IDENTITY AND BOND THEORIES TO UNDERSTAND DESIGN DECISIONS FOR ONLINE COMMUNITIES

YUQING REN
ROBERT KRAUT
SARA KIESLER
Human-Computer Interaction Institute
Carnegie Mellon University
Pittsburgh, PA 15213

ABSTRACT

In this article, we examine online community design in light of the common identity and common bond theory in social psychology. We review literature on the antecedents and consequences of two types of attachment – attachment to the group as a whole and attachment to individual members – to inform critical design tradeoffs, such as discussion moderation, community growth, and communication mechanisms.

INTRODUCTION

In the process of creating architectures, site features, and policies for online communities, designers make numerous decisions that can have long-term consequences. Consider a discussion forum for members of an e-science museum community. Should designers restrict posts to science-related discussion or should they encourage off-topic discussion? Off-topic posts can be distracting for those who are using the forum to talk about science, yet they provide opportunities for self-disclosure and friendship for those who join the forum to meet people (Preece & Maloney-Krichmar, 2003). Thus, the decision to discourage or to encourage off-topic discussion entails a social tradeoff—in the extreme, to satisfy pure information seekers or to support those who seek personal relationships online. Whatever choice designers make can be important in influencing who joins the community, who emerges as leaders, who contributes, and who stays or leaves.

In this paper, we show how the social psychological theories of common identity and common bond help illuminate various trade-off decisions in online community design. Following Preece (2000) and Lee et al. (2002), we define an online community as an online group that interacts over time around a shared purpose, interest, or need. Although guidelines and principles have been offered to help with community design , there exist comparatively few attempts to apply social science theory to community design. We argue that social science theory can point to how a design decision is likely to satisfy and encourage people with different reasons for community participation (Ridings & Gefen, 2004). We also argue a larger point – that we can apply theory in social psychology, sociology, and economics to help us take a more principled approach to designing online communities. We use the common identity and common bond theory as an exemplar to illustrate what social science research implies about the reasons different people join online communities and the consequences of various explicit and implicit design decisions for supporting those different groups.

REVIEW OF THEORY

Following Prentice, Miller, and Lightdale (1994), we make a theoretical distinction between the concepts of common identity and common bond. This distinction concerns people's reasons for being part of a group. Members may feel attached to the group as a whole or feel attached to its individual members. Prentice et al.'s (1994) survey of university club members classified topic-based groups, such as art groups and sports teams, as common identity groups, and relation-based groups, such as residential units, fraternities, and eating clubs, as common bond groups. Members of common identity groups reported feeling more attached to the group as a whole than to their fellow group members, whereas members of common bond groups reported feeling attached to group members as well as to the group as a whole.

Prentice et al's findings have been replicated in a wide array of contexts including online groups (e.g., Postmes & Spears, 2000; Sassenberg, 2002; Utz, 2003; Utz & Sassenberg, 2002). We argue that the distinction between common identity and common bond can be usefully applied to online communities. In general, common identity implies that members feel a commitment to an online community's purpose (e.g., "This is a cancer support group and as a patient, survivor or caregiver, I belong here"). By contrast, common bond implies that members feel socially and emotionally attached to particular members of the community (e.g., "These are my friends and I like interacting with them on the Internet").

We identified a sample of articles on common identity and common bond to review using a snowball sampling technique. Our goal was to review a broad set of studies, but not necessarily to conduct an exhaustive analysis of all studies in the literature. We started with three relevant and highly cited papers on common identity and common bond (Postmes et al., 2000; Prentice, Miller, & Lightdale, 1994; Sassenberg, 2002) and used the Social Science Citation Index to identify papers that either cited or were cited in these papers. Our final sample includes 22 studies whose authors made an explicit distinction between identity and bond and who collected empirical evidence to examine either the distinction between the two or the convergent and divergent effects of this distinction.

Antecedents of common identity

Social categorization. One can create group identity by defining a collection of people as members of the same social category (Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Categorization can be based on objective criteria, such as organizational membership, or on subjective criteria such as participants' political values or choices (Amichai-Hamburger, 2005; Karasawa, 1991; Postmes *et al*., 2000). Researchers have categorized people using group names (Michinov, Michinov, & Toczek-Capelle, 2004; Postmes, Spears, & Lea, 2002), uniforms (Worchel, Rothgerber, Day, Hart, & Butemeyer, 1998), and even random assignment to an arbitrary category**.**

Interdependence. Groups whose members are cooperatively interdependent tend to become committed to the group . Four types of interdependence create a sense of group identity: a joint task, a common purpose, common fate, and joint reward. A joint task is a task that involves and sometimes requires inputs from all members (Culnan, 2005; Lawler, 2001; Worchel et al., 1998). A common purpose is a goal that the group as a whole can attain, such as a high group score (Postmes, Spears, Sakhel, & Groot, 2001). Common fate means that the group members benefit or receive the same treatment or outcomes, which can be either negative or positive such as a joint reward (Michinov *et al*., 2004; Worchel *et al*., 1998).

