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Social Connectedness on Facebook – An  
Explorative Study on Status Message  
Usage

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# **Social Connectedness on Facebook – An Explorative Study on Status Message Usage**

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## **ABSTRACT**

With over 400 million active users Facebook is undeniably a large social phenomenon and one of the largest social networks on the Internet. Together with Facebook a variety of novel communication styles have developed, dramatically influencing social interaction. The underlying paper reports the results of a survey (N=109) analyzing Facebook's micro-blogging function available through users' status updates. Our results suggest that the use of status update messaging generates a feeling of connectedness between users. Furthermore, non-parametric analyses distinguishing between low- and high-connected groups have been performed and experimentally confirmed the existence of distinct user profiles as a function of the variable "feeling connected". The analyses revealed that the more individuals use their status message function to actively reveal information about themselves, the more connected they feel. Connectedness seems the result of active information sharing modulated by the amount of information shared rather than by the type of information an individual is sharing.

## **Keywords**

Facebook, connectedness, social network, twitter, status update messages, quantitative study and survey.

## **INTRODUCTION**

In recent years, advances in Internet technologies led to the implementation of functions generating a participative human-centric virtual environment. These environments enable social interactions in large-scale online populations bundled in social networking platforms. The first conceptualized description of such platforms is found in the computer-based educational tool Plato introduced at the University of Illinois in the 1960s (Gross, Acquisti and Heinz, 2005). Despite increased diversification, social networking platforms share a common set of functionalities like individual profiles providing, i.e. biographical and photographic information, displaying the social network structure of confirmed friendships and messaging. Therefore, established social networking platforms allow its users to generate, share and combine information and therefore virtually address human needs like self-representation, communication and curiosity (Bilandzic, Filonik, Gross, Hackel, Mangesius and Krcmar, 2009). Ellison, Steinfeld and Lampe (2007) report that usage of social networking platforms results in psychological well being and generate benefits for users with low self esteem and life satisfaction. Similar findings are reported by Leimeister et al. (Leimeister, Ebner and Krcmar, 2005; Leimeister, Sidiras and Krcmar, 2006; Leimeister, Schweizer, Leimeister and Krcmar, 2008) in the field of virtual communities as a special type of social networking platform. According to Gross et al. (2005), high adoption rates and colossal increase in user participation led to an increased diversification and sophistication of purposes across multiple different contextual social networking platforms. Nevertheless, literature also suggests that social networking platform usage might result in the elimination of real interaction and leads to friend inflation (Milov, 2004).

Parallel to the evolution of social networking platforms, a novel asynchronous communication style evolved: a form of blogging (as implemented in weblog platforms) limiting users to less than 200 characters in message creation, which is

referred to as *micro-blogging*. The created short messages (feeds) are distributed through various communication channels (e.g. the web-frontend of the blogging platform itself, email, instant messaging and/or mobile phones) within a network of friends or unrelated platform peers. Messages serve as ad-hoc status reports with regards to a user's current emotional and situational state. In the latest versions of social networking platforms and tools facilitating micro-blogging boundaries increasingly blur: social networking platforms increasingly implement micro-blogging functionalities and vice versa. Google Buzz, recently introduced, is taking it a step further: it offers integration of status messages from various platforms like YouTube, Google Chat, Flickr, Twitter or Picasa.

### **Motivation**

We were inspired and fascinated by Thompson's article on "How Twitter Creates a Social Sixth Sense" (Thomson, 2007) which led us to conduct the underlying research. Thompson hypothesizes that a "social sixth sense", or in other words *connectedness*, in Twitter users evolves by *following* third parties' micro-blogged messages. Connectedness might create a "shared understanding" and hereby change human interaction (Thomson, 2007) assuming that messages are passed within a social network of peers and friends who serve as creators and followers. In contrast, the screening of messages generated by unknown persons is not assumed to induce the effect.

For an in-depth, empirical investigation of the phenomenological entity of "connectedness", we chose Facebook's micro-blogging function, incorporating both, the social network aspect as well as the friend based rather than information based approach. With over 400 million active users (w/o author, 2010a), Facebook is one of the largest social networking platforms. Facebook implements an asynchronous messaging functionality (status update messages) to its users which follows the micro-blogging paradigm. This exploratory research aims at analyzing the usage of Facebook's micro-blogging function and its ability to stimulate a feeling of connectedness between its users.

