

# **(Re-)constructing Social Networking Sites**

*Examining Software Relations and its Influence on Users*

Master Thesis

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## **Abstract**

This thesis examines the relationship between social networking sites (SNSs), software and its influence on the user. Two frames of thought are employed here: (1) there is a void in software research. Especially when it comes to social networking sites, not much research has been conducted as to how profiles are constructed by software and what consequences these constructions may have. This seems paradoxical, since this *input* might be of great influence on a user's output (by which is meant both user-generated information found on profiles and the questions as to why and how these sites are used). It is argued here that thorough academic research on SNSs should look at both the input and output. (2) A user is able to shape himself within a profile, but he is also shaped by the software. Software relations and the influence on users are therefore also discussed. Additionally, this thesis makes a new attempt in conducting practical software research by using the Internet Archive's Wayback Machine to reconstruct the history of Facebook's software changes. It is thus, that the influence and symbioses of software and the user becomes clear.

## **Keywords**

Software (relations), Social Networking Sites (SNSs), Users, Influence, The Internet Archive's Wayback Machine, Facebook, Software research.

## **Foreword**

When I first started thinking about potential thesis topics, I had a pretty good idea of what I wanted to write about. Since the beginning of this Master course I have been particularly interested in social networking sites, so it was no surprise this was going to be my main research topic. Yet finding an original and interesting research question proved to be more difficult. Finally, after coming up with several ideas in talks with Geert and Richard and my friends and family, I decided to focus on the software side of social networking sites. It is a somewhat vague and grey area, which made it all the more interesting to research. The experience of writing this Master thesis has been fun, exciting, difficult and frustrating all in one. Although – luckily – the first two adjectives took the lead by far.

## **Acknowledgements**

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# 1. Introduction

Over the last few years social networking sites (SNSs) have grown tremendously. Facebook, currently number three on the Alexa Top 500 Global Sites<sup>1</sup>, took the global lead among SNSs in April 2008 and welcomed its 200 millionth active user a year later.<sup>2</sup> MySpace closely follows with an eleventh spot on the same ranking list and the relatively small Dutch social networking site Hyves has over 8 million registered users. Research conducted by Internet research marketing company comScore shows that even though “the growth in new users in North America is leveling off, it is burgeoning in other regions of the world.”<sup>3</sup> Both adults and teenagers use social networking sites like Facebook, Bebo and MySpace, although it is widely considered a ‘youngsters’ activity. MySpace in particular was joined by masses of teenagers in an attempt to connect with their favorite bands (boyd & Ellison, 2007). Scholars like danah boyd have researched the phenomenon of social networking sites from the perspective of identity (performance), participation and privacy. Ethnographic, demographic and empirical research has been done to get a sense of why people engage in online social networks, how many of them are users and how much time is spent online. Social and cultural research has been done to try and find out what happens to social life once mediated online.

All in all, much research has been conducted with regard to SNS phenomena. An underdeveloped field however, is research on the software behind social networking sites. In order to gain more insight in the working of SNSs, the influence it has on users and its generated outcome (i.e. user profiles and subsequent research questions, such as who uses these profiles sites etc.) we must first look at how these profile sites are constructed. This thesis aims to contribute to the research on software and social networking sites, by exploring the relation between them, and the influence of software on both the construct and the user.

## 1.1 What are Social Networking Sites?

Ever since the privatization of the Internet there have been different kinds of online communities. Online gathering places such as Geocities (1994) and Tripod (1995) paved the way for social networking sites. With profile sites like BlackPlanet.com, SixDegrees.com and

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<sup>1</sup> Alexa Top 500 Global Sites <<http://www.alexa.com/topsites>> (accessed August 12, 2009).

<sup>2</sup> Zuckerberg, Mark. “200 Million Strong.” Facebook Blog. April 8, 2009.  
<[http://blog.facebook.com/blog.php?blog\\_id=company](http://blog.facebook.com/blog.php?blog_id=company)> (accessed April 21, 2009).

<sup>3</sup> comScore. “Social Networking Explodes Worldwide as Sites Increase their Focus on Cultural Relevance: Facebook and Hi5 More than Double Global Visitor Bases During Past Year.” August 12, 2008.  
<<http://www.comscore.com/press/release.asp?press=2396>> (accessed April 21, 2009).

Classmates.com a first step was taken to create a different kind of online community: moving from chat rooms - where contact was predominantly established between strangers - to creating an account with personal information and the possibility of adding online connections to a friend list. Between 2002 and 2004 four now major social networking sites were founded: Friendster in 2002, MySpace in 2003, Facebook in 2004 and Bebo in 2005. Taste researcher and technologist Hugo Lui (2007) states these SNSs have “many features traditionally associated with online communities, such as forums, user groups, network structure, and highly customizable user profiles.” Yet, with SNSs a place in cyberspace became more personal and connected.

According to danah boyd and Nicole Ellison (2007) social networking sites are defined as “Web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.” In another article written by Ellison et al. (2007) it is claimed: “Social networking sites such as Friendster, CyWorld, and MySpace allow individuals to present themselves, articulate their social networks, and establish or maintain connections with others.” The latter reason shows a distinct difference between online communities as they existed in the early nineties and social networking sites as they are around today. While online communities were mainly used for engaging in communication with strangers, social networking sites “enable users to articulate and make visible their social networks” (boyd & Ellison, 2007). Although social networking sites can be used to meet new people, most of the established connections are between people that already know each other, subsequently making visible their ties and connections. Especially the importance of these connections is often stressed in the explanation of online social networks: “When a computer network connects people or organizations, it is a social network. Just as a computer network is a set of machines connected by a set of cables, a social network is a set of people (or organizations or other social entities) connected by a set of social relationships, such as friendship, co-working or information exchange” (Garton, Haythornthwaite & Wellman, 1997).

In a software sense, this thesis proposes to also consider the significance of the (user) backend of the SNSs. More than with other Websites, are (software) changes (e.g. application changes, the installment of new applications or changes in settings) mostly visible within the site; meaning that a user must be logged in - thereby accessing the user backend - before he can use or alter his account and see the changes made.

## 1.2 Why (use) Social Networking Sites?

Social networking sites are created and maintained for several reasons; online networking is a fast and easy way for people to engage in communication with each other, whether this is with actual friends and acquaintances or strangers. With a computer and Internet access, the geographical location of the user becomes insignificant. Literal boundaries and borders can thus be crossed via computer networks. Many users also consider online social networking a fun and entertaining leisure activity, whilst social voyeurism provides insight into society at large (boyd, 2007a: p. 10).

boyd terms social networking sites ‘networked publics’ for two main reasons: (1) social networking sites allow publics to gather and at the same time (2) these platforms for speech are publics themselves (boyd, 2007a: p. 8). The former reason is especially important in understanding why people use social networking sites; boyd asserts that American teens find online profile sites (MySpace in this particular case) a good way of gathering, conversing and sharing online with friends and strangers, without being subjected to “the power that adults hold over youth” (Ibidem: p. 18). According to boyd these teens live highly structured and time-consuming lives, and are frequently watched by their parents or guardians to make sure they are safe. Online social networking is a way for them to engage in communication with each other without having to deal with parental supervision. However, many parents are aware of their children’s online activities and frequently enforce ‘structural limitations to access’, such as a ban on visiting SNSs, or the deletion of a profile. Nonetheless, teens are likely to create a second profile with false information in order to keep socializing online, without the parents’ awareness. As boyd illustrates: “Teens often fabricate key identifying information like name, age, and location to protect themselves. While parent groups often encourage this deception to protect teens from strangers, many teens actually engage in this practice to protect themselves from the watchful eye of parents” (boyd, 2007a: p. 15). SNSs therefore, often become ‘private hiding places’ for teens to socialize and interact with each other. Online social network researchers Krasnova, Hildebrand, Günther, Kovrigin and Nowobilksa (2008) assert that user participation stems from (1) satisfaction of needs for belongingness, (2) satisfaction of self-esteem needs, (3) satisfaction of esteem needs through self-presentation, (4) satisfaction of cognitive needs, (5) satisfaction of needs for self-actualization, (6) satisfaction of altruistic needs and (7) peer pressure. Especially the latter motivation – which is derived from boyd’s work - is believed to possibly be one of the most important reasons for joining SNSs. Although not explicitly remarked in Krasnova et al.’s

study, it is important to note that peer pressure is arguably, mostly a reason for teenagers (and perhaps children) to join, but less so for adults. SNSs predominantly joined by adults, such as the business-oriented LinkedIn, are often used for personal and professional gain and to generate social capital.

### **1.3 Research Questions**

Studying the form and configuration, construction, interface and other software features of social networking sites is important for a better understanding of their use and influence. The main claim employed in this thesis is that there is a need for more in-depth software research in order to understand the outcome of SNSs. For instance, how much of the user's input on profiles (i.e. the answers that are filled in under the several headings, such as 'favorite movies' etc.) is predefined by the software? More generally: What is the relationship between software and the SNS user? Some other questions that are posed in this thesis include: What influence does the software have on the user? How does the software shape social networking sites? How does the software constrain and/or enable a presentation of the self? This thesis aims to contribute to the discussion on software research; it focuses in particular on social networking sites. It does so by exploring certain software features of SNSs, in a similar fashion as the interdisciplinary field of software studies (as is employed in the book *Software Studies: A Lexicon*), and by looking critically at their implementation, as well as the influence on and relation to the user.

### **1.4 Overview**

Whereas chapter 1 provides a general introduction into the world of SNSs, chapter 2 focuses more in-depth on previous (influential) research conducted with social networking sites as a main object. It takes into account both used methodology and approaches and some of the outcomes these studies have produced. Chapter 3 explores the software behind SNSs and goes deeper into the notions interface and database, in a fashion similar to the theoretical software research employed in the field of software studies. It is also an attempt to recreate the history of Facebook's software changes with the aid of the Internet Archive's Wayback Machine. Chapter 4 looks at the influence that software has or might have on the user and essentially tries to answer the question how software shapes the SNS user.

## 2. Previous Scholarship

The focus of much SNS research has predominantly been on subjects like identity and presentation of the self, online connections and the terminology of ‘friending’, social capital and privacy; in short, the *outcome* of a user’s engagement with SNSs. This thesis asserts that research with the focus on SNS software is underdeveloped and aims to contribute to this particular field of study. It is however useful to globally document important findings, methods and approaches from previous scholarship with regard to SNSs, in order to concretize the void in social software research. This chapter describes the rise of social networking sites as descendants of virtual communities starting in the 1970’s, and explores some features, characteristics and additional uses of SNSs. First however, an overview of a few main types of SNS research methods and approaches is provided.

### 2.1 Methodology and Approaches

Previous scholarship regarding social networking sites is wide, diverse and researched from the point of view of many disciplinary fields, such as communications, sociology, computer science, cultural and media studies, economics, political science and so on. The methodology and approaches of research are equally wide and diverse, ranging from qualitative to quantitative studies, using ethnographic, (post-)demographics and empirical methods, among others.

*Social network analysis* (alternately named network theory or network analysis) is often employed as an analytical research method for further exploring human-computer interaction (HCI) and computer-mediated communication (CMC). Principally derived from sociology, social network analysis focuses on social structures made up of nodes that are tied together by one or more specific types of interdependencies and views social relationships in terms of nodes and ties.<sup>4</sup> According to Garton, Haythornthwaite & Wellman (1997) “social network analysts seek to describe networks of relations as fully as possible, tease out the prominent patterns in such networks, trace the flow of information (and other resources) through them, and discover what effects these relations and networks have on people and organizations.” The core of the social network approach is explained as an approach that “facilitates the study of how information flows through direct and indirect network ties, how people acquire

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<sup>4</sup> Wikipedia entry: “Social network.” <[http://en.wikipedia.org/wiki/Social\\_network](http://en.wikipedia.org/wiki/Social_network)> (accessed May 4, 2009).

resources, and how coalitions and cleavages operate” (Ibidem). A social network can have influence (of usefulness) on an individual node. Similarly, an individual node can affect the entire network. This assertion that networks provide resources and have certain effects and influences is closely related to findings of the research conducted by Ellison et al. (2007) on social capital and the beneficiality of online friending. The (proposed) research methods in both articles also share similarities. Where Garton, Haythornthwaite & Wellman suggest questionnaires with questions such as “How do ties and relations maintained by CMC change over time?” and “How do interpersonal relations such as friendship, work role and organizational position affect CMC?” and subsequently import and transform the data into a representative matrix, Ellison et al. ask comparable questions with regard to the use and benefits of Facebook, subsequently converting the data into tables. Empirical (and demographic) research methods are of importance for understanding the statistics in why, who and how many use (online) social networks.

A new, emerging methodology for researching CMC in general and social networks in particular, is *hyperlink network analysis*. Following up on social network analysis, hyperlink network analysis is a social science approach that focuses on the basic structural element of the Internet as the hyperlink: “A hyperlink may be defined as a technological capability that enables one specific Website (or Webpage) to link with another” (Park, 2003). Accordingly, hyperlink network analysis differs from social network analysis and computer-mediated communication analysis, because it regards the Website as an actor and the hyperlink as a relational connection or link. Researcher Han Woo Park argues that hyperlink network analysis has advantages for describing emerging structures among social actors on the Web. Even though this particular methodological tool does not focus specifically on social networking sites, one could argue that it can be used in SNS research. Similar to social network analysis, this analysis could also be applied to the realm of online social networking. Many profiles contain hyperlinks to other Websites. MySpace for example, functions as a promotional platform for many bands, with profiles that often link from and to their official Website, Web shop, blog or other bands. A critical remark should be made however: hyperlink network theory with regard to SNSs does not necessarily live up to Park’s notion that hyperlink affiliation networks indicate a Websites’ credibility. The assumption is made that “a Website perceived highly credible gets more links from others” (Ibidem). Because bands usually link to their own Web pages, this could undermine the credibility suggested by extensive linking. Also, on social networking sites hyperlinks are now often replaced by banners, buttons and linkable widgets.

