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Computer-Mediated Communities: The Implications of Information, Communication, and Computational Technologies for Creating Community Online

Final Report

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Preface

Information, communication, and computational technologies (IT) are transforming people's lives. Although scholars in many fields have conducted research on the use and applications of these technologies in contemporary society, efforts to cumulate knowledge have been modest. Important insights into the character and outcome of IT use in different social settings consequently remain hidden and unintegrated.

In light of the above, the National Science Foundation contracted with SRI International's Science and Technology Policy Program to undertake a project exploring the implications of IT for community. The project's objective was to develop an analytical overview that synthesized multidisciplinary findings about IT and its consequences for communities. The central challenge was to formulate a picture of how these technologies affect communities of place and how they contribute to community building online.

Two reports were prepared for this project: a literature review on virtual communities (and related issue brief), and a separate bibliography on geographic communities. These three documents are available on SRI's website at http://www.sri.com/policy/csted/reports/sandt/it.

This report addresses Internet-based communities and reviews all significant dimensions of IT and online community to the extent that they are covered in the literature and other sources. It includes a discussion of the following issues:

1. the ways in which IT is being used that lead to new or virtual communities, including:

- the nature of emergent communities and how they are similar to, or different from, traditional communities;
- expectations of community members and how they enact the rights and responsibilities of citizenship;
- the degree to which Internet networks function as social networks, and what social needs are met and not met; and
- whether Internet use by people who are homebound or living in remote areas or with other unusual circumstances helps reduce social isolation or contributes to further alienation.

2. the ways that the implications of IT vary among people and groups, and what variation says about the causes of different social outcomes. For example, in what ways are the effects of IT influenced by:

- the economic, social, and cultural capital of the community of IT users;
- the technology used;

- the way in which the technologies are used;
- the characteristics of the user; and
- the social and institutional setting in which IT is used.

3. the ways in which IT is being used in online communities:

- the nature and frequency of interactions among members of the community;
- the nature of relationships among people in the community;
- people's expectations about what they will receive from, as well as contribute to, the community;
- people's exercise of responsibility and commitment to the community;
- the significance of the community to the identity of its members;
- the short-term and long-term viability of the community;
- the role of the community in people's lives; and
- the degree of community differentiation, including fragmentation, solidarity (or commitment), and stratification.

The report identifies and, when possible, explains differences between research findings and previously existing data.

Executive Summary

Americans have been concerned about declining communities for at least a century. The U.S. industrial revolution in the late 1800s triggered a wave of urbanization that moved people into cities away from the villages and towns that represent the idealized image of a traditional community. Instead of geography, ethnic identity and common interests—such as professional occupation, gardening, scouting, and sports—gradually evolved to become the basis of common social bonds. Communities of place, many believe, declined with the rise of cities, the growth of industry, and the emergence of more narrowly focused communities of interest.

The Internet and other computer-based network technologies are often seen as remedies to community decline. In theory, digital information networks could increase activism and democratic participation in local communities by giving people a greater opportunity to interact and mobilize their civic interests. Rural communities, increasingly marginalized by the global economy and American popular culture, can perhaps overcome their isolation through interactive telecommunications. People who feel lonely or alienated might explore identity and affiliation through online friendship networks.

In light of the above, the National Science Foundation contracted with SRI International's Science and Technology Policy Program to undertake a project exploring the implications of information, communication, and computational technologies (IT) for community. The project's objective was to develop an analytical overview that synthesized multidisciplinary findings about IT and its consequences for communities. The central challenge was to formulate a picture of how these technologies affect communities of place and how they contribute to community building online.

Two reports were prepared for this project: a literature review on virtual communities (and related issue brief), and a separate bibliography on geographic communities. These three documents are available on SRI's website at http://www.sri.com/policy/csted/reports/sandt/it.

State of the Literature

The literature on computer-mediated communities is considerable, spans several disciplines, and reflects multiple methodologies. Insights are generated by research ranging from rigorous ethnographic studies to controlled laboratory experiments to content analysis. Participant-observer case studies are common, as are anecdotal discussions. Almost all of the literature is descriptive even when it is quantitative, and little empirical work focuses on outcomes of community dynamics for either participants or communities themselves. Notable exceptions include the work on friendship formation by Parks and Floyd (1996), the study of the effect of online interaction on identity transformation by McKenna and Bargh (1998), the study of an online support group for teenage mothers by Dunham and others (1998), and a comprehensive survey by the Pew

Internet and American Life Project on Americans' participation in online groups (Horrigan 2001).

Although the literature is informative, it is not conclusive. Because the literature includes primarily anecdotes, case studies, and quasi-experimental research, readers are cautioned against drawing conclusions from nonrepresentative samples of communities and a cumulative body of research that does not yet capture the full breadth of online communities. There are many instances of contradictory findings in the research. For example, some online groups are hostile and verbally abusive, while others are supportive and empathetic; many communities encourage their members to remain anonymous, while others insist on clear names, identities, and credentials.

Such contradictions can best be explained not by methodological differences but by the understanding that online communities are as diverse as face-to-face communities. Few thoughtful people would suppose that the conclusions drawn from an ethnographic study of a rural community in Appalachia would yield accurate insights into residents living in the projects of South Chicago or retirees in Palm Beach, except in the most superficial ways. Similarly, the findings from an online group of hockey enthusiasts may be quite misleading if applied to a computer-mediated support group of breast cancer patients. As discussed later in this report, there are literally hundreds of thousand*s* of social groups interacting online. Although some of these may ultimately be considered computer-mediated communities, the entire population cannot be characterized with the evidence at hand.

