T. Koschmann, D. Suthers, & T.W. Chan (Eds.), *Computer Supported Collaborative Learning 2005: The Next 10 Years!*
Mahwah, NJ: Lawrence Erlbaum Associates.

Why Member Portraits Can Undermine Participation

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Abstract. One possible way to support social awareness in virtual collaborative environments is to provide member portraits. Based on the SIDE-Model (Social Identity Model of Deindividuation Effect) it is argued that these portraits can have ambivalent effects for people who act according to the mode of personal identity and for people who act according to the mode of social identity. An experiment providing an information-exchange dilemma task confirmed these expectations.

Keywords: Group-awareness tools; information-exchange dilemma; participation; member portraits; anonymity; SIDE-Model

FREE-RIDING IN VIRTUAL GROUPS

A problem which is often reported when people exchange knowledge via e-forums or shared databases is low participation. In online seminars, virtual classes or organizational knowledge management projects, many people only passively participate in the information-exchange activity by reading the other participants' messages and contributions, but they do not actively engage in making their own contributions. This high rate of free-riding could have multiple reasons: The topic being dealt with may have low intrinsic value for the participants and thus would not motivate all persons to engage in exchanging their knowledge. But even if group members are motivated to make some contributions, there is a high message threshold. People perhaps are afraid of making incorrect statements which they cannot delete afterwards, or they feel that they have not reflected upon their contributions long enough to write them down. A further obstacle is that it takes additional time and effort to externalize knowledge, because personal knowledge must be written down and worked out in a way that others can understand it. And in many – mainly organizational – contexts unique knowledge serves as power, and contributing it to a database and thus sharing it with others would mean losing this power. All these barriers for contributing raise individual costs for a contributor. And these costs lead to the situation that the decision to externalize knowledge and enter it in a shared repository represents a kind of *social dilemma* (Cabrera & Cabrera, 2002; Cress & Hesse, 2004; Dawes, 1980; Thorn & Connolly, 1987): A potential knowledge provider receives no private benefit for entering information. Instead, s/he only incurs the private costs of investing time and effort. So whereas all the other users can (at least potentially) benefit from his/her knowledge-sharing behavior, the contributor personally has no direct benefit, only costs. This means that every person would benefit more if s/he behaved unco-operatively and withheld their information. But if all individuals did this, there would be no knowledge exchange and everyone would have more costs than if all had co-operated. In the long run everyone would end up less well off.

This social dilemma is even heightened by the anonymity of computer-mediated communication. In newsgroups or virtual classes group members typically are working at different places, they often do not even know each other personally. Exchanging knowledge via shared repositories provides almost no social cues and thus reduces communication to the transfer of information. On the one hand, a sender does not know the recipients and is not informed about the information they need. This could lead to a contributor's subjective perception that s/he sends a message to the database, not to other people. On the other hand, a recipient doesn't have much information about a sender. S/he primarily feels that s/he is retrieving data and not that s/he is obtaining information from a real person. Thus, databases provide an extremely low level of social presence. This makes it even more difficult for each group member to feel him/herself as belonging to a group. A person therefore may feel primarily motivated by his/her own needs, and not affected by the needs of the group, because s/he is not really aware of the others. This low awareness of the group could even increase the tendency of users to supply primarily their own wants, not the wants of others. Thus in a social dilemma, where the individual's benefit opposes the group's benefit, a person will probably be even less co-operative. This carries over into the information-exchange dilemma where a person will contribute less. Taking this effect of anonymity into account, one way to encourage contributing information to a shared database might be to implement database tools which enhance a person's awareness of the others and their needs.

TOOLS FOR PROVIDING GROUP AWARENESS

In virtual environments Carroll, Neale, Isenhour, Bosson, and McCrickard (2003) differentiate among three forms of awareness, which can be strengthened by specific tools. *Social awareness* is a user's awareness of the presence of other group members. It reflects the question "Who is around?". It can be enhanced by any tool which makes the presence of others visible, for example by portraits of others, by video or by avatars. *Action awareness* provides information about "What is happening?". This kind of awareness considers not only the presence of others, but also their interactions with the shared resource. Tools enhancing this kind of awareness make the current action of the group members visible. The third kind of awareness is called *activity awareness*. For this kind of awareness the common task of the group is central. Activity awareness does not only consider who is around and what these people are doing, but it specifically relates the members' actions to the common task. Activity awareness tools provide feedback about whether shared plans are created or changed, and they show how much these shared goals have been reached at any given moment. They provide awareness about "How things are proceeding?".