The remainder of this paper is organized as follows: First, we describe the Facebook platform and its micro-blogging functionalities followed by a review of theoretical background on connectedness. We then present a review of current research on micro-blogging, instant messaging and related communication channels along with a number of studies that have explored the influence of status messages in other communication media. Following a description of the chosen methodology and data collection we present our survey findings and analysis. The paper concludes with a discussion on the findings, limitations and future research.

### **Facebook Status Updates**

Facebook started as a college oriented social networking platform in 2004 and was founded by the Harvard undergraduate student Mark Zuckerberg (w/o author, 2010b). According to Gross et al. (2005) "college-oriented social networking sites provide opportunities to combine online and face-to-face interactions within an ostensibly bounded domain" which might be a reason for the exponential growth of these particular social networking sites. In recent years, Facebook lifted the limitation on US-based college affiliation and opened itself to an international audience. By opening the Facebook API to a developer base the platform stimulates the development of Facebook specific applications and data exchange with other online services.

The platform integrates social networking applications providing the user with a variety of functions that facilitate sharing user-generated content (embedding pictures or videos), commenting on the content and profiles of other users (pin-boards), communicating with other users (text-based messaging, chatting and status updates) and establishing networks of friends. *Status updates* within the Facebook platform follow the micro-blogging paradigm, comparable to entries posted through the Twitter platform, enabling users to post ad-hoc status reports on emotional and situational states.

### **Theoretical Importance of Connectedness**

Social psychology recognizes the need for connectedness of human beings (Smith and Mackie, 2007; Adler and Kwon, 2002) where the pursuit of connectedness represents one of the basic motivational principles that underlie social behavior (Smith and Mackie, 2007). Connectedness can be described as the feeling of belonging to a social group and implies the creation of bonding relationships. The concept of "connectedness" can be defined as "a positive emotional appraisal which is characterized by a feeling of staying in touch within ongoing social relationships" (van Baren et al., 2002). Connectedness is related to concepts of "social presence" and "awareness" which have also been studied in previous research (Rettie, 2003). Discussing the concepts of "connectedness" and its relationship with "social presence" and "awareness", Rettie argues that "connectedness" is a more fundamental concept than the other two and embodies a key concept in the analysis of communication and the development of communication technology (Rettie, 2003). The difference between connectedness and social presence can best be illustrated referring to instant messaging communication, as the awareness that peer users are online in the instant messaging network conveys connectedness even when there is no message exchange.

Taking Thompson's article as our initial motivation and considering the vast influence the Internet has on our communication today we deem it fruitful to explore the concept of connectedness in the context of modern Internet usage. This research is aimed at understanding if asynchronous communications are related to connectedness and if so, how the feeling of connectedness is evoked. Hence, our research question can be formulated as: *What is it in the status messages that makes us feel connected?* The notion of community is at the heart of the Internet (Armstrong and Hagel, 1996). Furthermore, Stafford, Stafford and Schkade (2004) found evidence for social gratifications arising from Internet usage which they suggest is important to explore. In general, there are important social as well as commercial aspects to consider in an Internet media model (Armstrong and Hagel, 1996). For example, understanding of Internet usage has great relevance in the commercial model of online business in addition to advancing theoretical development (Stafford, Stafford and Schkade, 2004). The psychological need for connectedness could therefore explain the popularity of social networks such as Facebook.

#### **RELATED WORK ON MICRO-BLOGGING AND INSTANT MESSAGING USAGE**

Up until now only very little is known about introductorily described socio-technical developments and scientific research investigating the novel phenomena of computerized social networking and micro-blogging in large-scale human populations is just emerging. Therefore, we do not focus on studies that include the analysis of network structures (Ellison et al., 2007; Boyd and Ellison, 2008), the use of social networking platforms in political election (Williams and Gulati, 2007) or marketing campaigns nor articles related to privacy (Ellison et al., 2007). Since the aim of the underlying research is to primarily gain an understanding of how the use of new means of communication (micro-blogging) influences and changes human interaction and behavior, we included research studies focusing on information sharing in large-scale online platforms (e.g. Facebook) by asynchronous communication tools in our literature review.

Gross et al. (2005) described the diffusion of a novel type of intimacy in social networking platforms, i.e. the sharing of private and personal information online with a population of friends and/or sometimes even unknown individuals. More detailed findings are presented and discussed in literature (Leimeister et al., 2005; Leimeister et al., 2008). Gross et al. also found that social networking platforms can advocate a meaningful interaction of individuals with others "while the ability of others to access the person is significantly enlarged" (Gross et al., 2005).

