# Gender Differences in Usage Motivation for Social Networks at Work

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**Abstract.** In times of demographic change, skill shortage, and disruptive innovations, organizational knowledge and innovative capacity are the key to a company's success. But how can knowledge be retained with fast staff-turnover, global project-based work and parental leaves? Using social networking sites to improve knowledge dissemination at work seems promising, when looking at the success of private social networking sites. In this article we investigate how user diversity influences the motivation to use such a site at work. We conducted a survey in a company that successfully implements social networking for knowledge dissemination (n = 50) and analyzed differences in usage motivation using multiple linear regression analysis. Among other effects, we found that women use such a system because of a stronger need for social interaction and information. From our findings we derive practical implications for designing a social networking site for work.

**Keywords:** Social networking sites · User diversity · Motivation · Knowledge management · Web 2.0 technologies

## 1 Introduction

Globalization processes, rising international competition, and a constantly aging population [1] cause knowledge to be a key resource with indispensable value in any innovation process [2]. As the maintenance, management, and expansion of a companies employees accumulated knowledge is no easy task, a functioning knowledge management becomes important. A well prepared and cared knowledge management tool can not only compensate for staff leaving the company for e.g. parental leave or retirement [3], but provide the essential support for the company's success in the era of digital technology.

The usage of social networking sites (SNS) for business purposes seems to be a promising approach for enhanced connectivity and communication among employees independent from space, time and position [4–6]. Since social media services like Facebook, Twitter and other SNS are part of our daily private lives [7], their implementation as a business support tool spread with amazing


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rapidity [8]. Day-to-day tasks, which previously used to be solved by unsystematic mailing lists and shared servers, are now shifted into social media related technologies. This is particularly important in cases of short-term and project related employment, or for steadily growing companies, which continuously have to integrate new, sometimes inexperienced staff. But even if a company manages to implement a business community, it sometimes generates low user rates and fails to succeed.

But studies concerning usage motives for SNS have been conducted on a merely hypothetical level, which should also be supported by studies in real applications. The approaches do not include local, hands-on investigations, so that answers about prospective usage still remain unclear. Therefore, we need to investigate employee motivation in success stories of already existing companies with a functioning SNS, so that everyone's personal needs and motivation are met.

## 2 Related Work

In order to identify where to start we must determine which factors to investigate first. Research from the field of knowledge management has investigated success of knowledge management systems but implementing these as a social networking site brings new challenges. Here individual motivation seems to play a major role in usage, as the network benefits when all users participate. Therefore one must reach the largest number of users possible. In order to customize a system that it meets all user emotive and motivational requirements, diversity of employees must be regarded.

### 2.1 Social Networks for Knowledge Management

Leonardi et al. [9] were among the first to systematically investigate the advantages of social network systems for knowledge management. They describe SNS as the "leaky pipe", "echo chamber", and "social lubricant". Enterprise social networks allow information to passively leak to a broad set of employees and provide a space to strengthen existing communities of interest. At the same time they provide insights into what others are doing. On the other hand these properties come with problems, such as information leak to outsiders, groupthink of isolated groups, and the illusion of social connection. Still both these advantages and disadvantages are based on the assumption of actual implementation and acceptance.

A study conducted in 2008 reveals that there are differences between use and user motivations in enterprise versus private SNS usage [5]. Even though the usage of social networks in business is becoming standardized, ubiquitous, mobile and less costly [10], the challenge of meeting individual needs remains. Otherwise users might reject yet another platform [11]. From the plethora of possible criterias that influence acceptance and rejection, one must first determine the criteria by which a work-based portal should be evaluated [12,13].

### 2.2 User Diversity and Usage Motivation

Over time many studies about success and motivational factors concerning SNS were conducted. Research has indicated that users would use such a system, if it addresses their need for information, self-portrayal, feedback and social interaction [14].

Findings by Lin and Lu [15] reveal the importance of enjoyment as the most influential factor for continued usage. Right after the fun during usage comes the number of peers, followed by usefulness. In addition, the authors found notable differences concerning motivational factors due to gender. Others state that general diversity factors like gender and age are not of great or even any importance when regarding motives for business community usage [6,14].

Schaar et al. [14] found out that there are correlations of usage motives with technology related diversity factors like social media usage frequency. They claim the need for information and autonomy as the most important motives. But diversity not only influences why a system is used, they also influence how it is used. There are crucial differences in what different users are willing to share on social networking site, depending also on its usage context [16]. Still, the findings from existing literature are not unanimous but rather depend on the specific user group, so that the specifics of user diversity should be investigated further.