*Ethnographic study* is usually executed by describing a group of people or society. Its methodology differs from many other types of research in that it does not require the use of a particular method, but instead prescribes the nature of the study.<sup>5</sup> boyd, one of the most influential SNS researchers, frequently uses ethnography as a methodological strategy to explore and understand communities (mostly American teenagers) that make use of social networking sites such as MySpace, Friendster and Facebook. She describes ethnographic research as follows: “At its most surface level, ethnography is about writing culture. In practice, it’s about diving into a particular culture and working to understand that culture on its own terms, interpreting signals to understand underlying signs. Traditionally, ethnography has concerned itself with cultures that are geographically framed or ethnically bounded” (boyd, 2007b). Ethnographically exploring online worlds such as MySpace has brought new insight as to how and why people engage with others through such networks. Especially boyd’s studies have proven to be valuable additions to the more traditional research methods, such as the previously mentioned demographic and empirical research. A conclusion derived from her work for instance, shows that there is not always a specific, perhaps ‘hidden’ reason behind the question why teens create online profiles. Participation in SNSs sometimes stems from boredom, entertainment, or simply “cuz that’s where my friends are” (boyd, 2007a). Because human behavior and experience cannot be captured by figures and facts alone, a more interpretative form of research such as ethnography and hermeneutics is needed to provide a framework of human actions. Commonly researched topics in SNS studies are identity performance and self-representation. With roots in sociology and social psychology, *impression management* is a process for people to control the impressions others conceive of them. Social networking sites are places par excellence where the users themselves have great influence on their (re)presentation. Impression management is about conveying an identity or image; it deals with the question how we shape our behavior and appearance, or in other words: “What we put forward is our best effort at what we want to say about who we are” (Ibidem). Erving Goffman’s (1959) take on impression management is a dramaturgical analogy, explaining that the social actor has the ability to choose his own stage, props and costume. Being able to adjust to different settings is of great importance. According to boyd (2007a) time and experience are essential in the learning of managing impressions; it is a critical social skill. Computer-mediated environments, used mostly by teenagers, are good

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<sup>5</sup> Wikipedia entry: “Ethnography.” <<http://en.wikipedia.org/wiki/Ethnography>> (accessed June 11, 2009).

examples of where impression management is often carried out. The skills needed mostly develop during the teenage years. Thus, making social networking sites as MySpace and Facebook places for valuable learning experience.

*Content analysis* studies authorship, authenticity and meaning of texts. It is a commonly used scholarly methodology in the field of humanities, that intends to answer the general question "Who says what, to whom, why, to what extent and with what effect?" and focuses on recorded human communications, such as Websites.<sup>6</sup> With regard to SNSs: "Dara Byrne uses content analysis to examine civic engagement in forums on BlackPlanet and finds that online discussions are still plagued with the problems offline activists have long encountered" (boyd & Ellison, 2007). Content analysis performed on social media sites is also carried out in relation to content-based ads. These ads match with the content a user views on a Website. Nagarajan et al. (2008) argue that with the aid of content analysis, ad programs should use profile ads from user activity on public venues on SNSs in addition to profile information, in order to generate more click-throughs and avoid issues of trust and privacy.

The last type of study examined here with regard to SNS research is *post-demographics* (Rogers, 2009). Post-demographics is about making use of data contained in online profiles, with interests and tastes in particular. Web epistemologist Richard Rogers proposes with post-demographics "to make a contribution to the non-user studies – those profilers and researchers that both collect as well as harvest (or scrape) social networking sites' data for further analysis or software-making, such as mash-ups" (Ibidem: p. 3). More so than the methodologies previously discussed, does post-demographics deal with software (related) issues. According to Rogers users of online platforms are no longer as limited in self-definition and self-presentation as with the old databases, for they have more space and opportunity to fill in a profile. Subsequently, "profilers are interested in what to do with all the 'interests' and 'favorites'" (Ibidem: p. 5).

## **2.2 History, Features, Characteristics and Additional Uses of SNSs**

Critic and writer Howard Rheingold (1993) describes the rise of online communities (also referred to as virtual communities) as a type of group communication with many-to-many characteristics that "can both accelerate and democratize access to cutting-edge knowledge." He provides a more distinct definition when he writes that virtual communities are "social

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<sup>6</sup> Wikipedia entry: "Content analysis." <[http://en.wikipedia.org/wiki/Content\\_analysis](http://en.wikipedia.org/wiki/Content_analysis)> (accessed May 6, 2009).

aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace” (Ibidem). People within a virtual community interact via mostly online communication media such as newsletters, blogs, wiki’s, forums, social network services, e-mail and instant messages. Significant here is that a web of personal relationships can exist and grow (and they will in a proper virtual community), yet they start out as strangers to each other. In his book “The Virtual Community” Rheingold states that relationships that are started and developed online can become very intimate and emotional even though communication takes place via a ‘cold’ medium like the computer screen. Interestingly, it appears as though human interaction is no more real or unreal than computer-mediated communication. A possible explanation for this could be the experience of anonymity when meeting others online; it could arguably be easier to talk to a stranger about certain topics. Of course, there are others explanations as to why people engage in conversation with strangers online; it could also be for fun or pleasure, boredom or meeting likeminded others. As Rheingold asserts in the introduction of the book: “CMC might become the next great escape medium.” An important question that rises with the development of virtual communities and CMC is how this influences and changes humans, and even democracy and communities. According to Rheingold this is exactly why it is crucial to investigate these media. Insight in CMC, cyberspace and virtual communities can lead to new perspectives and “thus perhaps regain control of the way human communities are being transformed by communications technologies” (Ibidem). Virtual communities such as the WELL functioned as one of the first online meeting places. They also preceded social networking sites as they are used by millions of people today. In his laud for virtual communities, Rheingold expresses his belief in the change these communities can bring forth. However, he strongly suggests that we must also bear in mind that it is precisely because of its potential influence, the future of the Internet should not be left up to a small group of specialists. Instead, we must all contribute to the dialogue and join our voices to the debate. This clearly illustrates the gradual development to Web 2.0, with social networking sites as striking examples. No longer is the Internet ‘one directional’, it is now about information sharing and collaboration. That is not to say the Web has not always been about connecting people, interactivity was and still is a key feature. As Tim Berners-Lee, the originator of the World Wide Web corroborates: “Web 1.0 was all about connecting people. It was an interactive space, and I think Web 2.0 is of course a piece

of jargon, nobody even knows what it means. If Web 2.0 for you is blogs and wiki's, then that is people to people. But that was what the Web was supposed to be all along.”<sup>7</sup> Professor of Media and Communication Terry Flew (2008) describes the transition from Web 1.0 to Web 2.0 as a “move from personal Websites to blogs and blog site aggregation, from publishing to participation, from Web content as the outcome of large up-front investment to an ongoing and interactive process, and from content management systems to links based on tagging (folksonomy).”

### **2.2.1 Connecting and the Presentation of the Self**

With the development of Web 2.0 the number of online communities rapidly rises and existing communities grow exponentially. Most online communities are launched with the idea of sharing and collaborating in mind. Even though not all Web 2.0 communities are necessarily about the connections – as is the case with social networking sites – for most communities connections are crucial. Social media Website YouTube can be regarded a medium essentially used for contributing and sharing one's own material. Most videos are accessible to anyone (except for explicit material, in which case the viewer needs an account to prove he is of legal age), but an account is necessary in order to upload videos and leave comments. Once a channel is set up, friends and subscribers can be added and a list of favorites can be created. Yet many members hardly have any connections or subscribers at all. In contrast, social networking sites are essentially about the display of connections and this can be seen as one of the biggest differences with traditional virtual communities. Whilst virtual communities were also important because of communication with others, there was no obvious display of friends and connections. Getting to know a person, his likes and dislikes, and his connection to others seems fairly easy through a social networking site. Of course, this also has something to do with the effort one puts in creating an updating a profile. Some might elaborate extensively on their interests and influences, others might only share rudimentary information. This presentation of the self puts forth another difference between SNSs and virtual communities; because interaction within a virtual community is often between strangers, it becomes easier to take on a different or altered persona. This can quite literally mean that someone uses a pseudonym and/or different ethnicity, gender, age – but it could also mean someone is telling only ‘half the truth’. In a virtual community like the WELL as it is described by Rheingold, it seems as though the first inhabitants stayed (fairly)

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<sup>7</sup> DeveloperWorks Interview: Tim Berners-Lee.  
<<http://www.ibm.com/developerworks/podcast/dwi/cm-int082206.txt>> (accessed April 9, 2009).

close to their real personas. A lot of the screen names were real names or abbreviations of their real names (like Flash Gordon, an uncommon and improbable but genuine name and ‘philcat’ an abbreviation for Phil Catalfo). The stories told and questions asked also appear to be authentic, such as Jay Allison’s entries in which he writes about his sick daughter. Other, newer, virtual communities like Second Life seem to be more in line with Sandra Calvert’s (2002) question: “In a virtual world, where identity is flexible, why would authors choose to present themselves as they do in nonvirtual worlds?” Here it is almost the norm to ‘be’ different. Yet taking on a false identity online has also been heavily critiqued and widely researched; whilst pretending to be someone else is regarded fun and harmless in a virtual community like Second Life, it is often regarded unethical and even criminal in the realm of online social networking.

### **2.2.2 Fakesters**

Online anonymity is one of the reasons for the appearance of ‘fakesters’.<sup>8</sup> Taking on a completely different persona is not quite as easy when it comes to social networking sites like Facebook, exactly because of the importance of the connections. Even though one gets to construct a new body in the virtual, closed communities usually involve real life friends and acquaintances. As discussed: most established connections are between people that already know each other. Pretending to be someone else would therefore be a very questionable (although not unimaginable) act; a pending connection is likely to deny the request of a stranger or will think it is strange to see a completely altered version of someone he knows in real life. However, it is true that with online social networking the average user usually presents (or wants to present) himself most favorably. After all, online identity is closely related to social status and the connections that come with it. All of this however, does not mean that ‘faking’ does not happen within social networking sites; it surely does, and it is closely related to the previous discussed impression management. There are certain degrees to the extent of faking. Tweaking is a very common act in creating a profile. With tweaking one can slightly modify a profile to a new *self*, a better self, albeit within the boundaries of probability (Antheunis & Schouten, 2007). Taking it a step further, we see that it does not always end with ‘just’ tweaking. Which poses the questions: How does one know who to trust online? Are those strangers actually who they claim to be? Rheingold (1993) also addresses this issue in his anthropological description of the WELL: “You can be fooled about people in

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<sup>8</sup> A term widely used – although not coined - by danah boyd in reference to a fake SNS profile.

cyberspace, behind the cloak of words. But that can be said about telephones or face-to-face communication as well; computer-mediated communications provide new ways to fool people, and the most obvious identity swindles will die out only when enough people learn to use the medium critically. In some ways, the medium will, by its nature, be forever biased toward certain kinds of obfuscation. It will also be a place that people often end up revealing themselves far more intimately than they would be inclined to do without the intermediation of screens and pseudonyms.”

boyd attempts to discover why fakesters do what they do. She asserts there are three types of fakesters; the first are cultural characters. Whether fictional or non-fictional, these characters “represent shared reference points”, examples are Homer Simpson, George Bush and Jesus Christ. Another group is that of community characters that “represents external collections of people to help congregate known groups”, examples are Brown University, Black Lesbians and San Francisco. The last group is one of passing characters; which are “meant to be perceived as real” (boyd, 2004).

### **2.2.3 Tastes, Interests and Influences**

Although every social networking site is different – both in content and form – most of them have similar structures. A profile is usually attached to an e-mail address of the user. The user needs to fill out a questionnaire of personal information; this usually includes name, age, location and interests. While some questions are required to be filled out – like ‘name’ – others are optional – like ‘relationship’. However, this also varies with different social networking sites. Most SNSs allow (and encourage) their users to upload pictures and other media, such as (video) clips and music. With some profiles it is also possible to create customized profile backgrounds or ‘skins’. This can be done with HTML or other computer languages - as is the case with MySpace - or the user can choose from different already existing themes, mix and match colors and upload photos as a wallpaper (e.g. Hyves). This customization is a way for the user to visually express his taste, interests and influences. Lui’s study (2007) of SNSs “examines how a social network profile's lists of interests - music, books, movies, television shows, etc. - can function as an expressive arena for taste performance.” The focus is predominantly on MySpace, illustrating that this SNS lets users express their taste through text (both in lists and free text), photos and customization and the display of friend connection. Similar to MySpace, this is also the case for other social networking sites: “Five of the six categories displayed by MySpace - general interests, music, movies, television, and books - are shared by Friendster, Facebook, and Orkut” (Ibidem).

#### **2.2.4 Online Friends and Social Capital**

The social software behind SNSs is more likely to harden the existing relationship between people than to open up possibilities for creating new ones. Haythornthwaite (2005) investigates the impact and influence of communication and the Internet on the connectivity between people. There is more communication between ‘strong ties’ (people considered to be close friends and co-workers) than between ‘weak ties’ (people we know a bit but not as close friends). As she illustrates: “Friends (those who reported the tie as with a ‘Friend’ or ‘Close Friend’) communicate more frequently, about more different things, and via more media than Non-Friends (those they ‘work with only’ or someone who is just a ‘member of the class’). Online friends also include more socializing and emotional support in their communications than Non-Friends.” As said however, although much more uncommon, this medium can be used to make new connections between strangers. According to Haythornthwaite: “When a new medium is introduced that connects disparate others, it has the potential to create weak ties by initiating social contact between otherwise unconnected others” (Ibidem). The friending of weak ties is something that is frequently done by many users. boyd (2006) asserts that “social network sites like Friendster and MySpace are constructed in a way that requires people to indicate relationships or ‘friendships’ [...] if people say that they are Friends on these sites, they must be friends in other contexts as well.” In the footnote following this last sentence she states that “many terms used in social network sites are identical to terms in everyday speech, although their meanings may differ.” An online friend therefore, is not always a friend in real life. It can also be a friend of a friend, a colleague or a new acquaintance.