Out-group presence. People who define and categorize themselves as members of a group compare themselves with other groups (Hogg & Terry, 2000). Several studies deliberately divided participants into two or more groups to highlight group boundaries and to stimulate intergroup comparisons (Postmes et al., 2001; Rogers & Lea, 2005; Worchel et al., 1998). In these cases, the out-group did not have to be physically present to elicit intergroup comparisons. A statement implying the existence of other groups successfully induced in-group versus out-group differentiation (Utz, 2003; Yuki, Maddux, Brewer, & Takemura, 2005).

Antecedents of common bond

Social interaction. A necessary cause of interpersonal bonds is interacting with others. The frequency of prior interaction is a major determinant of the extent to which people build relationships with one another (McKenna, Green, & Gleason, 2002). As the frequency of interaction between two persons increases, their liking for one another also increases (Cartwright & Zander, 1953). Utz's (2003) study of MUD players showed that the longer their involvement in the MUD and the more real world contact they had with others, the more they felt a bond with other players.

Personal information. Online community members are more likely to form relationships if they have opportunities to self-disclose and learn about each other. Self-disclosure and self-presentation shift attention from the group as a whole to individual members (Postmes et al., 2002; Sassenberg & Postmes, 2002). There is evidence that personal information even promotes bonds among people who have not yet interacted (Walther, 2001). Yuki et al. (2005) found that people are more trusting of those who have a shared acquaintance among their in-group members. So, a friend's friend is also a friend in cyberspace.

Interpersonal similarity. People like and have a greater tendency to choose to work or interact with similar others . People are likely to become close to the extent that they perceive they are similar to each other in preferences, attitudes, and values. Newcomb (1953; 1960) found that high interpersonal attraction developed among those who initially had attitudes in common. In several studies we reviewed, similarity was used to manipulate interpersonal attraction by asking participants to complete a personality and friendship questionnaire, and then telling participants that they were assigned to a group whose members probably would become close friends (Hogg *et al*., 1985; Postmes *et al*., 2001).

Consequences of common identity and common bond

The studies that we reviewed examined outcomes such as in-group evaluation and out-group differentiation (Amichai-Hamburger, 2005; Karasawa, 1991; Utz, 2003; Yuki, 2003), social influence and attitude change (Postmes et al., 2002; Postmes et al., 2001; Sassenberg & Boos, 2003), group formation and performance (Hogg et al., 1985; Michinov et al., 2004; Ouwerkerk, de Gilder, & de Vries, 2000; Worchel et al., 1998), and distributive justice in group outcome allocation (Utz *et al*., 2002). We examine these outcomes in the context of online community, and make predictions for the outcomes that are relevant to online community dynamics and member behaviors.

Convergent consequences. Identity-based attachment and bond-based attachment both lead members to perceive a group as cohesive, to identify with the group, and to evaluate their groups more favorably than other groups, as compared to situations in which neither attachment is present (Back, 1951; Hogg *et al*., 1985; Michinov *et al*., 2004). Likewise, identity-based attachment and bond-based attachment increase positive feelings toward a group, increase participation, and increase the likelihood of remaining in the group (Back, 1951; Levine & Moreland, 1998).

Divergent consequences. Identity-based attachment and bond-based attachment have different effects on what people talk about, social loafing, the experience of newcomers, the amount and type of reciprocity, and the robustness or salience of community membership. In terms of discussion content, online community members who feel bond-based attachment will be more likely to engage in off-topic discussion and will be more tolerant of off-topic discussion than people who feel identity-based attachment (Back, 1951; Sassenberg, 2002). Members with bond-based attachment also will be more tolerant of social loafing and less likely to compensate for others' under-contribution than those who feel identity-based attachment (Utz et al., 2002; Worchel et al., 1998).