### 2.3 Research Question

Often research has investigated usage of social networking sites at work as a proposal for future implementation. But users projections of their own desires and future behavior may differ from reality. Often real-life implementation leads to different conclusions about why users actually use a system and why they reject such a system.

For this reason we wanted to investigate what really drives users to use a social networking site, in contrast to a prospective study [6]. We wanted to conduct a study at a relatively young company that uses a SNS at work to streamline all communication and knowledge management.

Our investigation took place in international, online-operating clothing retailer in Germany founded in 2008. The company with about 110 employees is constantly growing and they implemented *yammer*[1], a social network solution offered by Microsoft, as a central institution for any internal communication and exchange purposes.

Here, we investigate the usage motives reported by users and determine which user factors influence motivation in this real-life scenario. For this purpose we use factors established in earlier research and examine how they interact with four usage motives (see Fig. 1).

[1] https://products.office.com/de-de/yammer/yammer-features.

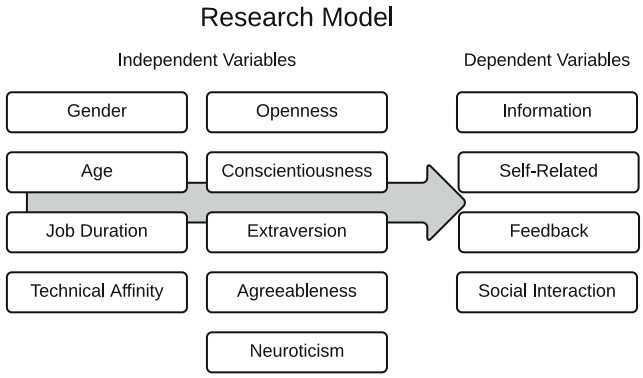


**Fig. 1.** Our case study investigating explanations for differences in usage motivation.

## 3 Method

In order to understand how user diversity and personality influence usage motivation, we conducted a study at a company that uses a social networking site at work. The questionnaire was conducted online, using survey monkey and was sent to all, approx. 110 employees by email. For all participants we assessed their age, gender and how long they have been working at this company (job duration). We measured the usage motivation and technical affinity with 21 items from previous research. As personality measures, we use the BFI-10 inventory to measure big five personality attributes [17]. We used six-point Likert scales and normalized to this scale range for all other cases. We also measured which features of social networks were used how often depending on the usage context (work or private). This usage frequency was measured on a logarithmic scale (i.e. daily, 2–3× per week, every week, 2–3× per month, every month, rarer).

### 3.1 Statistical Procedure

The survey contained items developed from previous research, namely usage motives (see Table 1) and technical affinity (see Table 2). For these we also provide a short summary on their factorial structure and internal reliability (i.e. Cronbach's $\alpha$, see Table 3) from our data-set. We used principal component-analysis with vari-max rotation to identify the factorial structure, but report only factorial load of individual items.

We use $\alpha = .05$ as the level of significance and $\alpha = .01$ as the threshold for highly significant findings. We do not assess power for our statistical tests, so we can not conclude from non-significant findings that no differences exist. Since we assume that our measurements are normally distributed, we used student's t-tests to assess differences of means between groups. In cases were this assumption might have been violated, non-parametric tests were conducted. Since parametric

**Table 1.** Dependent variables: Item texts and scales. Loading refers to the factor-loading of the principal component analysis after varimax rotation with Kaiser-Normalization.

| I use the software because,... | Scale | Loading |
|---|---|---|
| I can access information more easily | Information | .825 |
| I can access information that is relevant for me | Information | .817 |
| I will get informed about activities in my department | Information | .775 |
| I can present my ideas | Information | .697 |
| I can show my successes | Self-Related | .610 |
| I can show what my skills and competencies are | Self-Related | .726 |
| I can work more autonomously | Self-Related | .721 |
| I can work independent of place and time | Self-Related | .691 |
| I can plan my work on my own | Self-Related | .675 |
| I get feedback from my colleagues on my work | Feedback | .900 |
| I get feedback on my work | Feedback | .881 |
| I get feedback on the results of my work | Feedback | .864 |
| ...my work is valued in the system | Social Interaction | .726 |
| I can exchange with my colleagues regularly | Social Interaction | .714 |
| ...my colleagues are reachable immediately | Social Interaction | .710 |
| I can stay in touch with colleagues I don't see often | Social Interaction | .654 |

tests are quite robust against the violation of the assumptions, non of these tests revealed differing results. Thus we only report results from parametric tests. As effect size we report Cohen's $d$.