If shared repositories are primarily used for information exchange in general and not for a joint task, then the virtual environment should support at least the first two forms of awareness: Social and action awareness. In this context many communication platforms allow integrating visual portraits of each group member and feedback about the group's activity. These options are provided with the aim of giving the group members at least some impression about the others and some awareness of the group as a whole. In line with this, current research about social awareness normally assumes that awareness enhances individual participation. This research expects that being aware of the group members and having information about their behavior enhances the feeling of being part of a group. It is expected that this awareness automatically makes the group and its interests come a bit more to the fore, whereas it makes the individual interests less salient

Indeed, experimental studies in our laboratory showed that providing people with information about others' activities does not always have a positive effect (Cress & Hesse, 2004). In the information-exchange dilemma people adjust to the others' behavior. If they receive the information that others are contributing much information then they increase their contribution rate, too. But if they become aware that the others are free-riding, then they reduce their activity, too. So, activity awareness seems to satisfy a human's need for comparing him/herself with others (Festinger, 1954). If people know how others are behaving they tend to assimilate their own behavior to that of the others. For high contributors this leads to making fewer contributions in future.

Based on this ambivalent effect of a tool for action awareness, we have to consider that a tool for social awareness could perhaps also have an ambivalent effect. There is in fact some prominent theoretical evidence in social psychology which indicates that reducing anonymity by providing member portraits could achieve an ambivalent effect, too.

EXPECTED EFFECT OF MEMBER PORTRAITS

Providing member portraits reduces visual anonymity. In the last 10 years much research has been done in the context of the Social Identity model of Deindividuation Effect (SIDE, Lea, Spears, & de Groot, 2001; Postmes, Spears, Lea, & Reicher, 2000; Spears, Lea, & Postmes, 2000). The cognitive part of this research deals with the visual anonymity in computer-mediated communication groups. The concept is based on the theory of Self-Categorization (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), which postulates that in a group situation an individual has two possibilities to categorize him/herself: One will view him/herself as an individual (personal identity), or as a group member (group identity). These two modes of self-categorization influence the perception and cognitive representation of the group members and the schemas which are activated: In the mode of personal identity a person accentuates the differences among the group members and the group norms become less relevant. Thus individual norms are salient and a person in the mode of personal identity will primarily behave according to his/her own norms. In the mode of group identity, the group is salient and a person primarily views himself as a group member. In this mode the group norm becomes salient and existing differences between different group members are ignored. This leads to a higher conformity to the group norms.

The SIDE model is grounded in this theory and postulates that visual anonymity has different effects for people in the mode of group identity and for people in the mode of personal identity.

- For people in the *group identity mode* anonymity ensures that the only information a person receives is the information that all group members belong to one common group. All individual differences between the group members are masked, which increases the salience of a common identity and leads to stronger depersonalization. This strengthens a person's conformity to the group norm. In contrast, if anonymity is reduced (for example through the provision of member portraits), a user implicitly receives information about differences among the group members. The portraits, for example, show that the group members have different genders or different ages, and the portraits activate different stereotypes. These differences lead a

user to cognitively represent the others not only as group members, but also as idiosyncratic individuals with different personalities and motivations. This lowers the subjective perception of being part of one group.

- For people in the mode of *personal identity mode* this effect of portraits is just the opposite: Here visual anonymity strengthens the perceived distance of a person to the group, because without any information about others, people do not have any cues about others at all. If portraits are given, then the others become at least a bit more "real" and relevant. This enhances the prominence of the group, and thus strengthens the significance of the group norm.