Once a profile has been created the user can add friends to a friend list by sending a friend request. In boyd’s (Ibidem) interviews with SNS users the following reasons for online friending were listed:

1. Actual friends
2. Acquaintances, family members, colleagues
3. It would be socially inappropriate to say no because you know them
4. Having lots of Friends makes you look popular
5. It’s a way of indicating that you are a fan (of that person, band, product, etc.)
6. Your list of Friends reveals who you are
7. Their Profile is cool so being Friends makes you look cool
8. Collecting Friends lets you see more people (Friendster)

9. It's the only way to see a private Profile (MySpace)
10. Being Friends lets you see someone's bulletins and their Friends-only blog posts (MySpace)
11. You want them to see your bulletins, private Profile, private blog (MySpace)
12. You can use your Friends list to find someone later
13. It's easier to say yes than no

Friending is sometimes done out of social courtesy more than an actual interest in someone – as becomes clear when looking at reasons 3 and 13. Rejecting a friend request can mean 'significant social costs'. As boyd suggests: "While it's obvious why people would link to people that they know and like, it is sometimes difficult to explain why people Friend people they dislike, people who they hold power over or who hold power over them, and other awkward relationships. In short, it's socially awkward to say no. When a Friend request is sent, the recipient is given two options: accept or decline. This is usually listed under a list of pending connections that do not disappear until one of the two choices is selected. While most systems do not notify the sender of a recipient's decline, the sender can infer a negative response if the request does not result in their pages being linked. Additionally, many systems let the sender see which of their requests is still pending. Thus, they know whether or not the recipient acted upon it" (Ibidem). Arguably however, the rejection of a friend request is much more devastating if it involves someone who has a connection with the sender – whether weak or strong – than if it were a random stranger.

Online friends can be beneficial. Users can especially draw from resources provided by weak ties, these connections may provide useful information and knowledge but are not as emotionally concerned as strong ties. According to Ellison, Steinfeld and Lampe (2007) "greater social capital increases commitment to a community and the ability to mobilize collective actions, among other benefits." The decline of social capital leads a community to "increased social disorder, reduced participation in civic activities, and potentially more distrust among community members. Greater social capital increases commitment to a community and the ability to mobilize collective actions, among other benefits" (Ibidem).

### **2.2.5 Social Networking Sites as Platforms for Organization**

Over the last decade online social networks have evolved into powerful platforms for communication and collaboration and have become the greatest publishing systems ever known (Bowman & Willis, 2003). The arrival of social media was the start of a participatory

culture. Top-down became bottom-up. Essentially, mostly non-professionals generate much of the social media content. Examples of these media are YouTube, Flickr and Wikipedia, but also news sites such as Digg and Reddit. In their search for an answer as to why audience members participate, authors Shayne Bowman and Chris Willis detected six main reasons: (1) to gain status or build reputation in a given community, (2) to create connections with others who have similar interests, online and off, (3) sense-making and understanding, (4) to inform and be informed, (5) to entertain and be entertained, and (6) to create (Ibidem: pp. 28-41). One could argue the same reasons apply for contributing within a social networking site environment. Many MySpace users for instance, were greatly committed to making Barack Obama the new president of the United States during the election in November 2008. Several types of Obama fan pages were created and joined by millions of members (illustration 1).

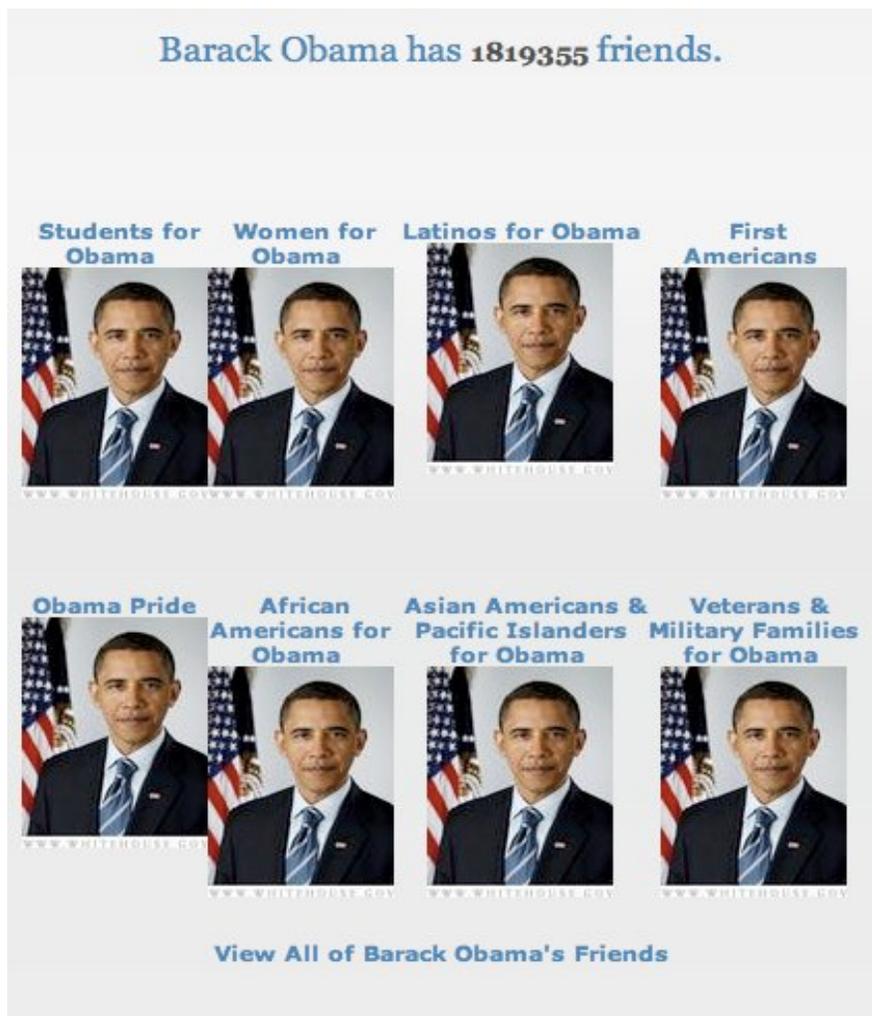


Illustration 1: Barack Obama's official MySpace top 8. <<http://www.myspace.com/barack-obama>> August 11, 2009.

A few years earlier, in 2003, the campaign staff of presidential candidate Howard Dean – who ran for the US election of 2004 - attracted the attention of Meetup.com, a Website that facilitates offline group meetings. Although social media were used as tools to boost campaign rallies, social networking sites did not contribute much until the next presidential race in 2008. A starting point in the ‘tech’ campaign rally came from Facebook in 2006, when they created entries for all congressional and gubernatorial candidates. Candidates and campaign staff were able to personalize and update their own profile and members could view and join their groups. That same year a reported 2.64% of Facebook users supported a candidate and 13% of Facebook’s total user base (approximately 1.5 million users) was connected to either a candidate or a user group (Williams & Gulati, 2007). The 2008 presidential campaign and the build-up toward the election made the profitability of online friending on a greater scale particularly visible. It was a historic period in time for many reasons, one reason being of the use of social media and technology to motivate potential voters. User efforts of openly supporting Obama on social networks, microblogs and mash-up sites were of great benefit to his eventual presidential win. Social media proved to be effective political tools, with the creation of Websites such as My.BarackObama.com as a striking example of a gathering place for supporters to join local groups, help with fundraising and take part in the campaign. Taking politics into the realm of online social networking means reaching a new widely spread, diverse group of potential voters. Using the Internet to his advantage, Obama states: “One of my fundamental beliefs from my days as a community organizer is that real change comes from the bottom up. [...] And there’s no more powerful tool for grass-roots organizing than the Internet.”<sup>9</sup> His endorsement of technology even led to the unofficial title of ‘the first social media president.’<sup>10</sup>

### **2.2.6 Privacy**

Although privacy issues predate the Internet (boyd, 2008b: p. 284), the emergence of virtual communities and social networking sites frequently leads to the question how privacy is ensured. How does one know that the personal information listed on a profile is not wrongfully used? And actually how private are private profiles? The user himself is responsible for filling in personal details and chooses to create an online profile, thus making

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<sup>9</sup> Stelter, Brian. “The Facebooker Who Friendened Obama.” The New York Times Website. Published July 7, 2008. <<http://www.nytimes.com/2008/07/07/technology/07hughes.html>> (accessed April 15, 2009).

<sup>10</sup> Los Angeles Times blog post: “Obama, the first social media president”. November 18, 2008. <<http://latimesblogs.latimes.com/technology/2008/11/obama-the-first.html>> (accessed April 15, 2009).

online social networking sites appear as a snoop's dream (Albrechtslund, 2008). According to boyd "privacy is not simply about the state of an inanimate object or set of bytes; it is about the sense of vulnerability that an individual experiences when negotiating data" (boyd: 2008a, p. 14). In other words, privacy may not so much be about what information is put online, but rather how this information is treated.

Facebook has had to deal with a lot of commentary after implementing several software changes that seemed to infringe privacy matters. In September 2006 'News Feed' was launched, a feature that lets users in on all kinds of information undertaken by their online friends; such as who befriended whom, who left a comment with another friend, who joined what group, who updated their profile information and so on. Facebook members heavily protested against the feature and several anti-news feeds groups were created. The group 'Students Against Facebook News Feeds' was joined by over 700,000 users, expressing their dislike and frustration (Ibidem: p. 13). In an attempt to explain the use of News Feed, founder Mark Zuckerberg posted two apologetic blog posts and later invited users to join him live on the 'Free Flow of Information on the Internet' group to discuss the privacy matter and explain his motivations. He argued that the News Feed is only viewable for a user's friends and that all this information is already public – News Feed simply makes it easier to keep tabs on ones friends. boyd subsequently argues that while she agrees with Zuckerberg's latter argument, public information is not the same as making information public. In the essay "Facebook's Privacy Trainwreck: Exposure, Invasion, and Social Convergence" she writes: "The tech world has a tendency to view the concept of 'private' as a single bit that is either 0 or 1. Data are either exposed or not" (Ibidem: p. 14). Even though Facebook did not make anything public that was not already public, they 'disrupted social dynamics'. They went on disrupting social dynamics when 'Beacon' was launched in November 2007; an "advertising system that sends data from external Websites to Facebook, ostensibly for the purpose of allowing targeted advertisements and allowing users to share their activities with their friends."<sup>11</sup> Zuckerberg posted a message on the Facebook blog apologizing for making bad decisions and missing the right balance: "At first we tried to make it very lightweight so people wouldn't have to touch it for it to work. The problem with our initial approach of making it an opt-out system instead of opt-in was that if someone forgot to decline to share something, Beacon still went ahead and shared it with their friends. It took us too long after

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<sup>11</sup> Wikipedia entry: "Facebook Beacon." <[http://en.wikipedia.org/wiki/Facebook\\_Beacon](http://en.wikipedia.org/wiki/Facebook_Beacon)> (accessed April 20, 2009).

people started contacting us to change the product so that users had to explicitly approve what they wanted to share. Instead of acting quickly, we took too long to decide on the right solution. I'm not proud of the way we've handled this situation and I know we can do better.”<sup>12</sup> The most recent example of social tension created by Facebook’s software change is the ‘Terms of Use’ debate. Essentially, the discussion revolves around the question what happens to ones personal information (including sent messages and comments) when one deletes his account? In February 2009 consumer affairs blog The Consumerist reported a change in the Terms of Use, stating that after deletion Facebook would still have the right to use archived copies of the user’s content.<sup>13</sup> More specifically, the Terms of Use reads: “You may remove your User Content from the Site at any time. If you choose to remove your User Content, the license granted above will automatically expire, however you acknowledge that the Company may retain archived copies of your User Content.”<sup>14</sup> To clarify Facebook’s decision, Zuckerberg wrote in yet another blog: “One of the questions about our new terms of use is whether Facebook can use this information forever. When a person shares something like a message with a friend, two copies of that information are created—one in the person's sent messages box and the other in their friend's inbox. Even if the person deactivates their account, their friend still has a copy of that message. We think this is the right way for Facebook to work, and it is consistent with how other services like email work. One of the reasons we updated our terms was to make this more clear.”<sup>15</sup> Zuckerberg wants to make clear that users are still the owners of their personal content. Accordingly, the Terms of Use also reads: “Facebook does not assert any ownership over your User Content; rather, as between us and you, subject to the rights granted to us in these Terms, you retain full ownership of all of your User Content and any intellectual property rights or other proprietary rights associated with your User Content.”<sup>16</sup>

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<sup>12</sup> Zuckerberg, Mark. “Thoughts on Beacon.” Facebook Blog. December 5, 2007.

<<http://blog.facebook.com/blog.php?post=7584397130>> (accessed April 20, 2009).

<sup>13</sup> Walters, Chris. “Facebook’s New Terms of Service: ‘We Can Do Anything We Want With Your Content. Forever.’” The Consumerist. Published February 15, 2009.

<<http://consumerist.com/5150175/facebooks-new-terms-of-service-we-can-do-anything-we-want-with-your-content-forever#c>> (accessed April 20, 2009).

<sup>14</sup> Facebook’s Terms of Use <<http://www.facebook.com/terms.php?ref=pf>> (accessed April 20, 2009).

<sup>15</sup> Zuckerberg, Mark. “On Facebook, People Own and Control Their Information.” Facebook Blog. February 16, 2009. <<http://blog.facebook.com/blog.php?post=54434097130>> (accessed April 20, 2009).

<sup>16</sup> Ibidem.

## 2.3 Questions of Software

The previously described types of research and research topics with regard to social networking sites generally do not include many questions of software. Although post-demographics does look at the surroundings and structure of a profile, this particular type of study is more concerned with the data contained by SNSs and what to do with the interests and favorites that are filled in. It aims to make use of this data by “building tools on top of profiling platforms” (Rogers, 2009: p. 1). Researching a topic such as privacy could include questions of software – for it is the software that essentially ‘makes’ a profile private or public – but it usually focuses more on the impact and cultural implications of software changes on users, such as the disrupting of social dynamics. Still, the question remains: What would a closer look at the software add for each of these findings? The profile settings are of great importance for all of the examples mentioned above. The form of questions that needs to be filled out is in a sense the constitution of a user’s online identity. A software study of the settings can show how the user is constrained and/or enabled by predefinitions. In some cases a form allows users to fill out their own answers; MySpace members can write anything in the ‘About Me’ section, for instance. But other questions are predefined, thereby constraining the user to a general selection of answers and arguably a prefixed data body.

