6th and 7th questions' "other" categories

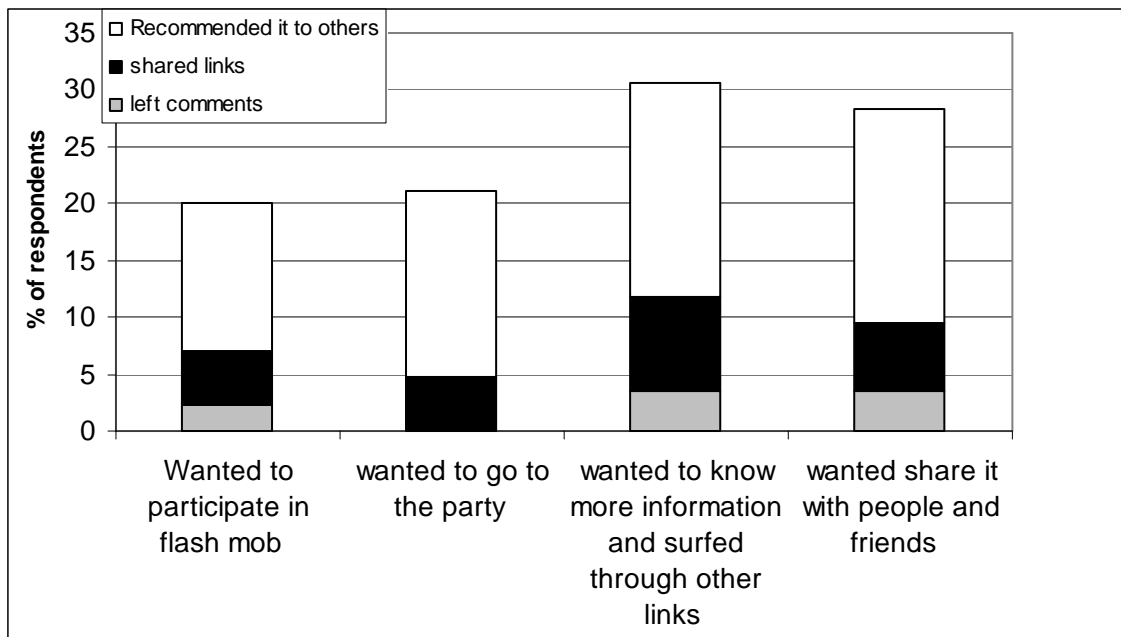


Figure 32. Cross tabulation between 7th and 8th questions

According to three above figures (30,31,32) mostly some reaction was happening through Facebook, blogs and other social networks: “neutral”, “surfed through links”, “wanted to go but physically couldn’t”, and “wanted to share it with friends”. Particular action were recommendations and sharing. Those who are recommending most, are surfing through links more often and are the most loyal target users who might go to the event.

Sharing applications and connectivity to other media seems to be the strongest preferences of using the social software as people are searching for ways to recommend and share fast but currently are not trying actively all the tools even additionally being skeptic about the social networks (e.g. “*Certainly, this is an interesting invention, but what is annoying is too much transparency of my activity (everybody’s watching what I did).* Also, quite a large number of such networks irritates, especially which are hardly distinctive”). According to opinions these barriers are: information noise and privacy issues

In general, it is clear that mostly they discovered in Facebook and then in other social networks like Vkontakte and forums. Commonly they don’t wish to share much. The slowest info awareness, were through blogs and Twitter. Maybe it happened also because blog and Twitter were created a bit later than info was distributed in Facebook. This also gives a thought that we had little time for these channels’ positioning – should have had more.

The general picture appeared was a conclusion how much people have several connections between their social networks and take it into account as it can be more

effective in further promotions, because some users' common behaviors, their technical knowledge, willing to share and contribute to social networks are discovered. So it is possible to better imagine the destination or tracks where the information won't stuck but will be most probably shared.

Some responses even helped to investigate further and compare between author's and participants' social software experiences and opinions about social online life. Thus it was more comprehensible to see how common users and for what purposes use those applications.

It's understood that those who usually more concentrated on promotion of their events or exhibiting (photos) become involved in social software more. However generally users are still focusing on finding needed information, not on collaborating.

4 DISCUSSION

Main terms and its roles in participatory culture studied in the work are as follows: the *social surveillance* is the level of “I am watching and being watched” where social software is used to handle needed information; the *participatory surveillance* turns this level to collaborative, and *social navigation* is technical knowledge regulating the flow of information (swarming) and creating the convenient interfaces for flexible transferring of data when participatory surveillance is taking place.