We use multiple linear regression analysis to identify the strength of multiple factors on outcome variables. The step-wise method was applied to identify all possible predictors for all our models. Gender is dummy-coded (female = 1) to allow it as a predictor in our models. For all predictors, variance inflation factors are not reported, as they never exceed a level of 1.5. We report the full regression table, including standardized slopes ($\beta$) to identify the size of effect for each predictor.

**Table 2.** Independent variables: Item texts and scales. Loading refers to the factor-loading of the principal component analysis after varimax rotation with Kaiser-Normalization.

| I agree with the following statement: | Scale | Loading |
|---|---|---|
| I can understand technical processes easily | Technical Affinity | .931 |
| I have no troubles in using technical devices | Technical Affinity | .922 |
| I understand physical and technical cause-effect relationships | Technical Affinity | .839 |
| I can get excited about technology | Technical Affinity | .823 |

## 4 Results

In the following section we present the results from our online study. We first describe our sample to provide an overview of the employees in our company. We then look into variables that influence the usage motivation and try to determine the strength of influence by using multiple linear regression analysis. This allows us to compare the relative influence of each predictor on our outcome variables.

### 4.1 Description of the Sample

A total of 50 participants completed the online questionnaire, 36 of which were women and 14 men. This matches the relation of men and women employed at this company. The age of participants ranges from 19 to 61 years with a mean age of 28.5 years ($SD = 8.06$). The employees have been working on average for 1.5 years at the company ($SD = 1.13$, range 0–6 years).

Our sample shows a relatively high *technical affinity* (see Table 3), which is expected for an Internet company. Yet, there is a difference in *technical affinity* between both genders ($t(36) = 2.638$, $p = .012$, $d = 1.04$). Men show a higher score ($M = 5.0$, $SD = 0.79$) than women ($M = 4.04$, $SD = 1.06$).

The participants are moderately *extraverted* ($M = 4.04$, $SD = 0.77$) and show a high level of *conscientiousness* ($M = 4.72$, $SD = 0.81$). The latter could be slightly biased towards the top-end of the scale, as employees might over-report their level of dedication for work in this measure. *Openness* also scores moderately high ($M = 4.46$, $SD = 1.05$), similar as *agreeableness* ($M = 3.97$, $SD = 0.73$). The employees are open to new experiences and team-capable. *Neuroticism* scores slightly below the scale mean (i.e. 3.5) with a mean of $M = 3.23$ ($SD = 0.87$). We find that women ($M = 3.44$, $SD = 0.88$) show a higher score on this scale ($t(36) = -2.463$, $p = .019$, $d = 1.51$) than men ($M = 2.73$, $SD = 0.60$) as found in multiple other studies. Sadly, not all participants completed the personality questionnaire (n = 37).

### 4.2 Usage Motivation

All usage motives scored moderately high, with the exception of the need for information, which scored very high (see Table 3). Interestingly we found differences in usage motivation, when looking at gender. Overall, women reported high scores on all four scales (see Fig. 2). But, these differences are not significant in all cases.

The need for information is reported more strongly by women ($t(39) = -2.36$, $p = .023$, $d = 2.36$) than by men, indicating that women use the yammer system in order to find *information*. Needs that are *related to oneself*, such as organizing work autonomously and presenting ones successes show no difference between genders ($t(39) = -1.59$, $p = .120$, n.s.). A similar finding can be found for the need for *feedback* ($t(39) = -1.418$, $p = .164$, n.s.). Both genders have a similar need for *feedback* as a motivation to use a SNS. Still, there is another gender

difference in the need for *social interaction* ($t(39) = -2.49$, $p = .017$, $d = 2.5$). Women also use the SNS out of a higher need for *social interaction* within the company.

**Table 3.** Description of the sample with internal scale validity and sample means with standard deviation.

| Scale | Cronbach's $\alpha$ | M | SD |
|---|---|---|---|
| Information | .870 | 5.07 | 0.84 |
| Self-Related | .891 | 4.02 | 1.05 |
| Feedback | .969 | 3.92 | 1.12 |
| Social Interaction | .827 | 3.91 | 0.95 |
| Technical Affinity | .920 | 4.32 | 1.07 |