The fakester phenomenon is particularly interesting with regard to software research. Software writers and programmers do not develop in a void; they are aware of fakesters. This poses questions as: Is faking enabled by the software? Is identity verification performed? If so, where lie the boundaries of verification? As mentioned, there are several types of fakesters: profiles of obvious fakes such as the non-existing characters of Jesus Christ and Homer Simpson and those who are ‘meant to be perceived as real’. Because the fakeness of the latter is almost never obvious, the posed questions apply to this type of fakesters in particular. Creating fake profiles is generally not approved of by the SNSs. A Friendster’s spokesperson commented: “The issue here is actually about consumer protection. [...] We do, as a policy, strongly discourage fake profiles. A rogue user hiding behind a Jesus profile, for example, has the potential to abuse the service or users in many ways.”<sup>17</sup> What she means with ‘potential abuse’ is not specified, but one can assume that it is done from the inside of the SNS, thereby using the software.

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<sup>17</sup> Terdiman, Daniel. “Friendster’s Fakester Buddies.” *Wired*. Published 7 December, 2004. <<http://www.wired.com/culture/lifestyle/news/2004/07/64156>> (accessed May 12, 2009).

SNSs as a gathering place for online friends and social capital are (together with privacy) also mainly a question of software. The profile settings either allow or disallow for others to access their account and view personal information. A public profile shows a list of friends for everyone to see, a private profile does not display this information. Therefore, to gain access to information on a private profile (such as photos, blogs, comments and the friend list) one needs to befriend the user. With this, it becomes clear that the answers to the question what researching the software can add are valuable ones. This thesis argues that looking critically at user engagement with social networking sites should take in account the configuration and constructive nature of these profiles. Software is not merely a tool, it is essentially responsible for the way users are able to present themselves online and engage in online social networking. Yet, instead of exploring that what organizes interfaces of computer-mediated environments, the field of software research is still in its infancy.

### 3. Studying SNS Software

What is software exactly? Whilst computer science describes it as a “set of instructions that direct a computer to do a specific task”, associate professor of Modern Culture and Media at Brown University, Wendy Chun, mentions in particular the instability of its material status and describes it as a “notoriously difficult concept”, which “falls away” the more one tries to dissect it (Chun, 2005: p. 28). On the one hand software is called “a place where many energies and formations meet” (Fuller, 2003). On the other, there are media theorists like Friedrich Kittler that claim there is no such thing as software; there is only hardware (configuration). This thesis regards software as the underlying, immaterial construct that configures and shapes a social networking site, and focuses particularly on the (default) settings. Arguably, the intangible and immaterial nature of software becomes material through its configuration, which subsequently generates user output. Or rather: software based platforms such as SNSs seem to become more tangible through its ubiquity (desktop applications for the use of online social networking – mobile or otherwise - are one example of this), which paradoxically both separates and conflates hardware and software.

The importance of studying software is commonly said to have been first addressed in the book “The Language of New Media” (2001) by new media researcher Lev Manovich. In his softbook “Software Takes Command” it is stated that essentially, it is software that makes the world work; software is “the invisible glue that ties it all together” (Manovich, 2008: p 3). To illustrate how much we depend on software, Manovich continues: “If electricity and the combustion engine made industrial society possible, software similarly enables global information society. The ‘knowledge workers’, the ‘symbol analysts’, the ‘creative industries’, and the ‘service industries’ - all these key economic players of information society can’t exist without software” (Ibidem: p. 4). Although the invisible glue that is software is not always truly invisible, it is often taken for granted. Many people do not realize that intensive use of software is necessary in order for hospitals, schools, scientific laboratories, militaries, airports and even warehouses and shops to properly function. Knowing this, the lack of software research seems particularly peculiar. Paradoxical even, as Manovich argues: “[...] while social scientists, philosophers, cultural critics, and media and new media theorists have by now seem to cover all aspects of IT revolution, creating a number of new disciplines such as cyber culture, Internet studies, new media theory, and digital culture, the underlying engine which drives most of these subjects – software – has received little or no direct attention.

Software is still invisible to most academics, artists, and cultural professionals interested in IT and its cultural and social effects. [...] If we don't address software itself, we are in danger of always dealing only with its effects rather than the causes: the output that appears on a computer screen rather than the programs and social cultures that produce these outputs" (Ibidem: pp. 4-5). As is argued here, Manovich's reading of software importance also applies to the software behind social networking sites. The construction of profile sites might tell us a great deal about the relationship between the software and the 'output' of the user, the influence user and machine may have on each other. It can also provide insight into how the software shapes SNSs, and how it constrains and/or enables a presentation of the self.

Since "new media calls for a new stage in media theory" (Manovich, 2001: p. 65) we must examine it accordingly. This means shifting from media studies to software studies (Ibidem). Because the field of software studies is still relatively young, there is need for a new methodology. Manovich claims that new ways of thinking about software might include the principle of transcoding (translating files from one format to another) and using concepts from computer science - interface and database - as new media theory categorizations. Here, the interface, database and relating software applications with regard to social networking sites are also examined - as a means to reveal the larger construction of profile sites. This way, the added value of software research is clarified. In "Software Takes Command", Manovich defines his object of study as a particular subset of software. He derives the term 'cultural software' from law professor Jack Balkin's work "Cultural Software: A Theory of Ideology", and uses it in a literal way (whereas Balkin only uses it metaphorically), referring to "software programs which are used to create and access media objects and environments", in other words: "A subset of application software" (Manovich, 2008: p. 11). Examples of these media objects are programs such as Word and PowerPoint but also Web based programs such as the browsers Firefox and Internet Explorer. Accordingly, these programs enable sharing, contributing, creating, accessing, remixing images and so on. Although not explicitly included in Manovich's definition, SNS software can also be thought of as a cultural software program, for it has many of the essential features in common. As with computer operations, important parts of SNS software include preferences, settings and the logic of selection. The latter is described as a good example of computer operations that encode existing cultural norms in their design (Manovich, 2001: p. 124). With this, a new form of control is achieved: one that is soft but powerful. The inherent software provides a 'natural' design of following the logic of selection. This reading of computer operations is strikingly similar to the notion

of continuity as described by author and programmer Alexander Galloway; a Netform which creates a natural, compelling and immersive experience for the user. According to Galloway: “The goal of continuity is to make the Internet as intuitive as possible, to make the network a natural-feeling extension of the user’s own body. Thus, any mediation between the user and the network must be eliminated. Interfaces must be as transparent as possible. The user must be able to move through the network with unfettered ease. All traces of the medium should be hidden, hence the evolution from the less intuitive “QWERTY” keyboard to technologies such as the touch screen (e.g., Palm and other PDAs) and voice recognition software” (Galloway, 2004: p. 68). Especially with this latter sentence, the resemblance between Manovich’s logic of selection and Galloway’s continuity becomes clear. The flow in working with computer operations should be effortless and efficient and preferably hide the underlying apparatus. When applying this analogy to social networking sites, we see that they too generally have user-friendly interfaces that hide the technological (and for the user often inaccessible) backend. This ‘hiding mechanism’ is also an example of both logic of selection and continuity; it ensures a smooth overlap between using (i.e. creating, updating) ones profile and browsing through those of others. Galloway argues that the protocological Internet leaves little room for user intervention. Protocol needs to be followed, otherwise there will be no connection. At the same time protocol is able to build a warm and friendly technological space, exactly because of protocols. This illustrates a second similarity between both Manovich and Galloway’s readings: a new form of control that is very powerful yet seems to be soft, friendly and warm. In a sense, the software enables this user experience. A SNS user needs to abide certain rigid rules, otherwise it is impossible to establish a connection. Yet, it is true that most SNS users do not feel this rigidness as a totalitarian control (or fascist control, as Galloway would say) where freedom is taken away, but rather a protocological kind of control; control that is based on fairness, openness and inclusion (Ibidem: p. 142). On a practical software level, most SNSs do not allow user-programming intervention either. Hyves, Facebook and LinkedIn for instance only allow plain text and have disabled user implementation of HTML or other computer languages within a profile. Exceptions are Orkut and MySpace, these SNSs do accept (and subsequently render) HTML and CSS. With MySpace however this turned out to be an accidental technological loophole, capitalized on by users to modify the look and feel of their profiles (boyd, 2007a: p. 6).

### **3.1 Executing Software Research**

The establishment of a void in software research brings forth the questions: How should one study software? What new methodology or strategy can be employed in order to contribute to this field of research? As mentioned, Manovich's computer science concepts used as new media theory classifications – interface and database – might be helpful in the exploration of the nature, construction and configuration of SNSs. Both of these software features are examined in a way that is somewhat similar to how software is discussed in the book *Software Studies: A Lexicon*. Open source software and the increasing 'openness' of SNSs through third-party applications created with social networking sites' application programming interface (API), are also addressed. In addition, the following section is a new attempt in conducting practical software research that can be used to reconstruct the feature changes of SNSs, thereby revealing the influence of software on the user. In particular, this research reconstructs Facebook's history of software changes and it also deals with the subsequent challenges one encounters while using this method. For this case study Facebook was chosen not only because it is one of the largest SNSs, but also because much of the commentary and social tension generated, was usually the result of software changes.

#### **3.1.1 Interface**

Interfaces in computing “link software and hardware to each other and to their human users or other sources of data” (Cramer & Fuller in Fuller ed., 2008: p. 149). Although nowadays there is a clear distinction between the user interface and application programming interface, this was not always the case. The distinction is purely arbitrary. In other words: it is simply a nomenclature arising out of convention that more complex interfaces to computer functions tend to be called ‘programming languages’ and less complex, more specialized ones are known as ‘user interfaces’ (Ibidem: p. 150).

Just as with the computer's graphical user interface (GUI), the preferences and settings of SNS software are what “manipulate the very staging of the interface, its colors, language, interaction menus, file handling, auto functions, warning messages, security levels, passwords, cooperation with other software, peripherals, and so on” (Pold in Fuller ed., 2008: p. 218). With software turning more and more into a commodity, the entanglement of the software and the interface becomes increasingly personalized and allows users to aesthetically alter the layout. As lecturer Søren Pold puts it: “Seen from the point of view of aesthetics, the preferences often control skins, themes, and sounds which are related to a superficial

aesthetic, the ‘look-and-feel’ of the software where the user – perhaps aided by themes from various Websites – is free to change the appearance into, for example, something that relates to sci-fi fantasy worlds, popular icons, games, or the appearance of other operating systems” (Ibidem: p. 219). But the aesthetics of appearance is not all there is to preferences and settings; they also negotiate the relationship between the software senders (makers/providers) and receivers (users). Pold discusses the confinement of a user within the software environment by pointing out that it is impossible to change something the senders have not prefigured, thus the user “becomes irritatingly aware of the fact that the interface is structured around principles set up by the sender(s). [...] Preferences regulate the contract between the producers, the machine and its software environment, and what I as a user prefer, thus my preferences are not purely mine, but highly negotiated in this software hierarchy” (Ibidem). Again, this idea can be linked back to both Manovich and Galloway’s viewing of a new, soft, yet powerful form of control. Here too, the user is constrained by the software - that literally creates a digital lock-in – and not going along with it, simply means a connection cannot be established. So we see that there is freedom within social networking sites, but to a certain extent; it is only the sort of freedom that is allowed and regulated by the senders.

If a book is interface to text (Manovich, 2001: p. 273), SNSs can be thought of as the interface to personal user data. According to Pold it is the preferences palette that gives a glimpse of the staging of the software interface, and in order to change the default settings, the software has to make them explicit (Pold in Fuller ed., 2008: p. 222). Essentially, this leaves room for the user – even the common, everyday user with no knowledge of code and software – to easily “make his mark and play around with the representational machinery of the software” (Ibidem). The default settings are frequently used to personalize the software and renegotiate the software’s confinements. Even though this form of aestheticization does not influence the workings of the software, it is clear for Pold that software is more than a standard tool with standard uses. It illustrates that “users are by instinct fighting against being standardized according to typical functionalistic values” (Ibidem). As mentioned, MySpace is an example of a social networking site that allows more user intervention (in the form of HTML and other computer language implementation) than most others. Still, the preferences palette as described by Pold is also present within all SNSs in some form or another. Users simply do not want to be reduced to ‘default users’. Changing the settings allows them to personalize, share and contribute. Coming back to the previously mentioned distinction between user interface and programming interface; the former in relation to a computer program is described by media design lecturers Cramer and Fuller as “always symbolic” and

involving syntactical and symbolic mappings for operations (Cramer & Fuller in Fuller ed., 2008: p. 150). The user interface provides both means of input and output, by which is meant: allowing the users to manipulate a system (input) and allowing the system to indicate the effects of the users' manipulation (output).<sup>18</sup> Although not as explicit as with most desktop interfaces, the user interfaces of SNSs are also symbolic. Quite literally this refers to the display of icons and their semiotic uses. The desktop trash can for instance, symbolizes the riddance of (useless) computer information. Although the computer operation actions in throwing away trash are not exactly similar to throwing away actual trash, the icon does represent the same action. As professor of new media and author Jay David Bolter clarifies: "Through the controlling visual metaphor of the business office, the user manages files and activates programs. Files, in the shape of sheaves of paper, are contained in directories, represented as folders, while a program for word processing may look like a hand writing on a piece of paper. When the user wants to get rid of a file, she drops it into a metaphorical thrash can. Every image is a reification of some aspect of information processing. [...] The defining element of the desktop GUI is the icon, which, although it often has the same name, is above all a picture that performs or receives an action. These actions give the icon its meaning. As elements in a true picture writing, icons do not merely remind the user of documents and programs, but function as documents and programs" (Bolter, 2001: p. 62). Most SNSs feature graphical icons of calendars, notebooks, photos, flags, hearts, pencils and hands among others. Such icons and other interface elements (like buttons, spinning cursors, widgets etc.) also provide a mode of access to data and data structures (Cramer & Fuller in Fuller ed., 2008: p. 152). They are a mark of user-friendliness within the realm of online computing and they represent what "is most easily recognizable and visible" (Ibidem, 2008: p. 151).