Looking at the evolution of web as „techno-social system” (Raffl et al., 2008) it is clear that widespread term participatory surveillance is not only more narrowed sub-notion of social surveillance but also a transition from web 1.0 to web 2.0 where communicational technologies evoked mass observation and transparency of social life. More and more interactive and mashable tools are inhabiting the web 2.0 and thus there appear another contexts of participatory activities where surveillance by default is a practice of online voyeurism. Thus, instead, the new terms like social navigation, collaborative filtering and intelligent agents are being studied and gradually become as key cooperation practices in a transition from web 2.0 to web 3.0.

People were always active in the Internet but an effective collaborative activity is more complex objective to be realized with social software and ideally the social software systems should be interoperable and combinable in different ways. However the reality is far from ideal. There are software platforms that support certain types of services, but decreasing the possibilities of combining them into a distributed personal system. Sometimes it is turning to the messed flows of information. Moreover studying the social software and its ability to support creating art from the participants’ responses there were also reflected such disadvantages as too much time to handle some software and not being aware of technological processes.

Many academic assumptions reported in this thesis are trying to express the solutions concerning collaborative content construction in web. These discussions are circulating between such important issues: how people “manipulate information, manage social networks, create and share artistic products and engage in self-presentation and expression” (Harrison, Barthel, 2009). Investigating these issues it is possible to understand what conditions to create, and to support those interactions (FOAF, recommendation systems) and increase the interoperability of social platforms. The knowledge of community structures, human identities’ interaction, and how users’ behavior aggregates across different communities help describing the community intention and thus may be the successful key for attracting more users to more

operative applications and holding effective online social activity.

According to current theoretical study and findings from the research, in distributed social web architecture there has become clear that a choice of priorities or services people use to create own personal networks are: individual – using social applications, social – using common functions and “rules” in the frame of the social network, and combination of these two ways – exporting or importing some applications specially created to be synchronized with other applications. Every choice basing on participatory activity is containing a condition to create artistic projects.

Experimenting with collaborative projects author has noted some tendencies why and in which conditions people become involved in participatory surveillance with the social software:

- Conceptual visibility of such content attractors as: interesting, creative, similar.
- People are motivated to use social software in participatory surveillance to exhibit their creativity.
- People are eager to share their emotions, as they are aware that these will be visible to others by means of participatory surveillance, and to get feedback.
- People are triggered by possibility to be in a course of social life, to find other people with same interests using participatory surveillance.
- People are motivated to be involved in participatory surveillance by the fact that stories are enabled to record their personal real life activities such as traveling impressions and memories.

Tendencies of why people not motivated to active use of this software were noticed:

- People are not motivated to use these tools for participatory surveillance, if it took too much time to handle some software.
- Using aggregation of the tools, such as mash-ups or desktop with online social profile connections, did not have a strong impact on motivation to be involved in participatory surveillance, as not all users were still aware of them or their potential.

As suggested by the author main condition that should support and keep these activities is interoperability of social profiles. This divides into: a) possibilities to better observe activity, b) the creativity of others, and c) simultaneously to be in flexible contact with them. This flexible communication based on improved swarming techniques might be the issue of future development of social software, when the applications will be easily integrated and transmitted, so that people could share their ideas with friends/colleagues from any “web point” within their collaborative environment,

regardless if they are online or offline (with more flexible corresponding privacy functions).

According to users' opinions from survey results in "Zombie Walk" case study people are motivated to join networks for friendship, watching friends, entertainment, sharing photos, keeping contacts, and a possibility to instantly share or recommend content to others. All these activities are generated from conditions created by social software in order to get people involved in such participatory environment.

Opposing to the art and narrative environment where actions were taken mostly on visual narrative level (pictures, stories) in promotional environment significant behaviors were mostly triggered by informational sources like Facebook. Actions were taken such as: surfing through links, recommending event to others. This means that people are more motivated when they know that such social activity reflects real life and it's cultural and political sides. Accordingly it's become obvious that promoting social art in hybrid ecosystem is not the same as promoting events, as the participation there is less beneficial.

For the most part of the survey the passive rather than active behavior is notable. But despite this fact the particular tendencies of participant behaviors that enable doing social art with social software were found. According to the survey users besides observable behavior are using the software while they communicating, sharing info and entertaining applications to each other. So the social software is turning observational behavior to participatory by these factors:

- The behavior of self-promotion creating events, pages - those people who usually more concentrated on promotion of their events or exhibiting (photos) become involved in social software more.
- Initiating others through social software: recommending info, inviting to join networks
- Sharing the media and trying to ease the information flow by means of social software.
- Sending creative greetings to each other.