This theory can be applied to the information-exchange dilemma discussed above. If groups exchange their knowledge via databases, and if contributing information to the database is associated with any kind of costs for the contributor (time, effort, loss of power), then individual interests differ from group interests. A person individually is better off, if s/he does not provide any information. Then s/he saves individual resources, whereas s/he can nevertheless benefit from the others' contributions. Thus, the personal norm in this situation is to withhold information, and the group norm is to contribute information and participate actively in knowledge exchange. Because in a social dilemma individual interests conflict with group interests, both norms – the individual norm as well as the group norm – are salient. We suppose that then a person's *social value orientation* determines which norm is more influential. The social value orientation is a personal trait, stable across time and situations. According to McClintock (1978) people can be classified into three types of social value orientation: individualistic orientation (persons who mainly behave according to maximize their own benefit), prosocial orientation (people who mainly behave according to maximize the group's benefit), and competitive orientation (people who intend to maximize the distance between their own outcomes and those of the others). About 43% of people belong to the first type, about 28% to the second type and about 8% to the third type. About 20% can't be classified as belonging to one type (Van Lange, Otten, De Bruin, & Joiremann, 1997).

Based on the SIDE-model, we expect that providing member portraits will lead to a higher number of contributions for people with individualistic orientation individualists, but to a lower number of contributions for people with prosocial orientation, revealing an ambivalent effect of member portraits as a group-awareness.

EXPERIMENT

The following experiment, providing a knowledge-exchange dilemma, was conducted to test this hypothesis.

Method

Participants and Design: Participants were 84 students of the University of Tuebingen, Germany (45 women, mean age 23.8 years). They were randomly assigned to the two experimental conditions. Half of the participants were provided with member portraits, half worked without such portraits. Based on the social-orientation test the participants were classified as having a prosocial orientation or an individualistic orientation. This led to a 2 x 2- factorial design.

Material: For measuring the social value orientation we used the nine-item decomposed game measure of Van Lange, Otten, De Bruin, and Joireman (1997). With each item a participant has to decide how many points s/he and another person would receive. The three options represent a prosocial (large joint outcome, and no difference between one's own and the other's outcomes), an individualistic (largest outcome for oneself), or a competitive decision (large difference between one's own and the other's outcomes). Participants are classified as prosocial, individualistic or competitive, if at least six choices are consistent with one of these social value orientations. This test has generally revealed good internal consistency and test-retest reliability. In this study only people with individualistic or prosocial orientation were considered.

Procedure: Upon arrival each participant had to complete the social value orientation test. Then the experiment began: Each participant was told that s/he was a member of a group of six synchronous working team members each working in a different room. This team had to calculate salaries of salesmen and each team member was paid according to the number of salaries s/he managed to calculate. Each salary was composed of two values: a base salary which had to be calculated in the first phase of a trial, and the provision, which had to be calculated in the second phase. In the *first phase* a subject earned 0.25 Euro for each base salary s/he calculated. After each calculation a person had to decide whether s/he wanted to contribute this result to the shared database. But the transfer to the database cost time. And because the first phase was time-limited (9 Minutes), the more one contributed, the fewer base salaries one could calculate, and - consequently - the less one earned.

In the *second phase*, each group member had to calculate the *total salary* of as many salespeople as possible. In this phase a participant earned 0.30 Euro for every total salary s/he calculated. But for the calculation of a salesman's total salary the base salary was needed. If a participant did not calculate it in the first phase, and if this value was not contributed to the database by at least one of the other group members, s/he had to calculate it in the second phase. By doing this one lost time. And the second phase was also time limited (12 Minutes). Thus, during the second phase, the more base salaries the database contained, the more one could earn. Thus, being collaborative and contributing base salaries to the database in the first phase could facilitate the performance of the other group members in the second phase. But according to his/her own payoff, a person had no benefit from contributing a base salary to the database, because in the second phase a person had the base salaries s/he had calculated in the first phase anyway. After the experiment participants were paid according to their individual performance. A person got money for each base salary and total salary s/he calculated. For eliminating group effects the teams were faked. (The task is described in detail in Cress, Barquero, Buder, & Hesse, i.p.).

In the experiment half of the participants worked with a shared database providing member portraits, which were visible during the whole experiment. The other half worked with a screen providing no portraits. At the end of the experiment the participants had to complete the post-experimental questionnaire. Then each participant was paid according to his/her individual performance.