### **3.1.2 Database**

The general definition for database is "a structured collection of records or data that is stored in a computer system."<sup>19</sup> Manovich stresses the significance of databases in this computer age. His definition is wider than the one computer science provides: in Manovich's perspective a database is a cultural form of its own. He continues to assert that a database may be called "a new symbolic form of a computer age", by which he means: "A new way to structure our experience of ourselves and of the world" (Manovich, 2001: p. 194). A

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<sup>18</sup> Wikipedia entry: "User interface." <[http://en.wikipedia.org/wiki/User\\_interface](http://en.wikipedia.org/wiki/User_interface)> (accessed May 20, 2009).

<sup>19</sup> Wikipedia entry: "Database." <<http://en.wikipedia.org/wiki/Database>> (accessed June 10, 2009).

documentation of the dominance of the database form in new media lists examples of multimedia encyclopedias, CD-ROM's and the Internet, with Web pages defined by original HTML as a "sequential list of separate elements: text blocks, images, digital video clips, and links to other pages" (Ibidem: p. 195). The database element here is the capacity to store data and also to add new elements to the list. Especially this latter feature is synonymous with the Web itself; it is never finished (nor does it need to be). New elements are added to it every day. With SNSs the database is what stores a user's personal information; his age, interests, email address, received comments etc. The database is part of the construction that allows the user to present himself online. It enables him to share with others what he wants to make public, and to a certain extent he is in control of the image that is created (as has been discussed with impression management). He is also free to change this image to his liking. On the other hand, it is interesting to think about how much of him (i.e. his personal information) is unwillingly exposed. In other words: how does the software enable and/or constrain the online presentation of the self?

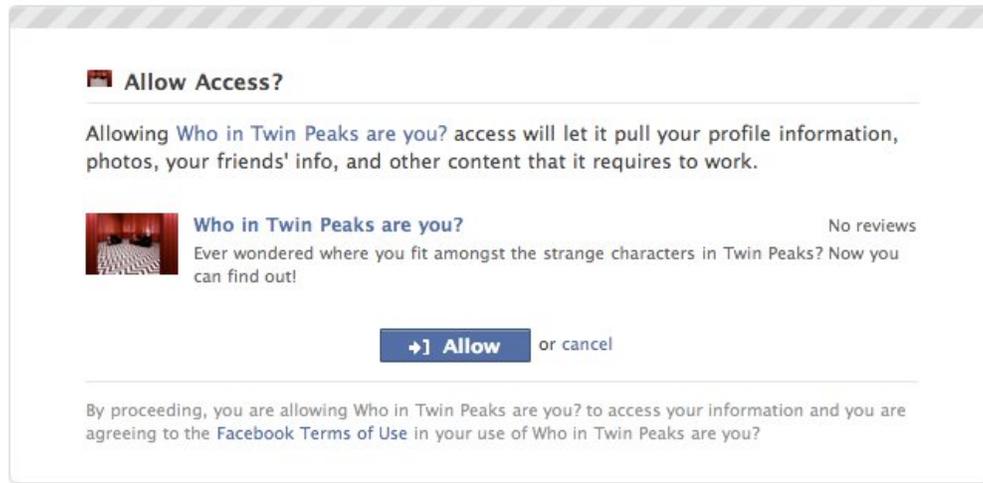
In light of treating databases as cultural forms themselves, Mark Poster argues that "culture cannot be seen as separate from technology" (Poster, 2006: p. 9). He too examines the formations between man and machine (which he aptly refers to as 'humachine') with regard to identity. Somewhat similar to Manovich, Poster claims that "the innovation of the digital emerges as the mediation of new cultural forms" (Ibidem: p. 87). The database can - in a sense reminiscent of the social shaping of technology - be seen as 'shaping the social.' The dominance of online databases and their influence becomes more and more obvious with the emphasis on sites as YouTube and Flickr. Even news programs aired on television increasingly make use of these databases in order to accompany their items with video and photographic footage. A social networking site such as MySpace can be seen as the embodiment of a culturally shaped database. Manovich's citation "A new way to structure our experience of ourselves and of the world" seems to fit perfectly when applied to this online platform. Indeed, there is most definitely a structure present here. Even though Manovich also asserts that new media objects do not tell stories and have no beginning or end (Manovich, 2001: p. 194), MySpace (both the entire database and an individual profile page) is highly structured and this is quite literally done according our experiences, with blog posts, comments, pictures and personal information as striking examples. This user output is of great interest for profilers and researchers. As Rogers suggests, especially the 'interests' and 'favorites' are of interest to the study of post-demographics. There is a distinct difference between old and new databases. Whereas Manovich appoints the database the new symbolic

form of this modern day and age, Rogers looks at different types of databases. Drawn upon the works of scholar Oscar Gandy and Mark Poster, he asserts there has been a shift from not having enough space within the mandatory fields and field character limits – which subsequently meant “people could not describe themselves fittingly in a few fields and characters” and this would “impoverish the self” – to a new database; one where a user enjoys more freedom and agency due to longer character limits, more fields and more space to write notes or come up with their own fields to fill in (Rogers, 2009: p. 4). Importantly, Rogers also remarks: “In a cultural theory sense, the database became the site to derive the other” (Ibidem). The old databases could be seen as listings all in a similar form, more or less static. Yet now - in particular with these new databases where the user finds more room for self-expression, such as SNSs - the question is more about the shaping of what is listed in the database. As Rogers asks: “What does your form-filling say about you? Do you fill in the defaults only? Do you have many empty fields? What do your interests, and those of your friends, tell the profiler?” (Ibidem).

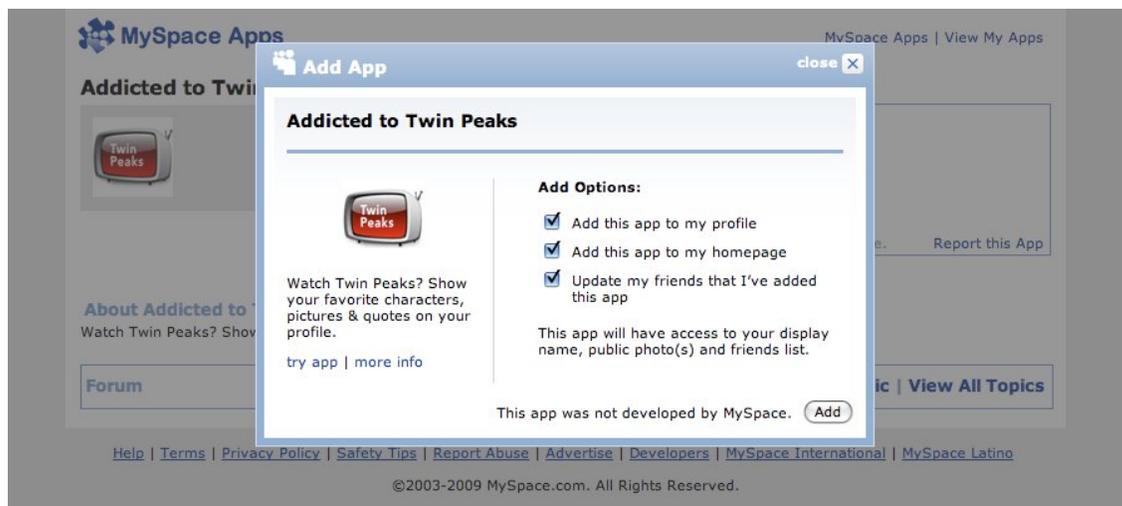
### **3.2 Establishing the Proprietary Through Open Source Software**

The use of datasets and APIs (or what can be called input) is also of importance for the study of post-demographics. By screen-scraping Web pages and using APIs, profilers and researchers can collect data from SNSs and use it for further analysis or software making. As Rogers explains: “How do social networking sites make available their data for profilers? Under the developers’ menu item at Facebook, for example, one logs in and views the fields available in the API (or application programming interface). Sample scripts are provided, as in ‘get friends of user number x,’ where x is yourself. Thus the available scripts generally follow the privacy culture, in the sense that the user decides what the profiler can see. It becomes more interesting to the profiler when many users allow access, by clicking ‘I agree’ on a third-party application” (Ibidem). These third-party developers – and their subsequently created applications – are becoming increasingly dominant within the realm of social networking sites. Without disregarding the private and friends-only options, SNSs are becoming more open with third-party applications created by users who are encouraged to use their APIs. This increases the level of participation and sharing, and possibly even the number of users, but it also gives way to the spread of (personal) information to third parties; which could cause so called ‘walled gardens’ (that are assumed to protect personal information) are to crumble. The digital lock-in of the user then, is not so much restricted to just one ‘cell’ (one space or proprietary service such as Facebook), but is instead more widespread. This can

be partially explained by the user's unawareness of the nature and origin of third-party applications; it is plausible that many users figure an application is created and distributed by the SNSs themselves. Not realizing their information is used by others than the Facebook or MySpace team (or other SNSs that make public their APIs), even though using a third-party application is preceded by a specific request to allow access for the application to be embedded in a profile (illustrations 2 and 3).



*Illustration 2: A Facebook third-party application sends an 'Allow Access?' request before the user is able to use the application.*



*Illustration 3: A MySpace 'Add App' request.*

Facebook's Open Platform (also called Facebook F8) includes the API infrastructure (among other programs) and allows developers to create and share their created applications. Whilst it originally started out as an entirely proprietary service, Facebook turned parts of the application platform open source in May 2008.<sup>20</sup> Alternative to Facebook's Open Platform, there is OpenSocial: a set of common APIs for Web-based social network applications, developed by Google and MySpace. Applications developed with OpenSocial APIs are interoperable with all social network systems that support them, including Friendster, Hi5.com and of course Orkut and MySpace.<sup>21</sup> Needless to say, opening up such a platform works two ways: outside developers get deep access into the database and the SNS benefits by becoming a rich platform for third-party developers.<sup>22</sup> The integration of multiple social networks (for example through the use of desktop applications) and opening up the core functions of a service creates a ubiquitous Web operating system. One could argue that this makes the relationship between the software and the user more fluid and transparent. Also, essentially any user can become a developer and work with the APIs of SNSs. Programming skills are usually required, but there is no restriction to who can access the APIs (as long as they are not used for commercial purposes). At this point in time the social Web is at the beginning of a new era: the era of social functionality, which is concerned with adding and embedding widgets and other applications in online social networks. In this respect, SNSs are increasingly becoming more and more like operating systems. Third party developers strengthen the platform by creating their own 'eco systems'.<sup>23</sup> The influence these software changes have on the user can be interpreted two-ways: on the one hand walled gardens are crumbling down due to the spread of this information. On the other, the user is able to take better control of how the software is used. Perhaps this means that unstable, see-through walls can be rebuilt or strengthened by user intervention? Manovich also connects user intervention via programming (using APIs) to democracy: "For now, the number of people who can script and program keeps increasing. Although we are far from a true 'long tail' for software, software development is gradually getting more democratized" (Manovich, 2008: p. 9).

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<sup>20</sup> Arrington, Michael. "Facebook Platform Now Open Source: fbOpen Released." TechCrunch. Published June 2, 2008. <<http://www.techcrunch.com/2008/06/02/facebook-turns-platfrom-open-source-via-fbopen/>> (accessed June 19, 2009).

<sup>21</sup> Wikipedia entry: "OpenSocial." <<http://en.wikipedia.org/wiki/OpenSocial>> (accessed June 19, 2009).

<sup>22</sup> Arrington, Michael. "Facebook Launches Facebook Platform; They are the Anti-MySpace." TechCrunch. Published May 24, 2007. <<http://www.techcrunch.com/2007/05/24/facebook-launches-facebook-platform-they-are-the-anti-myspace/>> (accessed June 20, 2009).

<sup>23</sup> Owyang, Jeremiah. "The Future of the Social Web in Five Eras." Personal blog 'Web-strategist.' Published April 27, 2009. <<http://www.web-strategist.com/blog/2009/04/27/future-of-the-social-web/>> (accessed June 20, 2009).

### 3.3 The Wayback Machine

As a collaborative research effort The Facebook Project ([www.thefacebookproject.com](http://www.thefacebookproject.com)) intends to document, utilize and understand the social networking site Facebook. This resource platform functions as a nexus; linking to related projects, answering questions and trying to unveil the realm of the SNS. Unlike wiki's, that 'know' and track their own history and can be monitored on the client-side (i.e. user-side or user backend), SNSs keep their history on the server-side. Datasets for research are usually not available to the public (or researchers for that matter). Facebook is no exception. The Facebook Project advises to work in alternative ways: "Your best shot is to think about other methods you could gather information: observation, client-side scripting, surveys, interviews, and more. Remember to keep in mind the limitations of what you can say with a given sample and/or data-collection technique."<sup>24</sup> Documentation regarding this topic must therefore be done in other ways; one of which can be by using the Wayback Machine - as is done here.

The Internet Archive's Wayback Machine (<http://www.archive.org/web/web.php>) copies and archives Web pages, which are by nature ephemeral. As Chun shrewdly observes: "The Internet may be available 24/7, but specific content may not" (Chun, 2008: p. 167). Schneider and Foot (2004) add that "there are two aspects to the ephemerality of Web content. First, Web content is ephemeral in its transience, as it can be expected to last for only a relatively brief time. From the perspective of the user or visitor (or researcher), specialized tools and techniques are required to ensure that content can be viewed again at a later time. Second, Web content is ephemeral in its construction - like television, radio, theater and other 'performance media.'" Indeed, one tool that fits this description is the Wayback Machine.