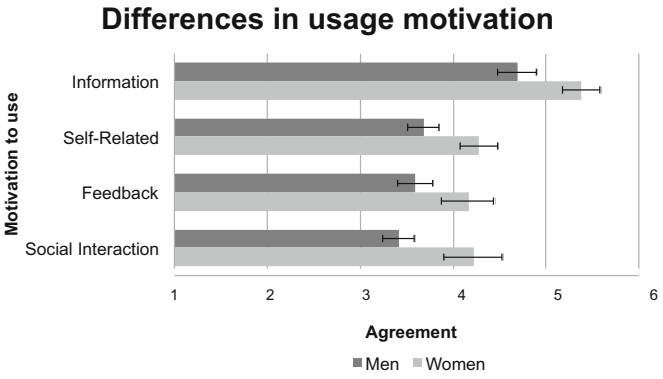


**Fig. 2.** Usage motivations show differences between genders. Error-bars denote the standard error.

### 4.3 Linear Regression Analysis

In order to determine whether these differences are actual gender differences and not effects of other confounding factors we conducted a linear regression analysis with all our independent variables. First, we look at the need for *information*. The multiple linear regression outputs a model with three predictors ($F(1, 33) = 4.201$, $adj.r^2 = .321$, $p = .048$). This model can explain 32 % more variance than using the scale-mean alone. The strongest predictor is still gender ($\beta = .383$), but agreeableness ($\beta = .348$) and age ($\beta = .289$) show similarly strong influences on the motive *information* (see Table 4). This means that women show a strong need for information that increases with age and with a team-focused personality. Younger men report to use the SNS less out of the need for information.

*Self-Related* motivation to use can be predicted with a model that has two predictors ($F(1, 34) = 4.881$, $adj.r^2 = .187$, $p = .034$). This model explains 18.7 %

**Table 4.** Linear regression tables for three models used to predict usage motivation.

| Model | Predictor | B | SE B | $\beta$ | $p$ |
|---|---|---|---|---|---|
| Information | (const) | 1.080 | 0.895 | - | .236 |
| | Agreeableness | 0.421 | 0.169 | .348 | .018 |
| | Gender | 0.745 | 0.273 | .383 | .010 |
| | Age | 0.035 | 0.017 | .289 | .048 |
| Self-Related | (const) | 5.991 | 0.741 | - | .000 |
| | Job Duration | −0.354 | 0.139 | −.385 | .016 |
| | Technical Affinity | −0.341 | 0.155 | −.334 | .034 |
| Social Interaction | (const) | 2.380 | 0.607 | - | .000 |
| | Gender | 0.870 | 0.340 | .397 | .015 |

more than the scale mean. Job duration and technical affinity have similar negative influence on the *self-related* motivation (see Table 4). This means that employees that have been longer with the company and/or show a higher affinity use the SNS less in order to portray themselves or to become more autonomous at work.

A true gender effect can be seen at the motive *social interaction*. Here a model with only one predictor was significant ($F(1, 35) = 6.548$, $adj.r^2 = .134$, $p = .015$). Indicating that the gender difference found by the t-test before has no confounding variables hidden underneath it (to our knowledge and measurement). Women do report that they use the SNS at work to socialize with coworkers more then men.

Interestingly, no model could be found for *feedback* that had significantly improved the explained variance in the ANOVA of the linear regression procedure. Thus women and men use the SNS to get *feedback* with the same intensity. The need for feedback is not strong but universal in our sample.

### 4.4 Results on Usage Features

Beyond understanding which user diversity factors influence *why* users access a SNS, we want to understand *how* users use the system and how their usage differs from using a private social networking site like facebook. For this purpose we asked users how often they used certain features of a social networking site in two contexts (privately and at work). Features that are more typical for work related scenarios are functions such as *sharing documents* as well as *creating and using polls*. On the other hand *posting music* or *posting photos* are features that are more suitable for a private context.

When we focus on the usage frequency of different features in our sample, we see that *following news*, *chatting*, *sending messages* and *liking content* are the most frequently used features in both private and work settings (see Table 3). Most people in our sample do not post music or photos often, neither at work nor privately. These two typical private features get even less attention than the typical work-related feature *sharing documents* (see Table 3). This indicates

that sharing information at work is actually used more than sharing photos in a private setting. The SNS site is actively used for knowledge management and organizational learning (Fig. 3).

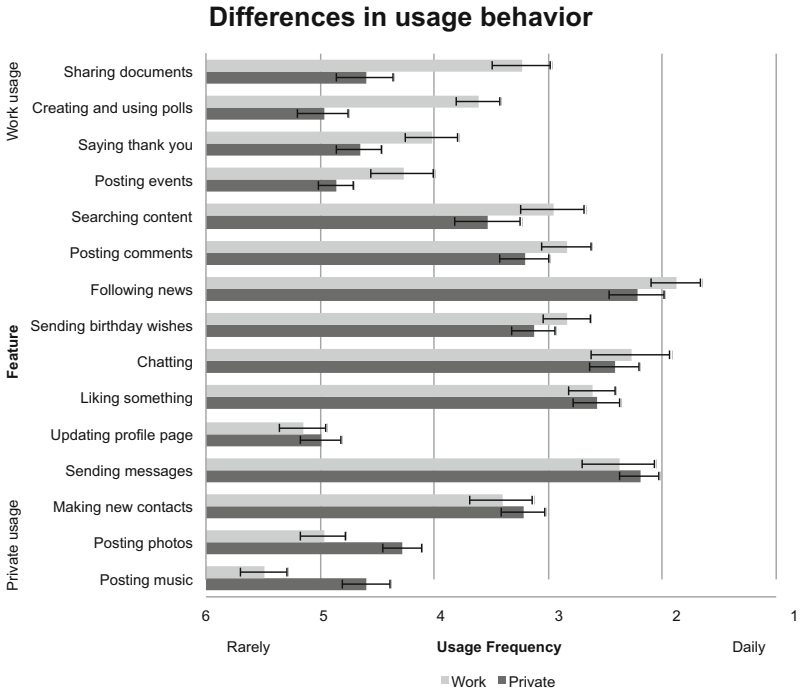


**Fig. 3.** Usage frequency ordered by the strength of difference between contexts. The diagram starts with typical work-related features and ends with typical private features. Features in the middle are used in both contexts and also get the highest usage. Error-bars denote the standard error. Usage Frequency is a logarithmic scale.

## 5 Discussion

In this article we investigated the effect of user diversity on the motivation to use a social networking site at work. The study was conducted at a company that successfully manages all knowledge exchange based on a Yammer system and included fifty participants. These participants were asked to report on why they use the system and which features they use.

We found that gender, age, agreeableness, and technical affinity influence specific motives to use the system (see Fig. 4). Women use the system because of a greater need for *social interaction* and *information*. The need for information will also become an increasing reason to use the system, when an employee becomes

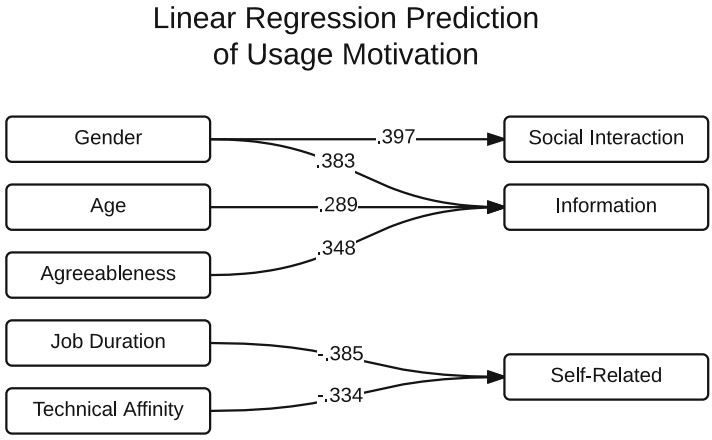


**Fig. 4.** Outcome of the multiple linear regression analyses. Numbers denote standardized slopes ($\beta$).

older and is more agreeable. Employees that are team-focused (or agreeable) might want to know how well the team is doing and how far they have progressed. Older users might need more information from the network, as they could be less experienced in using social media. Another explanation could be that older employees are often in higher positions and thus require more information to complete their job. On the other hand being on the job for a longer period of time or having a high *affinity to technology* is related with reporting to use the system out of reasons that are less *self-related* (e.g. self-portrayal). People who are longer on the job might already be known at company or just perceive a lower need to portray themselves. Employees with high technical affinity could experience some of the *self-related* items differently. That is, they already feel independent through use of technology. It is interesting to point out, that all users report to use the system for feedback similarly. Either feedback is a universal need satisfied equally across diversity factors in our sample or any explanatory variable has not been assessed.

### 5.1 Implications for Businesses

Depending on the structure of diversity factors in a company, one must make careful decisions when planning a social networking site for work. The features and structure of the system must address the needs of the users otherwise it will get rejected. From our results we see that features for social interaction, even if not-directly business related form a major component in usage motivation; even more so for women. A social networking site should therefore allow communication and self-portrayal as well as provide information needed by employees.

### 5.2 Limitations and Caveats

We must be careful when extending the results from this study. All participants come from a single company, which happens to be a very young company. Start-ups often have a vibe that stems from selecting personnel often highly alike. This sample is highly social-media affine and atypical. Diversity in this company is present but might drastically underestimate the diversity found in older companies. Specific and customized analyses must be performed when trying to implement a similar solution to ensure acceptance of such systems.

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