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Does Human Warmth Matter? – An Experiment on User Profiles in Initial Business Interaction

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ABSTRACT

Social Presence (SP), i.e. the feeling of human warmth, is usually treated as a desirable outcome of interpersonal communication. This is in line with the current trend of Online Social Networks (OSN) where social interaction on basis of user profiles is being promoted. The rise of OSNs also includes enterprise software. While previous studies in this field deal with the question of adoption, the role of the user profile has been neglected. This study addresses this research gap by focusing on user profiles and evaluating the effect on SP, Trust and Enjoyment in an initial business interaction. The findings suggest that for an information exchange task, user profiles do not help to create SP. Thus, the potential of OSNs in enhancing communication may be constrained. Due to some limitations of this laboratory experiment and as part of future research, it is suggested to re-evaluate the findings in more natural settings.

Keywords

User Profile, Social Presence, Trust, Enjoyment.

INTRODUCTION

The increasing popularity of OSN such as Facebook has made companies think what they can learn from this trend. The basic function of these OSN is to make social connections and present oneself to others by setting an online profile (Boyd and Ellison, 2007). This mechanism is also taken up by professional oriented OSN such as LinkedIn but also by enterprise software such as Yammer.

The functionality of OSN may be useful in facilitating social interaction among colleagues. When it comes to computer-mediated interaction, the concept of SP, i.e. the feeling of human warmth (Short, Williams and Christie, 1976), has been suggested as a key influencing factor. SP is based on social cues which are provided in user profiles (e.g. photo and personal interests). Besides the positive effect on SP itself, studies show that the concept subsequently leads to desirable outcomes such as Trust and Enjoyment (e.g. Cyr, Head, Larios and Pan, 2009; Hassanein and Head, 2007).

While current studies focus on adoption and diffusion, the user profile itself as a main design component of an OSN has gained less attention by researchers. It remains unclear how user profiles create SP. Moreover, the effect of profiles on initial business interaction is relatively unexplored. To address this research gap, this study focuses on two major research questions (RQ):

1. Does a user profile lead to more SP in initial business interaction?

2. Does SP influence Trust and Enjoyment in this context?

The structure of the paper: First, I outline related work and derive hypothesizes regarding the RQs. Second, I describe the method which is structured in a pre-test and a controlled experimental study. Third, I provide statistical analysis of the results. Finally, I discuss the findings and provide directions for future research.

THEORETICAL BACKGROUND

Social cues are the basis of a perception of SP (Short et al.) and may, for example, be presented through a user profile as a way to "type oneself into being" (p. 3, Sundén, 2003). In social situations, there are numerous cues that are conveyed e.g. physical, intimacy or message cues (Fichten, Tagalakis, Judd, Wright and Amsel, 1992). For example, previous studies in IS used physical social (human images) to build SP in websites (Cyr et al., 2009). When it comes to OSNs and connecting people, the profile of a person can be seen as a collection of social cues that may enhance the actual communication. Social cues play also an important role when it comes to impression management (Goffman, 1959). Moreover, social information can influence SP by determining whether another person belongs to the peer-group or is a stranger, e.g. studied by comparing the effect of SP with recommendations from friends versus strangers (Choi, Lee and Kim, 2011). The previous findings let us hypothesize that social cues generally lead to SP across situation and contexts:

H1: A user profile will result in higher SP in initial business interaction than the absence of a user profile.

SP has widely been found in IS Research to have a positive effect on Trust (Aljukhadar, Senecal and Ouellette, 2010; Choi et al., 2011; Cyr et al., 2009; Hess, Fuller and Campbell, 2009; Lowry, Zhang, Zhou and Fu, 2010; Qiu and Benbasat, 2009). In short terms, "Trust needs touch" (Handy, 1995, p.46). This effect has been found in communication settings (e.g. Lowry et al., 2010)

as well as website designs (e.g. Cyr et al., 2009), also including experiment studies with recommendation agents (e.g. Hess et al., 2009; Qiu and Benbasat, 2009). While more social cues decrease anonymity, this may lead to more social behavior (Rockmann and Northcraft, 2008; Zimbardo, 1969). Also, as social cues may make people to be identified as a member of a trusted community, this may lead to a positive attitude towards this person (Kramer, Brewer and Hanna, 1996; McKnight, Cummings and Chervany, 1998). Thus, I conclude:

H2: Higher perceived SP will result in higher levels of perceived trustworthiness.

Similar to the effect of SP on Trust, the relationship between SP and Enjoyment has been extensively studied in IS research (e.g. Hassanein and Head, 2007; Qiu and Benbasat, 2009). It is even claimed to "take this effect for granted." (p. 19, Lombard and Ditton, 1997). In the light of the strong previous findings, I hypothesize that:

H3: Higher perceived SP will result in higher levels of perceived Enjoyment.

METHOD

Before testing a user profile in an initial business interaction, it is necessary to verify that the profile itself is effective. Therefore, a pre-test was conducted.

Pre-Test – Creating an Optimized User Profile

A pre-test with 44 participants was conducted to ensure an optimized user profile in terms of its ability in creating SP. User profiles present many social cues such as physical appearance, social role and personal interests. The theory of Big Five personality dimensions suggests that there are five factors that constitute a personality, namely, openness, conscientiousness, extraversion, agreeableness, and neuroticism (Goldberg, 1990). Out of these five factors, extraversion and agreeableness have been suggested to be most relevant in the context of social interaction and in its ability to create SP (Hess et al., 2009). Studies from personal websites have shown that among others, personal interests and photos are an effective way in expressing extraversion and agreeableness (Marcus, Machilek and Schütz, 2006). For the photo section in the user profile, three different photos which stem from curriculum vitae were tested. These photos already fit with the business scenario and are likely to create high extraversion and agreeableness due to their application context. Moreover, as a check, a default picture was added for comparison. This picture only showed the silhouette of a person, as commonly used as default profile settings in communication tools. For the personal interest section, personal interests were derived from previous studies that found certain personal interests to create extraversion and agreeableness (Sullivan and Hansen, 2004). Specifically, public speaking for extraversion and counseling and social service for agreeableness were tested. I believe that these personal interests are too abstract to commonly appear in a user

profile. Therefore, also instantiations of these hobbies were tested, namely debating society [city name] and Johanniter-Unfall-Hilfe e.V. (German for "St. John Accident Assistance"). As another check, soccer as a popular but unrelated personal interest was tested as well as no personal interest information. Finally, two different common names were tested as such names are suggested to be more likeable than uncommon names (Cotton, O'Neill and Griffin, 2008). The given name and family name were derived from official lists of names by their frequency of occurrence (Bochenek and Dräger, 2009).

Profile of your colleague

Christian Hoffmann

Age	25
Sex	Male
City	[City Name], Germany
Phone	[Phone Number]
Interests	Johanniter-Unfall-Hilfe e.V., Debating Society [City Name]

Figure 1. Final Profile

As a result, one combination of photo and personal interests (Figure 1) was rated higher in terms of SP, Trust and authenticity than all others. Moreover, all the optimized photos and given information yielded higher results for SP, Trust and authenticity than the control situations (default picture; soccer or no personal interest).

Main study – Testing the User Profile

Given the optimized user profile, 37 participants (24 male, 13 female) tested the effect of the profile in an initial business support scenario. The sample comprised mainly students (91.7 %) with an average age of 24.2. None of the participants took part in the pre-test. In order to have a high relevance and external validity, a common business task was chosen. Participants had to make a complex purchase decision for their department while a colleague was available to support them. There are many similar tasks in daily business where an individual has to make a decision lacking information which has to be obtained from a previously unknown colleague. Thus, I believe that the effect of user profiles for this task is fairly generalizable.

In the experiment, participants had to make a purchase decision for a new printer. All participants were introduced to the task before the actual experiment started. Task complexity was given by including 7 printers, each having 12 characteristics such as Color Print Option, Print Speed (pages/minute) or Paper Capacity. The information was provided in a table embedded in a website. In order to make an adequate decision, additional information regarding the importance of each characteristic was needed to be obtained from the colleague. Participants were randomly assigned to two experiment treatments: 21 participants were shown the table and the user profile (Figure 1.). For the control group of 16 participants only the table was shown.

The support, i.e. a trained student assistant who played the colleague, was available via text-chat for the whole time of the experiment. Text-chat as a communication tool was chosen for two reasons. First, the laboratory experiment becomes more controllable (internal validity) as answering behavior via text-chat can easily kept the same across participants. In an audio- or video-chat setting additional information such as the mood of the support would have been much more difficult to control for. Second, adding to the latter aspect, audio information, i.e. human voice, adds more social cues which are likely to overlay the perceptions influenced by the user profile. In order to control the answering behavior, a text script was used. This script was successfully tested in three pre-test rounds in order to ensure that "the colleague" who supports the participant was able to provide authentic and adequate answers, e.g. "The print resolution should at least be 2400 x 600 dpi" or "Yes, a color laser printer will be needed". In case of questions that were not related to the study or far beyond what was needed to complete the task, the support consistently answered "I am sorry, but I do not know any answer to that question" or "I cannot help you with such a specific question".

Incentives and a time limit were set to make the task more relevant to the participants. In line with Qiu and Benbasat (2009), a basic payment of 10 Euros was promised as well as a chance of an additional payment by providing a correct solution to the task. In order to ensure the correctness of the solution and the effort spend, participants had to reason their final decision. All participants who provided a well-reasoned purchase decision took part in a lottery, i.e. a ten percent chance to win additional 50 Euros. Moreover, a time limit of 30 minutes was set, which was tested in three pre-test rounds, and considered to be enough time to complete the task without time pressure.

After the experiment a questionnaire had to be filled out. Measurements items were adapted which were used in similar studies, i.e. SP (Gefen and Straub, 2003), Trust (McKnight, Choudhury and Kacmar, 2002) and Enjoyment (Van der Heijden, 2004). Moreover, completion time, authenticity and understanding of the experiment task were controlled for.

RESULTS

To address the research question, a data analysis was conducted in two consecutive steps. First, I did a t-test to evaluate the effect of the user profile on SP. Second, I analyzed the effect of SP on the outcome variables Trust and Enjoyment. For this second analysis I used partial least squares (PLS) structural equation modeling and the software SmartPLS 2.0 (M3) (Ringle, Sarstedt and Straub, 2012; Ringle, Wende and Will, 2005).

Before the statistical analysis, the participant's responses to the control variables were checked. First, I checked the task completion time. Participants took on average 24.4 minutes to complete the task, no time pressure was reported. Second, I checked for authenticity and eliminated all responses of participants who felt that the situation was not authentic. Third, I eliminated all responses of participants who did not understand the task by indicating that the support was not essential to complete the task. As a result, 19 response for the user profile condition and 15 for the control group remained.

Construct	Item	Item-Loading	p-Value
SP	SP1	.849	.0000
	SP2	.869	.0000
	SP3	.884	.0000
	SP4	.869	.0000
Trust	TRGE	.560	.0805
	TBBE	.958	.0173
	TBCO	.552	.1025
	TBIN	.242	.5565
Enjoyment	ENJ1	.752	.0000
	ENJ2	.882	.0000
	ENJ3	.628	.0000
	ENJ4	.647	.0000

Table 1. Item Loadings

As a first step, I evaluate the construct reliability. The constructs SP and Enjoyment can be considered as reliable (see Table 1.) as all item loadings are above .6. However, for Trust items loadings and p-values (using bootstrapping (2,000 iterations) are not satisfying.

	ICR	SP	TR	ENJ
SP	0,9244	0,87		
TR	0,6897	0,31	0,63	
ENJ	0,8212	0,64	0,14	0,73

Table 2. Discriminant Validity Test

Second, I evaluated the construct validity by using internal consistency reliability (ICR). As all the constructs have an ICR above .5 (Table 2.) they can be accepted. Moreover, I assessed the convergent and discriminant validity. Validity is confirmed for all constructs as the square root of variance in the diagonal are higher for all

constructs than the correlations between the constructs.