Key Findings

Notwithstanding the above caveats, some basic conclusions about online, computer-mediated communities can be drawn from current research. The central theme of this report is that there are fundamental differences between online groups that primarily share information and those that create community through the interactive dimensions of computer-mediated communication (CMC). The collective body of research suggests the following about the implications of information technology for computer-mediated communities:

- **The concept of community cannot be taken lightly, and not all online groups are necessarily communities.** Discussions in the popular media often portray almost all computer-mediated groups as communities. However, sociologically speaking, the concept *community* encompasses far more than just conversation among people. Shared identity, affiliation, and support are characteristic of communities, as are community norms and the means to enforce them and reciprocity in social relations. Using long-standing sociological criteria, it would appear that most of the hundreds of thousands of online groups are not communities but information-sharing networks.

- **Virtual communities share many of the core attributes of face-to-face communities.** There is considerable evidence that online groups can form

computer-mediated communities that provide support, empathy, a sense of belonging, and social identity. Although many discussion groups primarily exchange information and many have such low volumes of interaction that they can scarcely be considered communities, many online groups meet the essential requirements of a community: culture, norms, sanctions, a shared sense of identity, reciprocal relationships, and a sense of affiliation and benefit for their participants.

- **Americans are active participants in online groups.** According to a study by the Pew Internet and American Life Project (Horrigan 2001), two-thirds of all American Internet users regularly contact at least one specific online group, and about one-quarter of Internet users communicate actively with this group, sending several e-mails per week. Half of those who e-mail their online group do so to enhance personal ties with other group members, and more than two-thirds report that they e-mail to discuss group issues. These online groups, which mimic those in face-to-face communities, include professional and trade associations, fan clubs, and local civic organizations.

- **The potential of the Internet to liberate people from a sense of isolation is real.** Multiple studies—especially those of online support groups and individuals with socially marginalized or stigmatized conditions (such as cancer, alternative sexual orientation, or visible disability)—indicate that many people develop a more positive self-image, a greater sense of affiliation, and a reduced sense of isolation or stress by participating in online communities.

- **The Internet is not necessarily "the great equalizer."** Because CMC lacks many of the social cues present in face-to-face conversations, electronic communities can, in principle, allow people to participate and contribute free from social prejudice and judgment. Many computer-mediated communities are not status-neutral, however. Anonymity is discouraged in some online communities, social status can easily be created among members within the community, and there are many ways in which gender, ethnicity, and identity are communicated in computer-mediated environments.

- **There is no compelling evidence to suggest that participation in virtual communities undermines an individual's primary social networks.** Notwithstanding some rather sensationalized media reports about studies that associate Internet use with depression or reduced states of social interaction, the evidence reported here indicates that many people are forming primary, intimate relationships online. Anecdotal evidence also suggests that online communities may strengthen themselves by meeting in offline gatherings as well.

- **There is too little evidence to make generalizations about differences in online communities based on the type of Internet forum that they use.** No

one really knows whether the character of communities, member identity, and affiliation differ fundamentally across bulletin boards, listservs, multiuser domains (MUDs), and other environments, nor can anyone say whether online community formation and maintenance are significantly different across these groups.

Finally and most generally, the collective body of research on computer-mediated communities suggests that the best and worst aspects of real-life society are being reproduced online. The needs, interests, virtues, and weaknesses of people are simply being acted out in a computer-mediated world. Some online communities truly help stigmatized people accept themselves, fit into a group, and feel more comfortable in their real-life communities (Dunham et al. 1998; and McKenna and Bargh 1998). People who have limited geographic access to others in their community of interest, such as female drummers, can find community online (Pirone 1999). Many virtual communities also endeavor to foster civility and supportive discourse and over time develop democratic governance for themselves.

Yet other online locales are places of hostility and rudeness, evoking frequent reproaches to participants (Smith, McLaughlin, and Osborne 1998). The literature frequently mentions anecdotes about online sexual harassment, horrific cases of virtual rape and sexual assault, and general sociopathic behavior (MacKinnon 1997; and Williams 2000). "Bashers" visit virtual communities to verbally assault and heckle members, and some communities impose order with vigilante justice: virtual murder, executions, torture, and physical abuse are reported for several MUDs (Kitchin 1998; and A.D. Smith 1999). As in face-to-face society, some computer-mediated communities successfully rise to admirable levels of safety, affiliation, positive reciprocity, and collective governance. Others appear to exist a step away from alienation and anarchy. Unfortunately, one issue that is not addressed in the research is how and why some online groups successfully navigate their way in cyberspace, while others do not.

Other knowledge gaps exist as well. Few studies directly measure how online communities benefit their participants, and research that examines the destructive aspects of online community membership is largely absent. For example, the effects of lies, libel, flaming (verbally hostile and personally insulting language), gender switching, virtual sexual assault, ethnic or gender slurs, hate speech, and misinformation on individual victims are largely unexplored.

Another key and relatively unexplored issue is the larger social forces that influence and structure access to and participation in online communities. For example, are commercially-sponsored online groups different in any important ways from grassroots groups? Are the online dynamics of local civic groups different in important ways from those of geographically diffuse groups? