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# Social Networks and Design of Communication

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## ABSTRACT

This paper has as main purposes identifying possible trends in social network software and services. Social networks are one of the most used collaborative applications. Those systems are also subject to a research effort from several fields of knowledge. The way of analyzing it is proposing an essay and development project to 10 groups of students. Then, those proposals were studied using a framework analysis.

## Categories and Subject Descriptors

D.2.2 [Document preparation]: Hypertext/hypermedia.  
Usability of information

## General Terms

Documentation, Human Factors

## Keywords

Social Networks, Design of Communication, Framework

## 1. INTRODUCTION

Social network sites are a recent computer-mediated communication (CMC) technology receiving attention in the popular press for their ability to enroll new members at an astonishing rate, attracting the attention of large Internet Companies like Yahoo and Google [1].

The use of Internet social network sites has become an international phenomenon. Popular sites include MySpace, Facebook, hi5, Twitter, LinkedIn, Orkut and Netlog.

Online social networks have become increasingly popular in recent years, providing an efficient and user-friendly way to maintain social connections and share information. They have been shown to facilitate business relationships and building of social capital using electronic media. Graduates who are coming into business for the first time are almost expected to be comfortable with interactions using social networks [2].

Not just home users but businesses are increasingly using social networking. Their acceptance and use are changing the way individuals and organizations relate to their environment. Thus managers cannot afford the luxury of ignoring the impact that social networking can have on their activities [3].

Social networks are one of the most used collaborative applications. Those systems are also subject to a research effort from several fields of knowledge.

In this paper we propose a framework supported in several areas of the design of communication and we employ it in a social network context.

In fact, social networks are a source of challenges, identified by several fields of research, either by academicians either by practitioners. In fact, its potentialities as marketing and business fields are significant. The same happens in the fields of politics and social studies.

Now-a-day, the social networks area analyzed using several

approaches. One of the most used is the social network analysis that started in sociological studies, incorporating graph theory.

The Social Web is an ecosystem of participation, where value is created by the aggregation of many individual user contributions. The Semantic Web is an ecosystem of data, where value is created by the integration of structured data from many sources [13].

Social network analysis provides some useful tools to look into social systems [14].

Some authors stressed the limitations of the actual web, especially when searching information. Social networks systems may be a source of information for social network analysis and for the creation of a new ontology, but may also be improved by this ontology, allowing the creation of a new semantic network [15].

The study of social networks is not new in the context of the community of design of communication. Nevertheless, a framework is needed in order to accommodate research developed by several researchers [17], [16].

## 2. DESIGN OF COMMUNICATION

Design of Communication includes the following items:

- Interface (Computer-Human)
- Communication between Users (mediated by computing systems)
- Collaborative process (Work, games...)

Those issues are also analyzed deeply in other research fields, like computer-human interfaces, CSCW and computer mediated communication, group decision support systems, workflow and collaborative systems.

Text is the main form of communication in written communication. Writing activities corresponds to the main concern of design of communication community [9].

Images play an important role in the communication process. Researchers in the design of communication emphasized this aspect, identifying either for of image processing either forms of image indexing [6], [7], [12].

Being one of the privileged ways of communication face to face, voice is also an important issue. It is why; sound is the object of study of researchers in design of communication [10], [12]. The message is often supported by movies and animations. [8], [12].

But, communication is not only interface; it is not just images, text and movies. Even a "dynamic" interface is very limited. Now a day, Web 2.0 design of communication is also design of interaction [6] and design of collaboration [11].

Till now, we analyzed dimensions that may correspond to the independent variables or explanatory dimension of a complex equation. In this equation, the main dependent variable is usability [4], [5].

### 3. PROPOSING A FRAMEWORK

Based in the concepts previously presented, it is possible to create a framework to analyze social networks in the perspective of design of Communication

Several issues are generally related to computer-human interfaces. Those items include not only the traditional items related to the graphical design (like color or shape) but other items like: text, images, video, photos, dynamic interfaces (JavaScript, Flash, Java,), and interaction devices (mice, displays,).

But, computer systems may be used not only to communicate with human, but also to connect them. So, systems may be used to mediate communication between users. Here, it is important analyzing if we are talking about asynchronous (forums...) or synchronous (chat...) communication.

Finally, another level of sophistication of design of communication it is not only designing neither the interface nor the mediation process but designing the collaboration process. It includes the analysis of the forms of creating functionalities like workflow, presentation, games.

In what concerns performance evaluation, traditionally, it may be analyzed into three perspectives: effectiveness, efficiency and satisfaction. A specific measure may be categorized in any of these broad categories.

In what concerns level of analysis, it may be analyzed in the social, organizational or team level.

### 4. CONTEXT OF USE

This framework was used to analyze a set of software developed by 10 groups of computer science students.

In fact, it was asked to a class of post-graduate students in the area of computer science to develop a system for social networks. Students have to propose a context, implement the system using and install it.

Some groups developed systems with generic context of use. Other groups presented specific contexts, like a social network for “soccer players” or for “women”. Some of the most used network systems were also analyzed. The following table shows a summary of all the main projects developed.

“F5” has as main purpose invite to soccer match. It uses several functionalities like Google maps.

“Women-Link” is a social network systems directed to women. It emphasis is in the color choice and sophistication choice

“Get together” is a system that emphasis the use of Ajax technology.

“Social Network 1” gives special importance to usability. It intends to supply a User-friendly interface.

Get2gether is a social network for companies. It gives important to Knowledge management, Meeting support and Social network framework.

“Inkognitus” is implemented using object oriented approach.

Name	Technical aspects	Communication	Level	System Interface
F5	use of Google maps	map	Soccer friends	
Women-Link			women	Color sophistication
Get together	Ajax			
Social Network 1 History				Usability user-friendly interface
Get2gether		Knowledge management meeting support Social network framework	Social networks for companies	
Inkognitus	Object oriented			
Social Network 3	Emphasis in the Object Oriented development			
NetTalk onLine	emphasis in a good database structure			
Aifavas	Implementation using MVC			
3D	3D, HTML5	Presenting a new experience for the users		3DInterface

System	Level	Performance
Interfaces	Social	Effectiveness
Communication	Organizational	Efficiency
Collaboration	Team	Satisfaction

“Social Network 3” also emphasis in the Object Oriented development.

“NetTalk online” is implemented with emphasis in a good database structure.

“Aifavas” is implemented using MVC.

System	Level	Performance
Interfaces — colors — photos — dynamic interfaces	Social - demographic variables - social role - ...	Effectiveness - task analyze (perform/not perform)
Communication — asynchronous — synchronous	Organizational - demographic variables - organizational role - ...	Efficiency - task analysis (time, cost, resources used)
Collaboration — twitter — map — group creation — presentations — ...	Team - demographic variables - role played in group - ...	Satisfaction - survey evaluation

## 5. PRELIMINARY RESULTS

This study is being performed collecting qualitative information. Not all the data was already interpreted but, it was possible identifying several patterns:

- Specifically, the use of color and type of demographic variables. This was especially obvious in the soccer players and women network.

- “Dynamic interface” was specially used by art users while technical users were more interested in more sophisticated features

- Use several services in the web

Some trends were also identified:

- Use of 3D interfaces

- Use of object oriented approach in programming

- Use of 3 tiers approach as software engineering framework

This tool proved to be useful in the identification of key variables to analyze social networks and social network software.

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