Nardi and Bradner (2000) conducted a survey among bloggers (which we understand as individuals who maintain electronic journals for the underlying paper) to explore different motivations for the adoption and usage of this novel communication style. The results state that primary motivation derives from sharing daily experience, opinions and commentary. Similar findings are reported by Java et al. (2007) who tried to segment users by their information sharing and following characteristics on a popular micro-blogging platform. In their results, an "information seeker", for example, is an individual who follows postings by other users on a regular basis but does not post personal information in frequent time intervals. The largest identified group according to information sharing and following patterns are "daily chatters" who post messages reporting on daily routines and current activities. The empirical data revealed that about 13% of all posted messages included an URL (Java et al., 2007). Going beyond the study by Java et al. who tried to bring an initial structure to the type of messages posted the underlying research tries to analyze in more detail how specific message types influence the feeling of connectedness. In a study on instant messaging usage, Nardi and Bradner (2000) found that buddy list information raised awareness of availability of individuals in the peer network and "therefore provides plausible deniability about one's presence" (Nardi and Bradner, 2000). Additionally, the scholars assume that monitoring this information is "creating and maintaining a sense of social connection to others." Contrary to the study by Nardi and Bradner who analyzed awareness raised through the buddy list, this research tries to analyze the impact of individual posts on the feeling of connectedness. Literature also reveals studies on "social capital" which is defined in multiple varieties and applied in different fields (Adler and Kwon, 2002). Bourdieu and Wacquant (1992) define social capital as "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition." A number of studies investigate the causes and effects of social capital (Adler and Kwon, 2002; Putnam, 2000) whereas generally social capital is regarded as a positive effect of interaction among individuals in a (virtual) social network (Helliwell and Putnam, 2004) and therefore of interest for the underlying study.

#### **METHODOLOGY**

In order to explore the status message functionality implemented in the social networking platform Facebook, we created an online questionnaire. While designing the questionnaire, we focused on simplicity and therefore excluded demographical data to boost participation and retrieve entirely completed questionnaire data samples. The questionnaire was distributed through two Facebook profiles using the status message function by posting the survey URL through Facebook's status messaging/micro-blogging function.

| Item # | Questionnaire items  | Operationalized variable | Type of item  | Motivation taken from pre-existing publications                     |
|--------|--|--------------------------|---|---|
| 1      | How often do you update your status on Facebook?   | Usage Status Bar         | Never, rarely (once a month), daily, several times a day            | Thomson, 2007   |
| 2      | What type of status updates do you post?   | Amount of information    | None, links, location-based information, feelings, current activity | Nardi et al., 2000<br>Java et al., 2007<br>Gross et al, 2005        |
| 3      | Do you read status updates by others/your friends?   | Follow Passive           | 5 point Likert  | Thomson, 2007<br>IJsselsteijn, van Baren and van Lanen, 2003        |
| 4      | Do you screen the status messages on the “status updates” site?                                    | Follow Active            | 5 point Likert  | Thomson, 2007<br>IJsselsteijn et al., 2003                          |
| 5      | I feel better connected to my friends through the use of status updates.                           | Feel Connected           | 5 point Likert  | Adler, 2009<br>Smith and Mackie, 2007<br>Helliwell and Putnam, 2004 |
| 6      | Do you comment/write a message on status updates?  | Comments on updates      | Never, rarely (once a month), daily, several times a day            | -   |
| 7      | How often did you meet/schedule a meeting based on status update information in the last 6 months? | Meetings due to updates  | Never, once, 2-5, 6-10, more than 11                                | Helliwell and Putnam, 2004<br>De Souza e Silva, 2006                |
| 8      | Status messages are useful to me because...  |                          | Open (see Appendix for sample comments)                             | -   |

**Table 1. Overview over the survey items**

Table 1 summarizes the survey items used in the questionnaire. We assume that the URL additionally was distributed by other individuals through their own status message updates. The duration of the survey was eight days and resulted in a sample of 109 data sets. One entry has been discarded due to obviously incorrect information. Results presented in the underlying contribution are based on descriptive analysis and non-parametric statistics.