The Wayback Machine (which functions as the interface to the Internet Archive) aims to contribute to the "universal access to human knowledge"<sup>25</sup> and does so by providing a publicly accessible database, that contains billions of Web pages (a total of over a 100 terabytes of information), many of which are currently offline or altered throughout the years. Even though the social Web seems to be quite resistant to archiving, the Wayback Machine serves as a good starting point for researching the history of the Web, and more specifically for reconstructing single site histories. The Wayback Machine periodizes the Web. Pages are archived and categorized by date and marked if changes to the site have been made; an

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<sup>24</sup> The Facebook Project. "Project-Related Frequently Asked Questions." <http://www.thefacebookproject.com/about/faq.html> (accessed June 27, 2009).

<sup>25</sup> Kohman, Richard. "How the Wayback Machine Works." Published January 21, 2002. O'Reilly XML.com. <http://webservices.xml.com/pub/a/ws/2002/01/18/brewster.html?page=1> (accessed May 26, 2009).

asterisk next to the page's search results denotes this. However, when querying a particular Web page one cannot search by date at first – nor by text or keywords – instead one must enter the Web address (the exact URL or Website). Thereafter, it is possible to browse by date as the pages are listed according to year and day. Retrieving a requested Web page from the archive favors browsing instead of the dominant form of searching. Internet researcher Esther Weltevrede notes (in a lecture written up by blogger Anne Helmond) that this clearly reveals the archive's origin: stemming from the cyberspace period (1996). The structure and set up of the archive “[...] therefore privileges single site histories instead of researching its context.”<sup>26</sup> The workings of the archive are in a sense similar to those of search engines: it “comprises a slew of robots and servers that automatically and diligently, and in human terms obsessively, back up most Web pages” and it collapses “the difference between the Internet, whose breadth is unknowable, with its backups” (Chun, 2008: p. 168). Unlike search engines however, the Wayback Machine does not “use this data to render the Internet into a library but rather uses these backups to create what it calls a ‘library of the Internet’” (Ibidem). As Chun mentions, it is the need for cultural memory that drives this particular online archive; its necessity stems from the fact that the Internet has no memory, or at least not without the intervention of a registry such as the Internet Archive's Wayback Machine. The work of Murphy, Hashim and O'Conner (2007) means to validate the Wayback Machine and finds it a “viable research tool” that gives researchers “greater confidence in the data generated by the tool and can incorporate such data into their research on Website development.” The database does have some constraints however; even though it contains over 150 billion Web pages, there is still a great amount of sites that is not copied and stored. Moreover, there are the orchestrated exclusions from admittance to the archive. Websites that include a robot.txt file on their servers can exclude their site from being crawled. The historical pages of those sites that are preserved in the archive can also be excluded this way. Because Web pages often link to images - rather than embedding them - only a skeleton of the page is stored in the Wayback Machine. This means that many retrieved sites include broken, rendered or missing links and images (Chun, 2008: p. 169). The Wayback Machine links between sites internally, and precisely because of this it is a useful tool for reconstructing the history of the Web. Yet using the Wayback Machine to reconstruct the history of SNSs proves to be a more difficult task.

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<sup>26</sup> Helmond, Anne. “Archive 2020: Esther Weltevrede - Archiving Web Dynamics.” Personal blog ‘Anne Helmond New Media Research Blog’. Published May 19, 2009. <<http://www.anelmond.nl/2009/05/19/archive-2020-esther-weltevrede-archiving-web-dynamics/>> (accessed May 26, 2009).

This is mainly because the software changes that are made over time are mostly explicitly visible at the backend of the sites. Even though the Wayback Machine copies the default page (which is usually the home page) belonging to a URL and the pages behind internal links, the accompanied backend is not stored. Logging into previous versions of specific SNSs is therefore not possible. This means that for the purpose of this software research performed on Facebook the Wayback Machine must be used differently; for example by examining specific pages and their development over time (as is done in the research example below with the ‘About’ and ‘FAQ’ of ‘Help’ pages).

A search for facebook.com with the Wayback Machine shows 714 found results, beginning at December 12, 1998 up until March 26, 2008<sup>27</sup> (the archive has a delay of six months). The years 1996 (marking the beginning of the archive) and 1997 show no found results, which means this particular domain was not registered and/or had no content at those times. Facebook originally started out as Thefacebook and was launched on February 4, 2004 at thefacebook.com (this URL is still in use and redirects to facebook.com). Zuckerberg and investors purchased the domain facebook.com in 2005 from the software company AboutFace Corporation. The first registered link to Facebook at this URL, then still called Thefacebook, is on August 6, 2005. Needless to say, before then all links click through to the homepage of AboutFace. On August 28, 2005 Facebook officially drops the word ‘The’ from Thefacebook and continues as Facebook, which is in line with the new URL.<sup>28</sup> The interface of Facebook has variously changed over the years, as becomes clear when one browses and views the links that belong to different dates.

Although it is possible to ‘interact’ (i.e. the page is not static or frozen; boxes can be ticked, links can be clicked) with the page and enter an email address and password in the designated boxes of the stored pages (illustration 4) and click on links, the Wayback Machine does not have copies of the backend of the SNS in store and subsequently directs the user to a ‘Not in Archive’ page upon logging in (illustration 5).

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<sup>27</sup> Search conducted with the Wayback Machine on May 28, 2009.

<[http://web.archive.org/web/\\*/http://facebook.com](http://web.archive.org/web/*/http://facebook.com)>

<sup>28</sup> Although on this date the headline on the front-page still reads ‘Welcome to the Facebook!’ On December 28, 2005 the article ‘the’ was not used anymore preceding the name. Note however, that on this day Facebook changed (as indicated by the asterisks) its front-page four times; the pages with the first asterisks’ still bear the headline ‘Welcome to the Facebook!’, whereas the pages with last two asterisks’ read ‘Welcome to Facebook!’

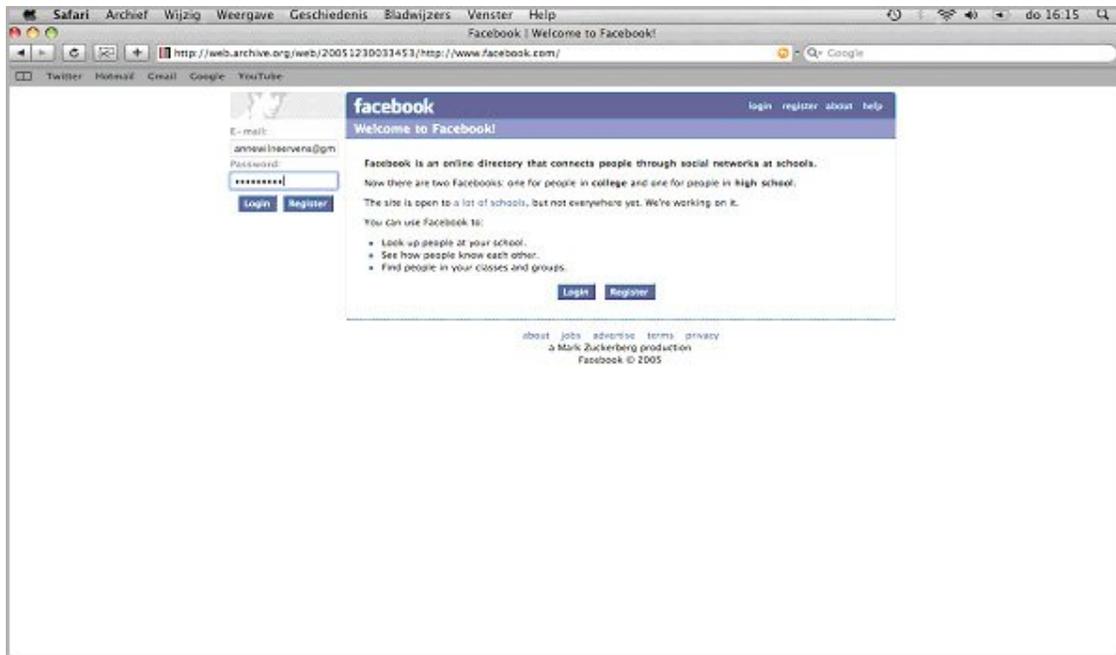


Illustration 4: The default page as stored for the URL facebook.com on December 30, 2005 in the online archive does allow the user to enter email address and password.

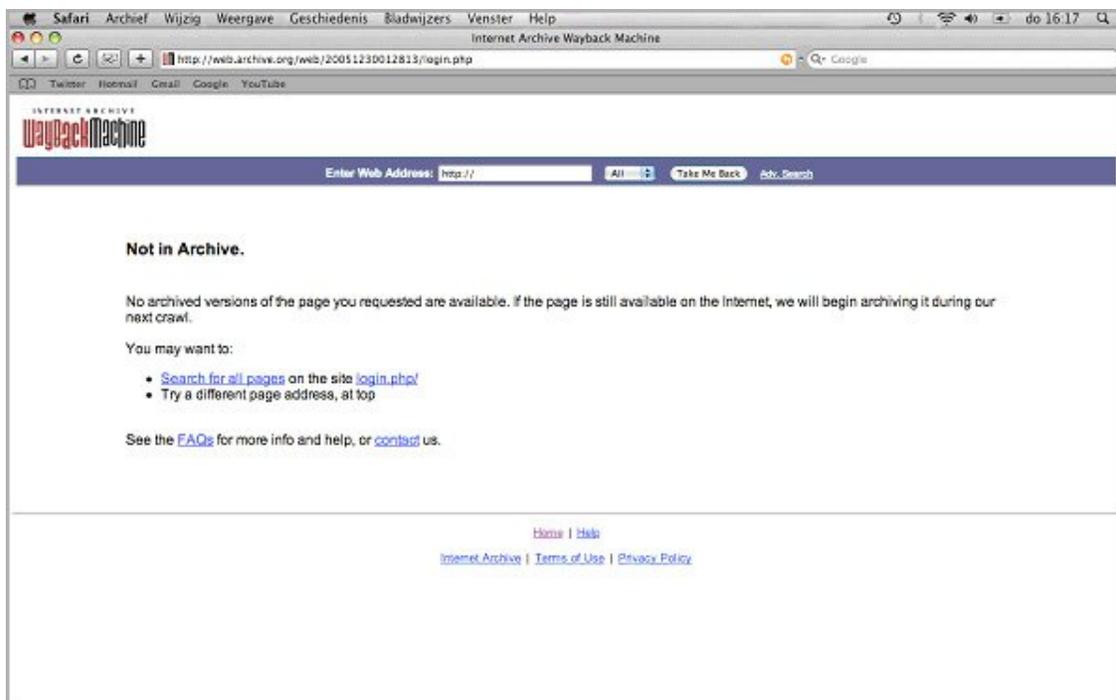


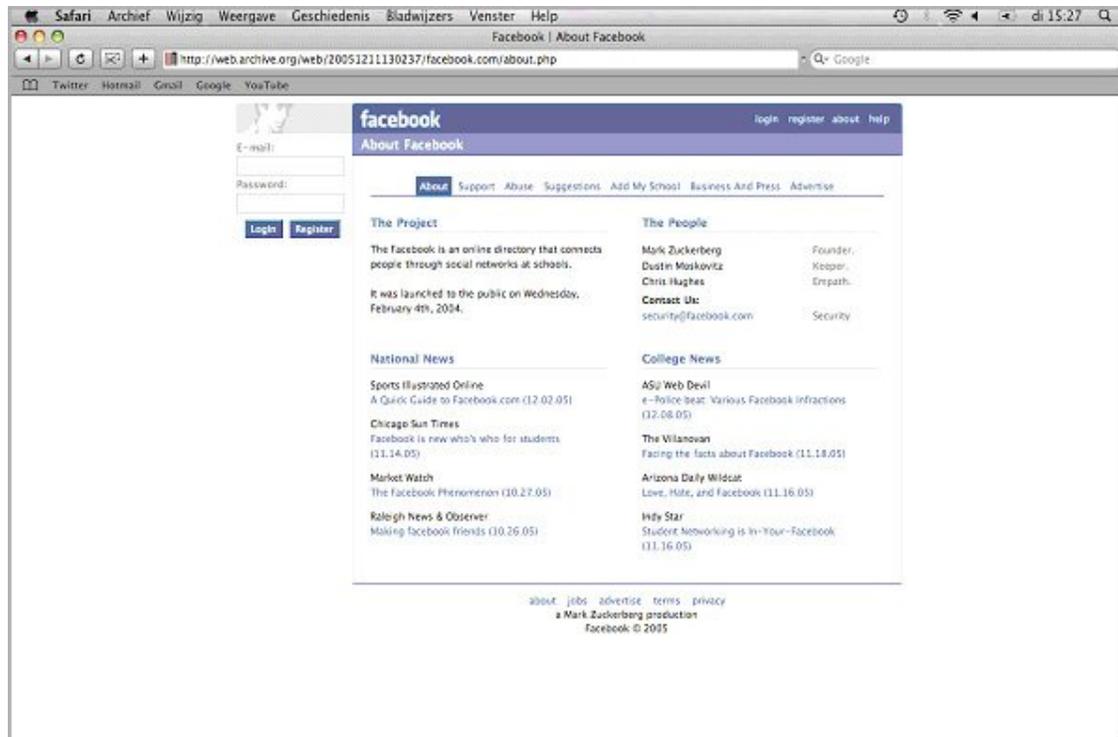
Illustration 5: Upon the attempt to log in a 'Not in Archive' page appears.

From the very beginning of Facebook (and the previous Thefacebook) the front-page features links to 'About' and 'FAQ' or 'Help' pages. One can click through to these pages, which are also stored in the archive. Examining the development and changes made on these pages can be useful to see what Facebook's attention is directed towards. This research method is somewhat similar to the one the Digital Methods Initiative (DMI) employed during their project "The Demise of the Directory: Web Librarian Work Removed in Google."<sup>29</sup> By using the Wayback Machine as a methodological tool, DMI shows the evolution of Google's front-pages from 1998 to 2007, capturing the eventual disappearance of the 'Directory' tab on the front-page. A historical timeline was created by making screenshots of the front-pages of the search engine and placing them in a chronological order, thereby revealing the changes made to the interface over time. As mentioned, this methodology can also be applied to the 'About' and 'FAQ' of 'Help' pages of Facebook.