Members who feel identity-based attachment to the community will be more likely to conform with group norms than those who feel bond-based attachment (Postmes et al., 2000; Sassenberg et al., 2003). Through the lens of social exchange or reciprocity, members with identity-based attachment are more likely to engage in generalized reciprocity (helping any member), and those who feel bond-based attachment are more likely to engage in direct reciprocity (helping those who have helped them). Evidence has shown that bond-based groups set up greater obstacles for newcomers to join than identity-based groups do (Prentice et al., 1994). Thus, newcomers should feel more welcomed in identity-based online communities than in bond-based online communities. In identity-based groups, members tend to perceive each other as an interchangeable part of the group. Thus, identity-based attachment to the group should decrease with discussion diversity or drift away from the core topic, but bond-based attachment should decrease with membership turnover (Brewer, 2001; Utz, 2003).

IMPLICATIONS FOR DESIGNING ONLINE COMMUNITIES

The literature we have reviewed leads to recommendations for designers and community members of online communities. These recommendations differ, depending on whether the goal is to create identity-based communities with a mission to discuss topics, such as configuration of personal computers www.tech-forums.net, or to create bond-based communities, such as www.myspace.com, that will promote relationships among pairs and groups of individuals. Identity-based communities should have clear mission statements and policies to keep conversation on-topic. They can tolerate anonymity and large numbers of participants, and can conduct all communication in public forums. By contrast, bond-based communities should phrase their mission statements to encourage members to engage in and to tolerate conversations on wide-ranging topics. They would improve if the numbers of participants were limited, and if they had mechanisms for private communication and identifying members. Many design features like these are in widespread use in online communities. Yet because online communities attract some members with identity-based motivations and some with bond-based motivations, the

design challenge is to reconcile what are often conflicting recommendations. We conclude our discussion by illustrating some major trade-offs below.

Trade-offs between on-topic and off-topic discussion

Community designers must decide whether to impose policies to control the discussion on the site, to keep it on topic. Identity-based groups are likely to want to have people talk primarily or only about the nominal topic of the community. The introductory message to Joblo's Movie Club emphatically states, "Our board is for MOVIE TALK only. If you bring personal issues up on our board, you will be banned. If you discuss your ex-girlfriend, you will be banned. If you announce your comings and goings or gossip about so-and-so, you will be banned. … This is … not a place for you to discuss your personal life or boo-hoo about how your lover just broke up with you." Alternately, for sites encouraging personal relationships, introductory materials can encourage participants to post on a wider range of topics. The Yahoo Personal site, for example, recommends that new posters "Gather your thoughts, tell your story, and see who stops by to say, 'Hi!' "

The problem with policies that constrain topics of conversation or encourage them to be wide-ranging is these community-wide policies neither support individual differences in members' motivations nor a shift in motivations as people spend more time in the community. Constraints on content may make the site less appealing to members of the community who are seeking friendships online or oldtimers have already formed ties with other members of the community. In contrast, wide-ranging conversation may discourage newcomers, who are looking for information about a well-defined topic. We believe that it is possible to serve both sets of needs, although doing so is likely to require some trade-offs, in which the off-topic, bond-building conversations are segregated from newcomers primarily seeking on-topic content. This segregation has occurred in a number of on-line communities. For instance, in an online soap opera newsgroup rec.arts.tv.soap, when traffic in the group expanded and people starting complaining about messages that were unrelated to soap operas, some members proposed marking messages that were not directly related to soap operas by "TAN" (for tangent) in the subject line so that members who were not interested could easily ignore them while preserving them in the group for those who were interested (Baym, 1997).

Trade-offs over group size

Many communities strive to grow large by actively recruiting new members. Having many members and the communication volume members generate is likely to result in high turnover in the group (Butler, 2001; Jones, Ravid, & Rafaeli, 2004). Having large numbers of members and high turnover is less a problem for identity-based groups, because these members can provide the content, which is the core of many identity-based groups. But large number of members and posts can be overwhelming and discouraging to members who are primarily interested interpersonal bonding.

The number of active people in an online community influences the visibility that others have of individuals. For example, the movie site, IMBD, hosts messages from thousands of people ranging from teens to movie producers. Posts arrive at the site in such quantity that a new post is likely to remain on the front page 20 minutes or less. Under these conditions, it will be difficult for pairs of people to come across each other frequently enough for them to form

interpersonal bonds. Community members need mechanisms to synchronize communication among subsets of the population or "neighborhoods" for these members to congregate. Examples may include "rooms" in a Multi-User Dudgeons and Dragons site (MUDS) and a personalized view in a public discussion forum. Good search facilities that let members find out group members would augment these online neighborhoods. For communities in which both types of attachment are important, one option might be to group participants into clusters with similar backgrounds or needs. Another option might be to segment groups based on their preferred topics or activities.