## FINDINGS

### Descriptive Statistics

Through the self-selection of survey participants and the way we distributed the survey, the general usage of the Facebook status message function is very high (Figure 1). Only 12% reported that they never use this functionality on Facebook. The majority of users update their status around once a week. However, a large quantity of users in our sample reported to update their status at least daily (31%). Table 2 shows the descriptive statistics of variables of interest. A detailed list of answers regarding the type of information specified in the status message form is given in Table 3. The list was derived based on the reported findings by Java et al. (2007) on micro-blogging usage. The type of information posted in status update was collected through five tick-boxes allowing multiple selections. The options offered in the check-boxes were “none”, “links”, “location-based information”, “feelings”, and “current activity”.

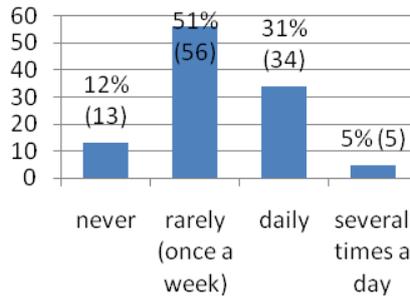


Figure 1 Frequency of Facebook status message function usage

| Variable                | N   | Mean (Range) | Std. Dev. |
|-------------------------|-----|--------------|-----------|
| Usage Status Bar        | 108 | 1.28 (0-3)   | 0.73      |
| Amount of information   | 109 | 2.14 (0-4)   | 1.25      |
| Follow Passive          | 108 | 4.01 (1-5)   | 1.05      |
| Follow Active           | 109 | 2.8 (1-5)    | 1.45      |
| Feel Connected          | 109 | 3.38 (1-5)   | 1.21      |
| Comments on updates     | 109 | 1.44 (0-3)   | 0.74      |
| Meetings due to updates | 109 | 0.81 (0-3)   | 1.00      |

Table 2. Descriptive analysis of survey data

| Variable                       | Frequency | Percent | % low-connected | % high-connected |
|--------------------------------|-----------|---------|-----------------|------------------|
| No information                 | 13        | 11.9    | 17              | 7.1              |
| Links                          | 3         | 2.8     | 5.7             | 0                |
| Location                       | 2         | 1.8     | 1.9             | 1.8              |
| Feelings                       | 7         | 6.4     | 5.7             | 7.1              |
| Activity                       | 9         | 8.3     | 7.5             | 8.9              |
| Links & Locations              | 1         | 0.9     | 0               | 1.8              |
| Links & Feelings               | 2         | 1.8     | 3.8             | 0                |
| Links & Activity               | 3         | 2.8     | 5.7             | 0                |
| Locations & Feelings           | 1         | 0.9     | 1.9             | 0                |
| Location & Activity            | 9         | 8.3     | 9.4             | 7.1              |
| Feelings & Activity            | 15        | 13.8    | 9.4             | 17.9             |
| Links, Locations & Feelings    | 1         | 0.9     | 0               | 1.8              |
| Locations, Feelings & Activity | 21        | 19.3    | 20.8            | 17.9             |
| Links, Feelings & Activity     | 2         | 1.8     | 1.9             | 1.8              |
| Links, Locations & Activity    | 2         | 1.8     | 3.8             | 0                |
| All                            | 18        | 16.5    | 5.7             | 26.8             |

Table 3. General summary of the posted type of information (n= 109) and as a function of low-connected (n= 53) and high-connected group (n=56)

Following the active posting of status messages the survey investigated the reading pattern of Facebook status messages (Table 4). Most users often follow status messages displayed on their profile page. Less users, however, actively visit the “status updates” page (mean 4.01 compared to 2.80) exclusively dedicated to display status message information. It has to be mentioned that after conducting the underlying survey, Facebook changed the skin of users’ profile pages by adopting a status update page as a start page. Thus, the distinction between active and passive following cannot be made any more in the current system. Next, our survey contained two items inquiring about users’ reactions to status messages in virtual and real-life environments. The first item asked if users would comment on status messages or write messages related to status updates. The results show that most users not only passively follow status messages of their friends but do actually react on them by writing comments. The second item asked how often users did meet with others based on status message information in the last six months. Substantially fewer users follow up on status messages with external actions by organizing meetings.