The t-test showed that in the experiment condition with the user profile, a lower level of SP was perceived. The mean for SP in the experiment condition is 3.9748 and 4.2579 for the control group. The mean difference (.2831) is, however, not significant (p-value of .544).
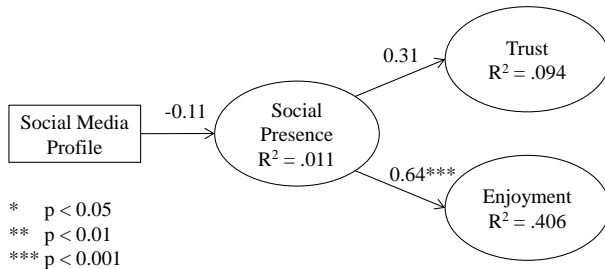

*   p < 0.05
**   p < 0.01
***   p < 0.001

Figure 2. PLS Model

For the PLS Analysis (see Figure 2.), only the path between SP and Enjoyment (H3) was found to be strong and significant (p<.001). On basis of this analysis, H1 and H2 cannot be accepted. Regarding the coefficients of determination (R^2) the results are also mixed. The R^2 of Enjoyment is higher than in related studies (e.g. Hassanein and Head, 2007). However, for SP (R^2 =.011) and Trust (R^2=.094) only a very low R^2 could be reported. While for SP this is an uncommon finding, the low R^2 for Trust resembles related studies (Qiu and Benbasat, 2009).

DISCUSSION AND FUTURE RESEARCH

This study aimed to answer the question whether the presence of a user profile raises the feeling SP in initial business interaction. Moreover, for the tested support context, the study set out to confirm previously found relationships between SP, Trust and Enjoyment.

Interestingly, the experiment treatment with the user profile led to slightly less SP than the control situation without a profile. Though the mean difference is not significant, the effect is still contrary to the hypothesized direction (H1). This is surprising as the additional social cues provided by the user profile did not lead to higher SP. This finding is worth investigating as the level of SP for only the user profile (pre-test) was higher than in both experiment conditions. Thus, although the profile itself is perceived as fairly socially present, this effect does not hold true in the experiment. It seems that the user profile and SP, i.e. human warmth, were simply not relevant for the participants in solving the task.

Regarding the second RQ, the effect of SP on Trust (H2), a positive relationship was found which is, however, not significant. This may add to the finding that in the experiment Trust was not reliable to measure. Also the task might not have been very critical in terms of Trust. For H3, the effect of SP on Enjoyment, found a strong significant relationship which confirms that this effect can be taken for granted.

The study has some limitations. First, mainly students were used as sample. I believe that this is valid as students are about to be the upcoming workforce using business related OSNs. However, professionals or older people might have behaved differently which is worth investigating. Second, there are some limitations due to the laboratory experiment. The communication between the participants and the human support was controlled by an answering script. This might have caused a lack in naturalness of the conversation. Specifically, only the participants were allowed to ask questions. This may have caused a rather passive and introverted impression of the support person. Also, though all task relevant questions were answered, the range of responses was limited to the task-focused answers provided in the script. Contrary to a natural setting, where there is generally a bit of small-talk and a chance of future contact with a person, in the experiment the interaction just mattered for the purpose of solving the current task. This might have led participants disregard the importance of SP. Finally, the number of 37 participants for the main study is rather low. However, due to the mixed results, the experiment might have to be redesigned before testing further subjects.

The findings of this study suggest rethinking the purpose of OSNs. For which tasks can business performance be improved by having user profiles, i.e. additional social information of colleagues? Moreover, future research should take up the limitations of the study. Upcoming studies in the field may especially take into account how the communication is designed. Thus, I suggest being aware of the conflict between internal validity (controlled social interaction) and external validity (natural communication flow). More external validity could be achieved by also requiring the support to ask question and apply its knowledge to the specific situation of the participant. Furthermore, different communication media (e.g. audio, video-chat or screen-sharing) should be tested in order to contribute to SP Theory. Another research opportunity is to enhance the user profile in its ability of creating SP. On the one hand, the perception of SP might be strengthened by adding a self-description and by providing more photos. On the other hand, the effect of information regarding task-relevant competencies (e.g. "likes to read hardware-forums") would be interesting to investigate. Besides an impact on SP, such information would probably also shape the perception of trustworthiness as ability and competence is considered as a trusting belief (Mayer, Davis and Schoorman, 1995).

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