Concerning promotion tips pulled from survey results people claimed to be often spending their leisure time in social networks (entertainment category), and they wanted to find and share information without wasting of time (getting specialized info like news or events). These could be the main accent and motivation ground for creating participation environment where people could be more likely to benefit from social networks. For example, if some projects are connected with culture or actual society issues, information of this project should be initially distributed between those 25 % of

people, who are actively following events and news.

Analyzing all case studies and combining theoretical assumptions there are some key behaviors evoked by participatory activities in social software:

- Observing that someone successfully created or generated some art work with social software.
- Taking Similar perspectives or vision of the stories (swarming phenomena)
- Mutual engagement – taking traces left by others and forming the conceptual meaning (swarming phenomena).
- Exploration or research behaviors with some personal goal such as to find out “are these stories visible in urban space”.
- Expressing artistic conceptions (exhibitionism).

Applying the theoretical findings and observing benefits suggested by users author is pointing out some keys of supportive technical environment for creating social art with social software. These are: Collaborative filtering applications; Mash-ups; Social graph; and Interest networking.

One technological solution is the improvement of collaborative filtering applications' functions. These are to be constantly developed by specialists in order to provide trusted environment where surveillance would be desirable and users could freely express themselves. Collaborative filtering is one of the effective and promising current practices of social participatory surveillance. The examples found are “collaboratively filtered newspaper, television channel, or radio station” aggregated from some community of users with relevant tastes. From critics' point view this is a source that create “wisdom of crowds” (Perez, in press) that is in some cases decreasing the quality of data and art. But nevertheless it seems to be needed by society - to find new ways of self-expression and new sources of ideas for collaborative creativity with social software. By the way this evolves more effective recommendation services within collaborative filtering systems.

Mash-ups are helping with developing joint applications aggregating and visualizing the participants' activities in hybrid ecosystems.

Another solution of how to easily let participatory data flow in decentralized architecture might be making more attention to “social graph” (Fitzpatrick, 2007). One of the users' problems that evoked the idea of developing such system is “being sick of inviting friends in different platforms”. Thus currently it is quite actual technical issue that is investigating the social network portability (Fitzpatrick, 2007).

The next idea that is being currently tested and practiced in social software world as

“interest networking” is going to be more concentrated only on meta-content of interests (not relationships) taken from different social profiles. It seems that this level of social networking is going to support and motivate doing online art with social software more because of new perspectives going to emerge in such environment.

Discussed shortcomings and disadvantages of implemented hybrid social environments indicated some central improvement suggestions of the system’s design.

User aimed solutions:

- Other participatory motivations in each experiment: more interactive and beneficial for users.
- Strategy changes: other order of information distribution.

Technical solutions:

- Lost traces in storytelling environment: more tags. Probably there’s need to make built-in tag suggestions in social profiles, when people create events or upload pictures basing on friend’s tags.
- Pure software knowledge: more transparency in the environment. Fostering to follow different other profiles of friends where they discuss, or upload relevant content (suggestions of services and sites to find new software and possibilities to connect through environment).
- Some “closed” networks don’t let some important information out. It is needed to find an application relevant to Networked Blogs (that pull blog posts to facebook pages) but with backward function - pulling information streams from facebook pages or discussion boards to blogs and other open repositories.
- Apart from email\mobile distributive services using scheduling email services like lettermelater.com to save time during strategy process (when posting several announcements planned to be posted on different dates).

5 Conclusion

In this paper empirical investigation to find out the novel ideas exposed by participatory surveillance studies is used.

Common task was the development of the hybrid system based on experiments conducted in the course "Ecology of Narratives" in Tallinn University and by the author herself. The importance to contribute to these studies came along with the feeling that social hybrid ecologies are on its start to facilitate effective collaboration with the social software. Examples of existing collaborative projects where social software is examined gave the reason to think that "participatory public art" play a significant role in the development of internet social software and they give a descriptive lessons about collaboration and mutual engagement.

In "Literature chapter" the problem is faced by explaining terms and opening theoretical issues and correlation between web 2.0 technologies and surveillance techniques, and brought out cutting-edge social software facilitating the collaboration in hybrid ecosystem.

In "Three Case Studies" chapter developed scenarios are examined. In the author's projects the research have been focusing on how art and promotion of the event can be realized through application of participatory surveillance techniques in web 2.0 environment and locative media.