However, approximately 45% of the individuals within our sample have met at least once based on a Facebook status message in the last six months.

| Item  | Mean | Standard deviation |
|---|------|--------------------|
| Read status updates by friends (follow passive)   | 4.01 | 1.04               |
| Read on the "status updates" page (follow active) | 2.80 | 1.45               |

**Table 4. The frequency of reading the friends' status updates was assessed with a 5-point Likert scale (1=never to 5=often)**

| Comment on status updates | Percentage |
|---------------------------|------------|
| Never                     | 7%         |
| Rarely (once a month)     | 49%        |
| Daily                     | 37%        |
| Several times a day       | 7%         |

| Meetings based on status updates | Percentage |
|----------------------------------|------------|
| Never                            | 55%        |
| Once                             | 16%        |
| 2-5 times                        | 23%        |
| 6-10                             | 6%         |

**Table 5. How often do users react on status updates by writing comments or messages?**

**Table 6. How often did users meet within the last six months based on status updates?**

Finally, the last item of the questionnaire was an open question writing out to: "Status messages are useful to me because ...". There were 36 comments submitted for this optional and open question. Interestingly 20 of the 36 comments contain the word "friend" or a synonym like "pal" and 19 comments seem to support the assumption that creating and following of status messages generates a sense of connectedness (Table 9 contains a sample of the comments).

#### Non-Parametric Statistics

First, all variables were subjected to a one sample Kolmogorov-Smirnov test to test the normality of their distribution. For all variables, the test was highly significant, all p-values are below 0.01 (see Table 7). Hence, non-parametric statistics are employed. In our analyses, we were primarily motivated and interested in the question what makes people feel connected. One way to answer this question was to use the variable "feel connected" to build two subgroups in the population: participants that felt less connected (low-connected group, scores 1-3, n= 53) and more connected (high-connected group, scores 4 and 5, n= 56) by using the Facebook status message function. Thus, first inferences about the differences between users how feel more or less connected could be done. Seven two-sample Mann-Whitney-U Tests for independent samples with the grouping variable connected group (low-connected or high-connected) was applied to all variables and showed significant differences between the two groups (see Table 8 and Figure 2). To test whether active usage itself influences the subjective feeling of connectedness, the variables "usage status updates" and "feel connected" were correlated (Kendall's Tau, two-tailed). The analysis showed that a high level in status message function usage is concomitant with a high subjective experience of feeling connected ( $\tau = .246$ ,  $p = .001$ ,  $n = 108$ ).

In a second analysis, the question whether the type or the amount of information revealed by a user played a role in the feeling of being connected was addressed. The two groups, low- and high-connected, post locations, feelings and activities (20.8% and 17.9% respectively, see Table 2). However, the biggest group in the high-connected group posted all types of information, i.e. links, locations, feelings and activities. This was not the case for the low-connected group. Furthermore, 17% of the low-connected users do not post any of these types of information, in contrast to 7% of the high-connected users. However, a statistical analysis was not possible due to small sample sizes in the distinct categories. The patterns of information shared via the status message function points to a quantitative relationship between the feeling of being connected to friends and the extensiveness of information shared. Kendall's correlation analysis confirms this observation,  $\tau = .173$ ,  $p = .027$ ,  $n = 109$ .

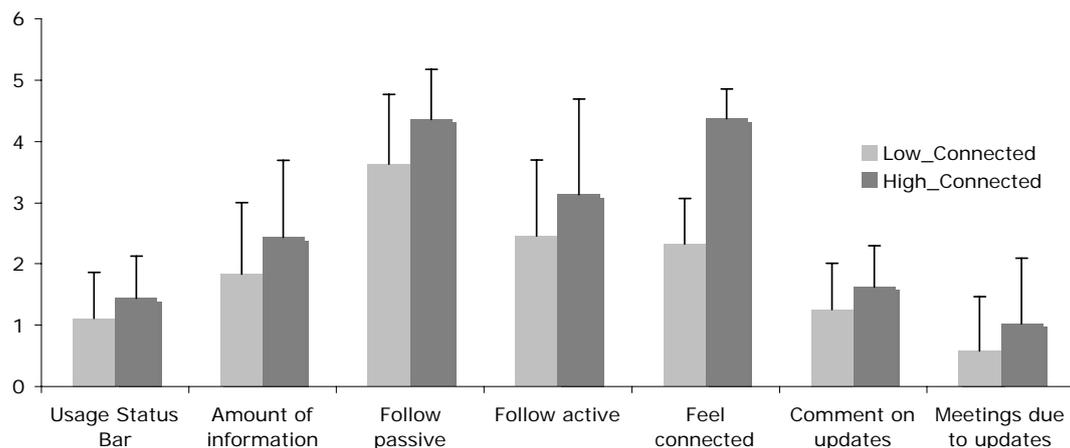
Further correlation analyses demonstrated a significant relationship between the (active and passive) following of status updates and the degree of feeling connected (passive:  $\tau = .400$ ,  $p = .000$ ,  $n = 108$ ; active:  $\tau = .312$ ,  $p = .000$ ,  $n = 109$ ). In the same way, independent of an active or passive usage pattern, reactions - in terms of comments - to other users' updates are linked to the feeling of being connected (passive:  $\tau = .419$ ,  $p = .000$ ;  $n = 108$  and active:  $\tau = .211$ ,  $p = .01$ ,  $n = 109$ ). Reactions to comments of other users and whether users meet outside of the virtual platform also influences the extent of feeling connected ( $\tau = .326$  and  $\tau = .169$ ,  $p < .05$ , respectively). In turn, the occurrence of meetings based on status update information is not related to the frequency of following the status messages, neither for passive screening ( $\tau = .069$ ,  $p = .414$ ,  $n = 108$ ), nor the active screening ( $\tau = .077$ ,  $p = .342$ ,  $n = 109$ ).