Results

The social value orientation test classified 40 participants as prosocials, 23 participants as individualists, and 9 participants as competitors. The other 12 participants could not be classified as they had no stable tendency across the 9 items of the Social value orientation test. (This proportion of prosocials, individualists, competitors, and non-classifiable persons correspond with the findings of Van Lange et. al., 1997). For testing the hypothesis only people with individualistic orientation and those with prosocial orientation were considered. This lead to the following cell frequencies: 14 participants with individual orientation worked with portraits, nine worked without portraits. Out of the people with prosocial orientation 20 worked with portraits and 19 without.

For testing the expectation a 2x2-factorial ANOVA with the between-factors social value orientation and portraits was calculated. The contribution rate (number of results one contributed distributed through the number of results one calculated) served as dependent variable,. The analysis revealed a significant main effect for social value orientation, $F(1, 58) = 11.42$; $p < .001$: Individualists contributed less than prosocials. As expected, there was no main effect of anonymity, $F(1, 58) = 0.25$; $p > .05$, but there was a significant interaction between social value orientation and anonymity, $F(1, 58) = 4.28$; $p < .05$. The mean contribution rates of the four conditions describing this interaction are presented in Figure 1. It shows that for people with individualistic orientation the portraits lead to higher contribution rates, whereas for people with prosocial orientation they lead to lower contribution rates.

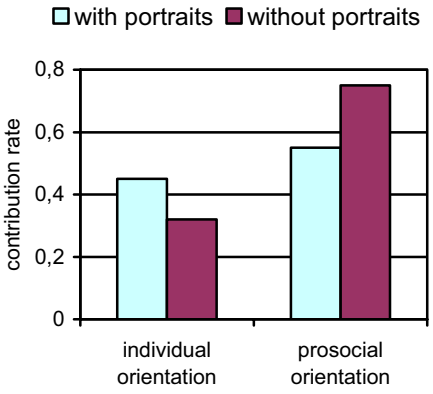

Figure 1: Mean contribution rates for participants with different social value orientation working with a shared database providing portraits of the others, or with a shared database not providing any information about others.

Discussion

The study confirmed the hypothesis resulting from the SIDE-Model: In the information-exchange dilemma member portraits have different effects for people with individualistic and for people with prosocial orientation. For individualists portraits enhance contribution, whereas for prosocials they undermine contribution. This result strengthens our argument that group awareness tools in virtual environments do not necessarily have the desired effect of enhancing participation. Social awareness tools can make the group more prominent by reminding a group member of the existence of other group members. But they also can provide the information that the other group members have different needs and that they behave differently. This information, which can be implicitly transported by a group awareness tool, could reduce one's perception of the group as a monolithic block. And perceiving individual differences can reduce the motivation to act in favor of the group.

In this context, the study of Lee (2004) is interesting. His experiment is also based on the SIDE-model, and it investigates different forms of member visualizations in computer-mediated communication. The participants of a group were either visualized through same-character cartoons or through different-character cartoons. Lee found that the same-character cartoons made the group more salient than the different-character cartoons. The groups with the same-character cartoon depersonalized themselves more and showed more conformity to the group norm during the discussion. So, even if both forms cartoons provided full anonymity, the same-character cartoons made the group more salient than the different-character cartoons. Lee and Nass (2002) further showed that even if people are fully aware that the characters are randomly assigned to the discussion partners, they associate the attributes of the characters with anonymous communication partners.

The results of our study raise the question as to whether there are alternative visualizations which could avoid the undesired effects of the group awareness tools developed so far. Such visualizations should enhance social awareness by making the existence of others more prominent. And simultaneously they should stress the perception of homogeneity of the group members. In further experiments we therefore will investigate the use of a pie chart which is programmed in a way that the pie piece of a member locks into place as soon as s/he is online. If all group members are present the pie is complete and is visualized as a united entity. We assume that such a chart could make the group salient by reminding a person about the existence of other group members. It gives information about the number of people belonging to the group, and it presents their names. But these persons are all visualized in the same manner, and the pie chart stresses their togetherness. It makes the group as a whole salient and leads a person to a stronger feeling of being member of a group.

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