Trade-offs between public and private communication

Although repeated interactions between members are unlikely to harm an identity-based group, it is not necessary to the community development either. Members of such identity-based communities as Wikipedia, RottenTomatoes or CNET can share common interests and information and can get benefit from belonging whether or not they personally know each other. On the other hand, repeated interaction is crucial for developing bonds between community members. To develop these bonds, members need opportunities to meet each other and to communicate. There are three basic routes through which online communities can support repeated interactions: (1) facilities that make members' actions visible to each other, (2) public communication, and (3) private communication.

Seeing one another in an online group repeatedly, even without communicating with these others, may be a precursor to forming a personal attachment to them. Providing members rich choices for both public and private communication also will increase their likelihood of forming ties. It is especially important for bond-based communities to support private or semi-private communication. Examples include private email exchanges in misc.market, easy-to-create, private chat-rooms in America Online, or the "Whisper Command" in LamdaMoo. In addition to helping people communicate, designers seeking to support interpersonal bonds should provide ways for community members to visualize the online social networks that members have with each other. Better tools would enable people to visualize the actual flow of communication among community members. These visualizations could help to build dense networks of friends-of-friends, for example by helping people fill in gaps.

CONCLUSION

An online community can be built on many kinds of platforms, including bulletin boards, email and listservers, chats, UseNet, and MUD and MOO. As the community develops, its creators and members make many design decisions ranging from policies for off topic discussion to how much personal information about members will be afforded. Research in social psychology suggests that understanding community members' different kinds of attachment to the community can help make key design decisions. To now, comparatively few studies have linked community designs with the bases for people's attachment to online communities. We argue that research into these linkages will help us make design decisions more effectively.

REFERENCES AVAILABLE FROM THE AUTHORS

REFERENCES

Amichai-Hamburger, Y. 2005. Internet minimal group paradigm. CyberPsychology & Behavior, 8(2): 140-142.

Back, K. W. 1951. Influence through social communication. Journal of Abnormal and Social Psychology, 46: 9-23.

Baym, N. K. 1997. Interpreting soap operas and creating community: Inside an electronic fan culture. In S. Kiesler (Ed.), Culture of The Internet, Vol. 5: 103-120. Mahwah, NJ: Lawrence Erlbaum Associations.

Brewer, M. B. 2001. The many faces of social identity: Implications for political psychology. Political Psychology, 22(1): 115-125.

Butler, B. S. 2001. Membership size, communication activity, and sustainability: The internal dynamics of networked social structures. Information Systems Research, 12(4): 346-362.

Byrne, D. 1971. The Attraction Paradigm. New York: Academic Press.

Cartwright, D. & Zander, A. 1953. Group cohesiveness: Introduction. In D. Cartwright & A. Zander (Eds.), Group Dynamics: Research and Theory. Evanston, IL: Row Peterson.

Cartwright, D. 1968. The nature of group cohesiveness. In D. Cartwright & A. Zander (Eds.), Group Dynamics: Research and Theory, Vol. 91-109. New York: Harper & Row.

Hogg, M. A. & Turner, J. C. 1985. Interpersonal attraction, social identification and psychological group formation. European Journal of Social Psychology, 15: 51-66.

Hogg, M. A. & Terry, D. J. 2000. Social identity and self-categorization processes in organizational context. Academy of Management Review, 25(1): 121-140.

Jones, Q., Ravid, G., & Rafaeli, S. 2004. Information overload and the message dynamics of online interaction spaces: A theoretical model and empirical exploration. Information Systems Research, 15(2): 194-210.

Karasawa, M. 1991. Toward an assessment of social identity: The structure of group identification and its effects on in-group evaluations. British Journal of Social Psychology, 30: 293-307.

Levine, J. M. & Moreland, R. L. 1998. Small groups. In D. T. Gilbert & S. T. Fiske & G. Lindzey (Eds.), The Handbook of Social Psychology: 415-469. Boston: McGraw-Hill.

McKenna, K. Y. A., Green, A. S., & Gleason, M. E. J. 2002. Relationship Formation on the Internet: What's the Big Attraction? Journal of Social Issues, 58(1): 9-.