| Variable              | Z-score | Significance (2-tailed) |
|-----------------------|---------|-------------------------|
| Usage Status Bar      | 3.072   | p< .000                 |
| Amount of information | 1.654   | p< .01                  |
| Follow Passive        | 2.564   | p< .000                 |
| Follow Active         | 1.749   | p< .01                  |
| Feel Connected        | 2.203   | p< .000                 |

**Table 7. One sample Kolmogorov-Smirnov Test for all variables**

| Variable              | Z-score | Significance (2-tailed) |
|-----------------------|---------|-------------------------|
| Usage Status Bar      | -2.334  | p< .05                  |
| Amount of information | -2.41   | p< .05                  |
| Follow Passive        | -3.438  | p< .01                  |
| Follow Active         | -2.33   | p< .05                  |
| Feel Connected        | -9.274  | p< .000                 |

**Table 8. Mann-Whitney Test for two independent samples (low-connected and high-connected) for all variables**



**Figure 2. Significant differences between the respective group means ( $\pm$  standard deviation) are depicted as a function of group affiliation (low- or high-connected). Significance levels are shown in Table 8.**

## DISCUSSION

The study presented here empirically explored the concept of feeling connected in relationship to common micro-blogging messages as previously used by Facebook. An online questionnaire was filled out by a total of 109 participants. The results indicate that the more individuals use their status message function, the more connected they feel. Analyses considering the patterns of information (type and amount of information) shared via the status message function point towards a quantitative relationship between connectedness and the extensiveness of information shared. The feeling of being connected seems to be related to the amount of messages and not the type of information an individual is sharing among his or her network. This is consistent with earlier findings reporting that the exchange of 'goodnight' text messages creates connectedness although no (content) information is shared (Rettie 2003). Additionally, we documented that the frequency of following status updates (passively or actively) is related to the reactivity to other users' update messages (e.g. commenting on status updates, posting wall messages). The rate of real-life interactions resulting from status messages updates (e.g. the occurrence of meetings based on status update information) is not related to the frequency of following the status messages, neither for the passive screening.

Our findings regarding the type of messages shared are consistent with results reported by Java et al. (2007) on the use of the micro-blogging platform Twitter. The authors described in their work Twitter messages to be mostly "daily chatter" and "talk about daily routine or what people are currently doing" (Java et al., 2007). Java et al. (2007) furthermore reported a major role for URL sharing in Twitter messages; in contrast, the Facebook users in our study only attributed minor importance to this. One explanation might be the dedicated link posting function on the Facebook platform. We assume that the crucial point why respondents of our survey used the status messaging functionality of Facebook is that it represents a casual and non-intrusive form of communication to keep contact with friends, to be up-to-date and to share "routine things." These types of information seem to be valuable when shared within a network of friends or peer individuals especially if individuals do not have the opportunity for personal interaction. We assume micro-blogging to be a viable means of communication that has its strengths in conveying highly personal information allowing for users to share emotions, current activities and to support their psychological need for connectedness. This sharing of information is not only passively consumed but is able to invoke user reactions by writing comments on friends' status update messages (44% of respondents comment at least once a day)

and by provoking real-life social events, e.g. arranging meetings (approximately 40% of users met at least once based on shared status update information in the last six months).