In "Discussion" chapter, basing on author's gathered information, tested systems and shortcomings, some improvements of design are suggested (e.g. other participatory motivations in each experiment, strategy changes, technical characteristics).

To generalize design findings and bring out principles for supporting social art with social software essential participatory benefits are revealed. According to research questions these benefits are brought out below.

People are being involved in participatory surveillance thanks to:

- Possibility to be aware of social life.
- Conceptual visibility of content/artifacts.
- Creativity's exhibit and support (the software that help support real life activities),
- Opportunity to record personal real life activities.
- Possibility to share emotions in order to get feedback.

Particular participant behaviors enabling doing social art with social software:

- Self-promotion.
- Recommending info, inviting to join,
- Trying to ease the information flow by means of connecting different social

- Sending creative greetings to each other.
- Exploring or researching,
- Taking similar perspectives or vision of the stories (swarming phenomena).
- Simulating/imitating others' successfully created art works with social software and expressing artistic conceptions, blending digital and real-life activities.

Characteristics of technical environment for creating social art with social software:

- Collaborative filtering applications supporting surveillance phenomena and motivating users to express themselves.
- Locative media technologies blending with online social software.
- Mash-ups.
- Social graph's transparent and flexible system between "closed" and "open" social repositories,
- Interest networking (concentrated only on meta-content of interests, not relationships, picked from different social profiles).

Regarding authors benefits from studying this subject several influential academic sources gave hints and cleared the understanding how the collaborative technologies (FOAF, aggregators, etc) are working, and that the hybrid ecosystems in accordance with mash-up applications are one of the important part of semantic web development as they shift participatory culture adding more visual perspectives. They are bringing the varied range of creative activities people can expose with the new media technologies. New web/locative technologies and developing social graph applications are mutating contemporary culture and altering the role of narrations, and arts in society.

All the gathered data is based on own experiences, survey and experiments and may be used in further hybrid ecosystem studies. This study should be specially concentrated on users' identities and behaviors while they are adapting in this new environment.

6 Kokkuvõte

Käesolev empiiriline uuring viidi läbi, et selgitada välja uudseid ideid kaasava jälgimise kasutamiseks sotsiaalsetes kunstiprojektides. Uurimistöö probleemiks oli uut tüüpi hübriidse meediakeskkonna kujunemine, kus on tekkimas erinevad sotsiaalse kunsti (social art) tegemise võimalused, mis vajaksid sügavamalt uurimist. Töös läbi viidud hübriidse meediakeskkonna süsteemi uuringud põhinesid Tallinna Ülikooli kursusel "Narrative Ecology" tehtud ning autori oma eksperimentidele. Olemasolevad koostööprojektide näiteid, milles sotsiaalset tarkvara on kasutatud, panid autorit mõtlema, et "sotsiaalne kunst" mängib olulist rolli sotsiaalse tarkvara arengus, mis võimaldab koostööd ja vastastikust osalemist.

Kirjanduse peatükis selgitatakse mõisteid ja teoreetilisi küsimusi koostööst web 2.0- ja jälgimistehnoloogiatega. Samuti uuritakse, mis on hübriidne meediakeskkond, millised on selle olulised osad ja tuuakse välja sotsiaalse tarkvara iseärasused, mis lihtsustavad koostööd hübriidse ökosüsteemis.

Tulemuste osas kirjeldatakse erinevaid stsenaariume hübriidse meediakeskkonna kasutamiseks sotsiaalse kunsti projektides. Autori projektides on uuritud, kuidas kunsti tegemist ja kunstiürituste reklaamimist saab realiseerida kaasava jälgimise meetodite rakendamisega web 2.0 keskkonnas.

Diskussiooni peatükis on analüüsitud autori kogutud informatsiooni, katsetatud süsteeme ja nende puudujääke uurimisküsimuste valguses. Tulemuste baasil pakutakse mõningaid parandusi (nt strateegia muudatused ja tehnilised omadused). Tuuakse välja olulised kaasava jälgimise põhimõtted, kuidas toetada sotsiaalset kunsti sotsiaalses tarkvaras.

- Miks Inimesed osalevad veebipõhises kaasavas jälgimises,
- Osalejate käitumine, mis võimaldab teha sotsiaalset kunsti sotsiaalse tarkvaraga,
- Toetav tehniline keskkond sotsiaalsete kunsti loomiseks sotsiaalses tarkvaras.