Michinov, N., Michinov, E., & Toczek-Capelle, M. C. 2004. Social identity, group processes, and performance in synchronous computer-mediated communication. Group Dynamics-Theory Research and Practice, 8(1): 27-39.

Newcomb, T. M. 1953. An approach to the study of communicative acts. Psychological Review, 60: 393-404.

Newcomb, T. M. 1960. Varieties of interpersonal attraction. In D. Cartwright & A. Zander (Eds.), Group Dynamics: Research and Theory: 104-119. Evanston, IL: Row, Peterson.

Ouwerkerk, J. W., de Gilder, D., & de Vries, N. K. 2000. When the going gets tough, the tough get going: Social identification and individual effort in intergroup competition. Personality and Social Psychology Bulletin, 26(12): 1550-1559.

Postmes, T. & Spears, R. 2000. Refining the cognitive redefinition of the group: Deindividuation effects in common bond vs. common identity groups. In T. Postmes & R. Spears & M. Lea & S. Reicher (Eds.), SIDE effects centre stage: Recent developments in studies of de-individuation in groups: 63-78. Amsterdam, the Netherlands: KNAW.

Postmes, T., Spears, R., Sakhel, K., & Groot, D. d. 2001. Social influence in computer-mediated communication: The effects of anonymity on group behavior. Personality and Social Psychology Bulletin, 27(10): 1243-1254.

Postmes, T., Spears, R., & Lea, M. 2002. Intergroup differentiation in computer-mediated communication: Effects of depersonalization. Group Dynamics: Theory Research and Practice, 6(1): 3-16.

Powazek, D. M. 2002. Design for Community: The Art of Connecting Real People in Virtual Places. Indianapolis, IN: New Riders Publishing.

Preece, J. 2000. Online Communities: Designing Usability, Supporting Sociability. Chichester, England: Wiley.

Preece, J. & Maloney-Krichmar, D. 2003. Online communities: Focusing on sociability and usability. In J. Jacko & A. Sears (Eds.), Handbook of Human-Computer Interaction: 596-620. Mahwah, NJ: Erlbaum Associates Inc. Publishers.

Prentice, D. A., Miller, D. T., & Lightdale, J. R. 1994. Asymmetries in attachments to groups and to their members: Distinguishing between common-identity and common-bond groups. Personality & Social Psychology Bulletin, 20(5): 484-493.

Ridings, C. M. & Gefen, D. 2004. Virtual community attraction: Why people hang out online. Journal of Computer Mediated Communication, 10(1).

Rogers, P. & Lea, M. 2005. Social presence in distributed group environments: The role of social identity. Behaviour & Information Technology, 24(2): 151-158.

Sassenberg, K. 2002. Common bond and common identity groups on the Internet: Attachment and normative behavior in on-topic and off-topic chats. Group Dynamics, 6(1): 27-37.

Sassenberg, K. & Postmes, T. 2002. Cognitive and strategic processes in small groups: Effects of anonymity of the self and anonymity of the group on social influence. British Journal of Social Psychology, 41: 463-480.

Sassenberg, K. & Boos, M. 2003. Attitude change in computer-mediated communication: Effects of anonymity and category norms. Group Processes & Intergroup Relations, 6(4): 405-422.

Turner, J. C. 1985. Social categorization and the self-concept: A social cognitive theory of group behavior. In E. J. Lawler (Ed.), Advances in Group Processes: Theory and Research, Vol. 2: 77-122. Greenwich, CT: JAI Press.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. 1987. Rediscovering The Social Group: A Self-Categorization Theory. Oxford, UK: Blackwell.

Utz, S. & Sassenberg, K. 2002. Distributive justice in common-bond and common-identity groups. Group Processes & Intergroup Relations, 5(2): 151-162.

Utz, S. 2003. Social identification and interpersonal attraction in MUDs. Swiss Journal of Psychology, 62(2): 91-101.

Worchel, S., Rothgerber, H., Day, E. A., Hart, D., & Butemeyer, J. 1998. Social identity and individual productivity within groups. British Journal of Social Psychology, 37: 389-413.

Yuki, M. 2003. Intergroup comparison versus intragroup relationships: A cross-cultural examination of social identity theory in North American and East Asian cultural contexts. Social Psychology Quarterly, 66(2): 166-183.

Yuki, M., Maddux, W. W., Brewer, M. B., & Takemura, K. 2005. Cross-cultural differences in relationship- and group-based trust. Personality and Social Psychology Bulletin, 31(1): 48-62.