The effects of micro-blogging also have practical implications with regards to the design of new systems allowing and enhancing connectedness. In online learning environments, for example, a sense of community and connectedness may provide the support needed for learners to successfully complete classes or to learn more (Rovai, 2002). In business-related knowledge intensive domains; e.g. global-distributed software engineering, micro-blogging concepts can also be applied to generate a team consciousness based on non-intrusive project related information sharing supporting, e.g. decision making processes. In global distributed software engineering environments, for instance, one crucial aspect of problem solving is information seeking which comprises strategies, e.g. information bridging, Milewski et al., 2007), cognitive processes and behaviors associated with actively acquiring the information required to accomplish some task (Marchionini, 1995; Pirolli and Card, 1999). Information seeking routines can span from formal search, e.g., library sources, to more informal social contact with peers (Milewski, 2007). We propose the implementation of user-generated, e.g. a software engineer formulates a specific problem according to the status message paradigm and posts the message to a commonly used information system, and/or automatically-generated, e.g. the development environment automatically posts a status message including information on the current code snippet, status messages in knowledge-intensive work environments to support individuals in their information-seeking behavior. Hence, to support knowledge intense work routines, we suggest designing information systems including status messages.

As a closing note, Facebook changed the website structure of the profile page during our study so that the new individual Facebook start page is almost identical to the old "status updates" site which now only comprise status messages by connected friends. Additionally, the status message form is more prominently placed on the profile page which no longer displays the "wall" (a kind of public blackboard on which messages could be posted) that used to be a basic component of profile pages. This is interesting in two ways. First, it illustrates the importance and central role of the status message functionality and clearly shifts Facebook to a social network-based micro-blogging platform. Secondly, all users are now active, as status updates are prominently placed on their home. The differentiation between active and passive has thus changed: future research will only have the possibility to investigate quantity and type of information, central variables of this exploratory research.

#### **LIMITATIONS AND FUTURE RESEARCH**

In relation to the study design, we recognize some limitations which, at the same time, can serve as directions for future research. Due to the style of distribution of the questionnaire and data collection within the Facebook platform results cannot necessarily be regarded as representative of other social networking platforms, asynchronous messaging technologies nor the Internet population in general. The questionnaire also missed demographic data collection. Therefore, the impact of demographical effects, i.e., gender, age and cultural factors, could not be considered in our analysis. Our primary goal was a short questionnaire response time to boost the response rate. Additionally, we assumed to achieve a higher responds rate by not asking for demographic data while considering possible privacy issues of individuals.

Future research approaches should consider above stated limitations and latent variables and constructs to build Structural Equation and Partial Least Square models to explain cause and affect chains. Possible constructs and survey items are found in various existing questionnaires, e.g. the Connectedness Questionnaire (IJsselsteijn et al., 2003), the Affective Benefits and Costs in Communication Questionnaire (ABC-Q) (van Baren et al., 2004), the IPO Social Presence Questionnaire (de Greef and IJsselstein, 2001) or the Group Attitude Scale (Evans and Jarvis, 1986) but operating experience is rarely documented in literature. Furthermore, we aim to measure the influence of various parameters of status messages on their effect regarding social connectedness, including principles for the (automated) generation of content and the displaying of status messages. Currently, we are looking for appropriate research methods and constructs to measure possible effects. What is the optimized level of automation for status message generation? A certain level of automation is most likely necessary, in order to make the generation of status messages, e.g. with location information, practical and less of a chore for the users. However, a high level of automation could also make status messages impersonal and thereby limit their influence on social connectedness. The paper also calls for theory building on existing and future findings and research on practical implications in business related knowledge intensive domains (e.g., global-distributed software engineering).

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**APPENDIX**

| <b>Comment</b>   |
|--|
| I can see what friends do, that I don't talk to on a regular basis   |
| They tell me some of the routine things my friends/family members are doing, that I would otherwise miss because I live so far from them       |
| I always know what my friends are doing. It makes it easier to write them an e-mail or phone them and ask about the things they posted         |
| I know how people feel around me.  |
| I know what friends I rarely meet personally are actually doing.   |
| It gives me an immediate sense of what my friends are doing, thinking and feeling.   |
| It is a casual and non-intrusive way to keep in contact with friends and family; in a manner they can opt-in or out of as they feel necessary. |

**Table 9. Sample comments explaining the usefulness of Facebook status updates (spelling mistakes have been corrected)**