The tab 'About' on the front-page of thefacebook.com as archived in the Wayback Machine on February 12, 2004 links through to a page which has three topics: 'The Project', 'The People' and 'News Coverage'. On August 6, 2005 (the first referral to Facebook stored by the Wayback Machine for the URL facebook.com) the About page (illustration 6) shows six new tabs at the top of the page; respectively, 'Support', 'Abuse', 'Suggestions', 'Add My School', 'Business and Press' and 'Advertise. It also features the topics 'The Project', and 'The People', except now 'News Coverage' is gone and replaced by 'National News' and 'College News'.

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<sup>29</sup> Digital Methods Initiative. Project 'The Demise of the Directory: Web Librarian Work Removed in Google.' <<http://wiki.digitalmethods.net/Dmi/DemiseDirectory>> (accessed June 2, 2009).



*Illustration 6: The 'About' page for facebook.com on August 6, 2005 as recovered by the Wayback Machine.*

Another difficulty one comes across when examining Facebook's history in this manner, is that changes made to other pages than the default page the Wayback Machine has captured and stored - i.e. the underlying pages such as the 'About' page - are not specifically marked. Even though the Wayback Machine states that an asterisk "denotes when *site* was updated (my emphasis)" it seems as though this only applies to the front-page. Conversely, the absence of an asterisk does not necessarily mean that no changes have been made to the underlying pages. To illustrate: a search for thefacebook.com on July 1, 2007 has two general topics on the 'About' page. The first is 'About Facebook' and the second is 'Latest from the Facebook Blog'. From July 1 on there are no new asterisks' denoted until March 7, 2008, which suggests no changes have been made. However, when one links through to the 'About' page on December 28, 2007, there clearly have been some changes; the section 'Latest from the Facebook Blog' now shows a new blog: 'PHPEmbed' instead of 'Facebook Messaging just got better'. Also, the latter blog post (found on the 'About page of July 1) is dated August 20. Reference librarian Greg Notess (2002) has a possible explanation for this non-match: "[...] all the links on an archived page point not to the original linked location, but to other pages in the Internet Archive. [...] Find an archived page from 1997, click on any of the links on that page, and the Wayback Machine will take you to the closest (in terms of date) archive

of the page available. In this way, a user can browse a Web site as it appeared within a certain time period.” Indeed, the Wayback Machine is not always accurate to the exact day; instead it aims to be accurate to a time period. This is also confirmed when looking up the ‘About’ page for the dates January 12, 2007 at thefacebook.com and January 17, 2007 at facebook.com. Although the dates are five days apart and the pages from the days in between (i.e. January 13, 14, 15 and 16 for facebook.com; for thefacebook.com nothing was archived in between January 12 and 17) are all marked by asterisks’, both tabs on the front-page link through to the exact same ‘About’ page. This brings up the question how ‘reliable’ the Wayback Machine is, especially with regard to the underlying pages. Associate professor Niels Brügger (2008) claims we must make relative comparisons based on an analysis of the differences and similarities between the existing copies, if several archived copies of a Website exist from the same date, but are likely to be different from each other. Assertion should have a factor of probability. As he writes: “Therefore, if we intend to say something about how a given Website looked at a given time on the Web – and if we want to do so on the basis of one or more archived websites – we cannot determine this with certainty, but only with various degrees of probability.” But even though the Wayback Machine cannot be properly used to examine a Website’s history by the exact date, it can be used to get a sense of the overall evolution of the site. Some of the questions that are posed using this methodology are: What is the relationship between software and the SNS user? What influence does the software have on the user? And, how does the software shape social networking sites? As mentioned, Facebook has endured much commentary over the years. Most complaints involved privacy issues such as a ‘Big Brother feel’ via News Feed. Others were about the changes in the Terms of Service.

An examination of Facebook’s historical ‘FAQ’ and ‘Help’ pages shows that a digital lock-in of the user is being pursued by the SNS itself, meaning that the software creates incentives to build – rather than to unbuild - a user’s network. This might seem logical, since building social networks is Facebook’s livelihood, but Facebook has taken this quite literally by ‘hiding’ the option (or at least making it difficult to locate) for deactivating an account within the site. Up until October 31, 2005, the only way for users to even find anything about how to deactivate their account was to log in, go to the ‘Settings’ tab and opt ‘Deactivate Account’. Thereafter, the ‘FAQ’ page was replaced by the ‘Help’ page (the Frequently Asked Questions were now a part of the ‘Help’ page), which has a tab ‘Deactivation’. Needless to say, one would still need to log in before deactivation could take place (illustration 7), but at least now there was more clarity on where and how to take this action when requested.

## Deactivation

### How do I deactivate my account?

You want to leave Facebook? Why? How else are you going to spend your time? Well, if you really want to leave you can deactivate your account from the "My Account" page.

*Illustration 7: Information on 'Deactivation' as featured on the 'Help' page. Still, the site provides little information about (the consequences of) the action.*

Oddly enough, Facebook changed the visibility of this option again on May 10, 2007.<sup>30</sup> Now, users must click through to 'Account Settings' on the 'Help' page in order to find an answer to the question 'How do I deactivate my account?' Currently, one needs to click through to 'Privacy' on the 'Help' page (the tab 'Account Settings' has disappeared from the page) to see the link 'Deactivation and deletion.' The latter is a new feature recently added by the Facebook team. Deactivation is no longer the only option; accounts can now also be deleted.<sup>31</sup> Even though the options for deactivating or deleting an account are just a few clicks away, the information regarding this topic as provided by Facebook is arguably both scarce and hard to find. By researching Facebook's history of software changes with the aid of the Internet Archive's Wayback Machine it becomes clear that in an evolutionary sense, Facebook has not much progressed when it comes to providing a stable and clear interface.

### 3.3.1 Other Types of Reconstructive Research

Brügger (2008) suggests that writing the history of a Website involves many sources and methods. In this case, with a reconstruction of Facebook's archived pages, this is also true. Using the Wayback Machine may be enlightening and provide new results, but other methods should be employed in addition, in order to create a more complete overview. For this purpose, the next section briefly discusses several approaches for Web research with archiving in particular. It also looks at press coverage as a means to reconstruct: it links Facebook's software changes to controversy (in particular) and subsequent published articles for nytimes.com.

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<sup>30</sup> Or at least somewhere in the time-period of April 6 to May 10, 2007 (there are no pages stored in between). May 10, 2007 is the date belonging to the first stored page in the Wayback Machine that shows these changes when searching for thefacebook.com. The same changes are first visible with a search for facebook.com on June 1, 2007. The Wayback Machine does not synchronically archive for these URL's even though they both link to the same Website.

<sup>31</sup> Via: <[http://www.facebook.com/help/contact.php?show\\_form=delete\\_account](http://www.facebook.com/help/contact.php?show_form=delete_account)>

According to scholars Schneider and Foot (2004) three sets of approaches have been employed in Web-related research over the last decade: (1) discursive or rhetorical analyses of Websites, (2) structural/feature analyses, (3) socio-cultural analyses of the Web. Especially the second set of approaches – structural/feature analyses – is interesting with regard to this research, for it focuses on the “structure of the site, such as the number of pages, hierarchical ordering of pages, or on the features found on the pages within the site, for instance, the presence of a search engine, privacy policy, or multiple navigation options.” Using the Wayback Machine could be seen as a tool belonging to this particular set of approaches: a Web-based tool for Web-based research. Schneider and Foot also stress the permanence of the Web: “The ephemerality of the Web requires that pro-active steps be taken in order to allow a recreation of Web experience for future analyses. The permanence of the Web makes this eminently possible. Although saving Web sites is not as easy as, say, saving editions of a magazine, archiving techniques are evolving in such a way as to facilitate scholarly research of Web sites. In distinction from other ephemeral media, the Web can be preserved in nearly the same form as it was originally ‘performed’, and analyzed at a later time. Web archiving enables more rigorous and verifiable research, as well as developmental analyses that are time sensitive.” Indeed, the Wayback Machine’s initial goal is to store pages as they were originally performed.

“Website history can be considered an emerging discipline at the intersection between media history and Internet history. In this discipline, the individual website is regarded as the unifying entity of the historical analysis rather than the Internet or the Web”, thus begins the introduction of Brügger’s (2008) publication on archived Websites. The archiving of a Website differs from the archiving of other media. Brügger argues that despite the execution of Website archiving (whether it is done by means of harvesting, capturing and filming or delivery) it is always a reconstruction based on bits and pieces that stem from the Web or the producer of the Website. Collecting and preserving alters a Website that was on the live Web in a number of ways. Archiving therefore creates a unique version of page, not simply a copy. For a complete history, other manners of research should be employed in addition.

Another way of reconstructing the history of software changes for Websites, and Facebook in particular, is by looking at press coverage’s and blogs. Since Facebook’s changes have created much social tension, much has been written about it by users and the media. The New York Times regularly posts articles about Facebook on its online equivalent. The blog Gadgetwise (which is part of the section Personal Tech at nytimes.com) posts daily on personal technology news, and often includes news on Facebook. The Terms of Service

changes in February 2009 immediately led to several blogs posted on nytimes.com reporting about the changes. The articles ‘Facebook’s Users Ask Who Owns Information’ and ‘Facebook Withdraws Changes in Data Use’ link to several related pages such as the page for the Terms of Service and Zuckerberg’s apology, providing the reader with a complete overview of all involved parties. Many of these articles discuss Facebook controversy and (default) settings, or rather: how to change these settings. In particular, the relationship between software and the SNS user is treated. As well as the influence the software has or might have on the user. Some changes in software made by Facebook leave the user exposed. Pictures for instance, can be tagged with ones name and accompanied link to their profile. A nytimes.com blog post entitled “How to Block Facebook Photos of Yourself”<sup>32</sup>, explains how and where a user can change the ‘no-tag’ setting in order to disable others from finding photos that feature him. The article is accompanied by screenshots that show what moves to make step by step, and corroborates with the notion it is difficult to find (and change) settings: “As with many Facebook features, the no-tag setting is easy to use, but hard to find.” Why then, does Facebook not make these settings and their location easier to find? Although there most likely is not one definitive answer, arguably these ‘engineered upheavals’ do shape the SNS in a way that takes control from the user. In this respect, Facebook can be considered as somewhat user-unfriendly, causing social tension not only with their policy, but also by providing an unclear interface.

Overall, the case study discusses several ways of researching Facebook’s software changes over time, and discussed more in-depth the practical conduct of software research by using the Wayback Machine. It becomes clear that this tool is most suitable for reconstructing single site histories than for a complex web of pages such as SNSs. One reason for this is that a record of the history is kept by the SNS itself on the server-side. Because datasets are mostly not made available, one must conduct the research from the client-side, which is much more limited. However, as this research shows the Wayback Machine can still be used as a very useful methodological tool for this type of research, just in a different way. By exploring the development of specific pages software changes and their subsequent implications can still be documented. This research illustrates why Facebook is often the centre of negative

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<sup>32</sup> Boutin, Paul. “How to Block Facebook Photos of Yourself.” The New York Times Website. Published May 5, 2009. <<http://gadgetwise.blogs.nytimes.com/2009/05/05/how-to-block-facebook-photos-of-yourself/?emc=eta1>> (accessed June 17, 2009).

attention: the changes in software follow each other quickly and are made mostly without the awareness of the user. Options change name, sections merge (like the FAQ's that became a part of the Help page) or disappear and settings relocate. Not knowing where to go when one wants to deactivate an account can be frustrating for some users. It quite simply means that until they receive an answer (either from Facebook, acquaintances, articles from the nytimes.com, or via an Internet search) to the question how they can deactivate or delete their profile, it still exists. It is in this sense that control is taken away from the user because of cumbersome programming. Facebook's incentive is to build a user's network. But in doing so, the digital lock-in that is created seems rather rigid. The SNS has control not only over the server-side, but over a big part of the client-side as well.

## 4. Software Shapes the User

In his attempt to understand software as culture, Matthew Fuller asks the question what it would mean to have a fully-fledged software criticism. According to him, we must first look at what already exists in terms of scholarship (similarly, chapter 2 of this thesis also examines previous scholarship, which subsequently led to the establishment of a void in software research). He points to examples of prior art, within the field of sociology - such as the works of Jeannette Hofmann, Paul N. Edwards and Friedrich Kittler - and asserts that “there are three areas in particular which seem to offer elements recomposable into a more thoroughgoing strand of thought about and with software”, these being: human-computer interface, programmers’ self-accounts and critical theory (Fuller, 2003).

### 4.1 Freedom versus Limitations

Much of human-computer interface’s rhetoric is about empowerment and the sovereignty of the user. According to Fuller “it should be asked what model of a persona, what ‘human’, is engineered by HCI” (Ibidem). This question is somewhat similar to the one posed here, namely: What is the relationship between software and the SNS user? In this context, Fuller’s question could be rephrased to: What model of a persona within SNSs, what ‘human’, is engineered by software? How does the user interact with the software and what is the subsequent outcome? Also, since there is a parallel drawn between human-computer interface and software, it is important to ask how much of software is actually about empowerment and the sovereignty of the user? We have seen that SNS software conflates both a certain kind of freedom and rigidity. There is a symbiosis between how the user wants to present himself online and how the SNS lets him present himself.

Arguably, the SNS is more in control of the user’s content than the user himself. It is the software that ‘determines’ whether or not certain information can be placed on a profile. Pictures for instance, must be of a certain image format. Most profile sites also have the option to ‘flag’ a picture as inappropriate, making it easier for the site’s team to find and remove them. The user cannot erase predefined questions such as name, age and interests.