Autor analüüsis loomingulisi tegevusi mida inimesed võivad rakendada uusmeedia tehnoloogiadega. Uued sotsiaalsed rakendused muudavad tänapäeva kultuuri ja muutub narratiivide ja kunsti roll ühiskonnas. Kõik kogutud andmed põhinevad autori enda kogemustel, küsimustiku ja katsete tulemustel ning neid võib kasutada tulevastes hübriidse ökosüsteemi uuringutes. Tulevastes uuringutes tuleks eriti keskenduda kasutajate identiteedile ja käitumisele.

7 Resources

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Annex 1

Questionnaire

Survey

This survey has academic purposes and the data collected will not be distributed anywhere. The purpose of the survey is to analyze web 2.0 hybrid sharing system for the student final work about participatory and collaborative features of web 2.0 technologies. Please take a 5 min break and answer following questions:

1. Your Country *

2. Your Name (nickname)

3. Your age *

under 18

18-25

25-30

Other (Please Specify)

4. Why are you in social networks (like Facebook, Orkut, Vkontakte, Myspace, etc)? *

Friendship

relationship

sharing photos

promote events

make my business

watch friends

Other (Please Specify)

5. Did you know about the Estonian event “Zombie Walk” flash mob on 31.10.09 before you found it in social network? *

yes

no

no, but I knew about Zombie Walk AfterParty

6. How did you discover Estonian Zombie Walk advertisements? *

Facebook

forum

blog

Twitter

Flickr

Search engine (e.g. Google, Yahoo!)

Other (Please Specify)

7. What was your reaction\thought? *

Wanted to participate in flash mob

wanted to go to the party

wanted to know more information and surfed through other links

wanted share it with people and friends

Other (Please Specify)

8. How did you contribute to the social network when seeing the Zombie walk advertisement? *

- left comments
- shared links
- recommended it to others
- Other (Please Specify)

9. What do you mean under efficient social network (what options do you prefer to use to create your network)? *

- RSS feeds
- applications that share different media (video, audio, etc) in web environment
- connectivity to other media like blogs etc
- integrated mobile tools
- all together
- don't know much about it
- have no idea
- Other (Please Specify)

10. Name networks that you use to promote or share your events or "ideas"? *

- blog


- Twitter
- brightkite
- Facebook
- Orkut
- Myspace
- Vkontakte
- Flickr
- forums
- none
- I am not into web social networks
- Other (Please Specify)

11. Please name 3 best networks that work efficiently (for your promotional purposes) on your opinion. *

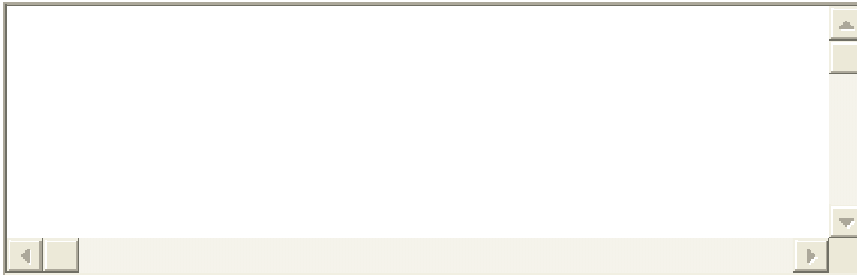
- Twitter
- Facebook
- Orkut
- Vkontakte
- Myspace
- Other (Please Specify)

12. Do you use mobile phone to share pictures and texts in internet? If yes, name those services or applications. *

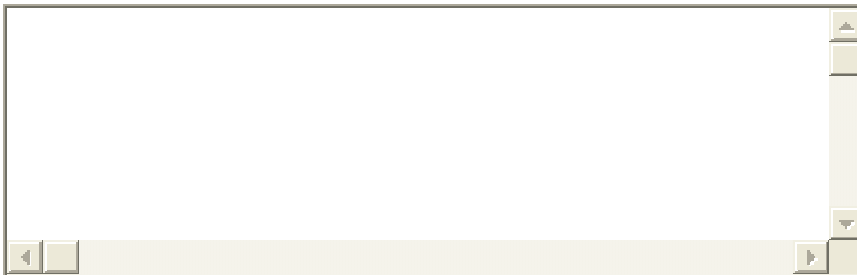
- No and I don't want to use it
- No, but I'd like to know how it works
- Yes (Please Specify)



13. Do you think social networks are user friendly or annoying? What is good and bad about those networks? *



14. Describe what software is connected in your personal web environment (social networks), and how are the tools connected? *(For example, my twits is connected to Myspace or Facebook that are shared simultaneously in this three networks and it's easy to share one message with many people at one time, etc) **



Quit

Finished