Even though he might choose not to fill in some of them, usually the headings (usually basic information such as name or age) still remain.<sup>33</sup> This rigidity might suggest that the sovereignty is in the hands of the SNS itself, although many users are believed to be in (full) control themselves. Empowerment and sovereignty are interesting notions with regard to SNSs. The above description of the power (or rigidity) of SNSs might make it seem as though the user has no say in what happens within the site, but this is not entirely so. Users are able to form a powerful union when they disagree with certain (software) changes. The Facebook privacy matter as described in chapter 2 shows that SNSs do listen to their members and are willing to reverse whatever changes have been made, in order to keep them content. As mentioned, creating social spaces and connecting people online is their livelihood; having disgruntled users is never good for business.

Limitations are unavoidable. Life itself knows plenty of them. And similar to life are software limitations a natural part of this data package. Fuller writes: “Software is a place where many energies and formations meet. At the same time, it constantly slaps up against its limitations, but these are limitations of its own making, formulated by its own terms of composition” (Ibidem). Fuller seems to suggest that limitations are inherent to software, but they are not always beyond the software’s control. Drawing an analogy between SNSs and software; they seem to create their own restrictions, both intentionally and unintentionally. In this sense, unintentional limitations are the basic limitations that are inherent to the software and ‘life itself’. The intentional limitations are purposely built in restrictions, creating the digital walls around the networking site and regulating the structure of the profile (such as the headings and questions that must be filled in and the abundance of certain file formats). Of course it is evident that SNSs want and need to implement intentional restrictions. Without restrictions, social networking sites would be wall-less gardens; thus defeating the purpose. The idea of SNSs is that they create an individual place online where one can keep personal information and share it with friends. Without restrictions, a friend list is hard (if not impossible) to set up. Profiles would all be completely different, follow different protocols and there would be no structure. Without at least basic limitations, SNSs would have no beginning or end.

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<sup>33</sup> Although sometimes a question does not show up on the profile when it is not filled in. The Dutch SNS Hyves for instance, does not show the headings ‘age’ (leeftijd) or ‘birthday’ (‘verjaardag’) if they are not filled in. Yet, the heading ‘spots’ (‘spots’) remains on the profile even if nothing is filled in. The heading ‘living situation’ (‘woonsituatie’) must be filled in. This can only be done with predefined answers, although the user is able to choose ‘no answer’ (‘geen antwoord’), in which case the profile reads: ‘living situation: no answer’ (‘woonsituatie: geen antwoord’) instead of not showing the heading at all.

Both the user's input and the form of the SNS itself control the extent to which a persona is created within SNSs. The user is free to fill in what he wants – or leave open what he does not want to be filled in – as long as he abides by the rules of the SNS. Since, certain fields must be filled in, in order to establish an account, the only freedom for the user when it comes to intentional limitations lies in his decision not to participate or to be dishonest (e.g. if a user does not want to fill in his real name, he can list a fake one. However, when the profile is created in order to connect with real-life friends this is a questionable move to make). The creation of an online persona therefore is not just a reflection of one's actual being; it is the outcome of a number of conscious decisions in combination with a predefined set of both intentional and unintentional limitations.

#### **4.2 Public versus Private**

As discussed, SNSs create digital lock-ins; this in turn is highly connected to the publicness (or privateness) of an account. When looking back at the conducted software research using the Wayback Machine (chapter 3), we see Facebook's software changes over time do not necessarily support user-friendliness (although it is still possible that this is unintentional, due to unintentional limitations). danah boyd expresses her grievances with Facebook in the blog post "Confused by Facebook"<sup>34</sup>, in which she states she is confused about the way Facebook is 'fetishized' by the tech industry. In particular, her commentary is directed against the presumed privateness and safety of the SNS: "I'm utterly fascinated by how people talk about Facebook as being more private, more secure than MySpace. By default, people's FB profiles are only available to their network. Join a City network and your profile is far more open than you realize. Accept the default search listings and you're findable on Google. The default is far beyond friends-only and locking a FB profile down to friends-only takes dozens of clicks in numerous different locations. Plus, you never can really tell because if you join a new network, everything is by-default open to that network (including your IM and phone number). To make matters weirder, if you install an App, you give the creator access to all of your profile data (no one reads those checkboxes anyhow). Most people never touch the defaults, meaning that they are far more exposed on Facebook than they realize. zrven (sic) a college network is not that secure. MySpace on the other hand is rather simple: public or friends-only. Friends-only is far more secure than the defaults on Facebook. And public is

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<sup>34</sup> boyd, danah. "Confused by Facebook." Personal blog 'Apopenia'. Published September 6, 2007. <[http://www.zephoros.org/thoughts/archives/2007/09/06/confused\\_by\\_fac.html](http://www.zephoros.org/thoughts/archives/2007/09/06/confused_by_fac.html)> (accessed June 17, 2009).

well-understood to mean anyone could access it (and often this is the goal). But I know all too well that privacy has nothing to do with reality - it's all about perception. And Facebook 'feels' more secure than MySpace, even if it's not. Still, I can't wait to see how a generation of college students feel (sic) about their FB profile appearing at the top of Google searches. That outta (sic) make them feel good about socializing there. Not." boyd illustrates an interesting point here; she builds upon the discussion of public profiles versus private profiles and subsequently unmasks Facebook as a place far from private by default, which corroborates with the previously set assumptions regarding Facebook's user-friendliness. Although this concerns more SNSs than just Facebook, issues like these raise the question how 'private' private really is? Arguably, these private profiles are not so much private but rather semi-public. As boyd asserts: "It's all about perception" (Ibidem). Even when one attempts to view an account but is restricted to view the entire profile - because it is set to private or friends-only - certain information is still accessible. With Facebook, the default photo (if one is set), name, a listing of friends (including default photos), and sometimes groups (such as music, TV shows, products, non-profits, Websites and so on) are shown when searching for a non-friend. With MySpace, attempting to view a private profile also shows the profile photo, (user)name, last login, and sometimes, gender, age, hometown, country, mood and a headline. The so-called 'walled gardens' that surround these SNSs may give the user the impression that a profile is private, safe and well protected; that they "are what allow us to construct a notion of 'private' and, even more importantly, contextualized publics."<sup>35</sup> The actual 'walledness' of these walled gardens is arguable however. As boyd points out, for a long time much of a user's participation within walled garden environments did not leave any trace. With search engines and more advanced options such as cache, it is increasingly difficult to protect (sensitive) information from becoming public and widely accessible. She therefore raises the question if we can really call these sites walled gardens when the walls are see-through. With the concept of walled gardens it should be noted that the walls are often not one's own creation, instead these walls are put up by others (which for this purpose are called proprietary walls). In this respect, privacy falls into the hands of the proprietor, and they are expected (and often believed) not to misuse this trust. Arguably, it is not the walls that are inherently good or bad; it is the way these walls are put to use, ideally protecting the content within and enabling freedom and democracy (or something like it, as Chun would say).

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<sup>35</sup> boyd, danah. "About those walled gardens." Personal blog 'Apophenia'. Published February 5, 2007. <[http://www.zephoros.org/thoughts/archives/2007/02/05/about\\_those\\_wal.html](http://www.zephoros.org/thoughts/archives/2007/02/05/about_those_wal.html)> (accessed June 18, 2009).

Software in general and software changes in particular prove to have great influence (whether positive or negative) on the user, for it is the software that essentially constitutes the digital walls around the space in which the user profiles himself. Software plays an important role in our current society. Manovich asserts that “in the end of the 20th century humans have added a fundamentally new dimension to their culture. This dimension is software in general, and application software for creating and accessing content in particular” (Manovich, 2008: p. 14). Even though social media and the Web 2.0 revolution simplified working with software, programming is still at the core. And at the core of programming there are numbers. Coming back to Fuller’s areas of recomposable thought about and with software; the area of programmer’s self-accounts might offer insight in the understanding of software as culture. According to Fuller (2003) the vision of numbers “are harmonious relations between forms of every kind that can be understood through the relations between numbers. The closer they are to achieving purity of form the more beautiful they become. There is an end point to this passage to beauty which is absolute beauty.” Indeed, Fuller addresses the nature of programming here and the end point he refers to is computing in accounts. He continues: “Numbers do not provide big answers, but opportunities to explore further manifold and synthetic possibilities - that is to say, that they provide access to more figures.” This is an interesting way of thinking about software. It also reflects the way most SNSs work. It might even explain the never-ending stream of software changes; programmers are constantly trying to create better, faster and smoother applications. Despite software’s importance, its cultural implications are not always as obvious and even seem to be paradoxical; social software allows a user to build a personal place on the Web, exposing their thoughts, feelings and ideas. Conversely, digital walls are either not protective enough or become barriers; leaving the user exposed. This way a disconnect can occur between what a user wants and needs, and the actual portrayal. It also goes deeper into the walled garden issue and the public versus private debate.

### **4.3 Comparing Research**

How does the research applied in this thesis compare to the research methods discussed in chapter 2? It does not refute any of them, for they all serve a respectable purpose in several fields of study. They have proven to be useful research questions, tools and methods that have provided some clear results. It does however also establish the idea that neither one of these approaches can be used to conduct a more profound way of software research. This type of research asks for both theoretical knowledge and practical execution. Ethnographic research,

such as danah boyd conducts, is too involved with the outcome of user profiles and the implications on the user (in her case mostly American teenagers). And while the study of post-demographics does treat software changes by looking at ‘stretched limitations’ in default settings, it is still more interested in user-generated outcome, such as interests and favorites. It is argued here that the input (or that what constructs a profile) should be at least of equal importance as the outcome. Only then is it possible to fully understand user-generated outcomes and their implications. This idea is essentially grounded in the field of software studies. In particular, chapter 3 of this thesis, explores central features of SNS software in a similar fashion to how this is done in the Software Studies’ lexicon. It also includes an attempt to practically conduct software research, using the Internet Archive’s Wayback Machine. The ideas on software research need to develop further and new ways of thinking must be stimulated in order to make the field a more prominent representative.

## 5. Conclusion

Over the last couple of years social networking sites have become increasingly important media, both for communication and self-expression. SNSs are and have been widely researched in many different academic fields, such as sociology, communications and cultural studies. Much of the research conducted however, focuses on the outcome of a user's profile. It is argued in this thesis that the input of a social networking site – or that which constructs a profile: the software – should be studied more thoroughly. For it is the software that creates the digital walls in which the user constructs his online persona. For a complete and representational idea about the use of SNSs, and the outcomes generated, we must look at both the input and the output. Another frame of thought employed here is that a user shapes the self within SNSs, but is also shaped by the software. Shaping and being shaped is therefore a conflation; in academic research both should be considered, for one cannot (and as is argued here: should not) go without the other.

Chapter 1 of this thesis provides a general definition and overview of social networking sites. They are remarkable media, different from many other Websites, because the focus is not so much on the outside, but rather on the inside. This is where the user is able to shape himself, interacts with others, makes changes to his profile. It is also the most important place (or space) for developers to work on. The homepage of the SNS serves a functional role; it provides general information and a place for users to log in. But the (user) backend, the inside of the SNS, is where it all happens: this is where the software plays the biggest part.

In line with Matthew Fuller's notion about existing research, this thesis also looks at previous scholarship. Chapter 2 provides an overview of some important studies conducted with SNSs as a main object. The work of danah boyd and others has been influential and gave much sociological insight as to why and how SNSs are used. In addition, this chapter not only looks at methodologies and approaches, but also highlights some of the features, characteristics and additional uses of SNSs. By the end of the chapter it becomes clear that much of the discussed research does not include questions of software. Which leaves room to discuss the importance of (the study of) software in the next chapter.

By examining the technical side more thoroughly, chapter 3 asks the question how software should be studied. The 'soft power' of SNSs is discussed in a way that explains why users engage in online networks. Similar to Galloway and Manovich's ideas on logic of

selection and continuity, users seem to take rigidity for granted in the need for participation. SNSs form a warm and friendly environment, but users must abide by certain rules to establish a connection. Interface and database are discussed as important parts of the software. The interface is the layer that, in a sense, is in the user's control; he is able to change settings and manipulate the system. The database stores all data and is out of the user's reach. There has been a shift in the way they are put to use. Although there can be no user intervention within the database, they do create user freedom in the sense that there is more room for self-expression. APIs and third-party developers paradoxically seem to strengthen the proprietary services of SNSs and turn them more and more into operating systems.

The Internet Archive's Wayback Machine is used in an attempt to conduct practical software research and reconstructs Facebook's history in software changes. Although the Wayback Machine is mostly used in the reconstruction of single site histories, it can be used for the reconstruction of SNSs. This is a challenging operation because the backend of SNSs are not stored. One is not able to log in and view software changes from the inside, even though the Wayback Machine does store internal links between pages. For this purpose, a different way of using the Wayback Machine has been employed; it reconstructs the 'About' and 'FAQ' or 'Help' pages in a manner similar to DMI's Google's directory project. This way the evolution of the pages is captured and reveals the influence certain changes might have on the user. It shows that the deactivation setting for instance, often changes location, as do some other settings. Many of these changes happen unannounced, ultimately providing an unclear user interface. In this sense, it becomes clear how the software shapes the user. A digital lock-in is created, in which the user has some freedom, but not much. The Wayback Machine is not the only way to conduct historical or reconstructive research. The archived Website is one way of reconstructing the history of a Website; in addition other research should be employed as well. Especially when it comes to Facebook, news coverage is one way of doing this. Because many software decisions Facebook has made caused so much commentary, much has been written about it. The New York Times dedicates a section on their Website to blogs and articles about Facebook, which also establishes the unclearness of the SNS. It can be concluded therefore that Facebook takes away control from the user.

The last chapter looks at the influence that software has or might have on the user and essentially tries to answer the question how software shapes the SNS user. Freedom and limitations within SNSs are discussed and the debate about public and private profiles reveals software's paradoxical nature. On the one hand walled gardens can be rigid, taking away freedom from the user. On the other hand, development supported by SNSs – such as making

available APIs and encouraging third-party developers to use them – crumble down the walls and expose the user.

The type of research employed in this thesis is a mixture of theoretical and practical software research. This thesis attempts to answer several issues concerning software and its relation to the user. Software is important not only because it is “the invisible glue that ties it all together”, but also because it directly influences the user and his online representation. Once we explore what is at the core of SNSs – the very essence of its construction - researching the outcomes might become more all encompassing.

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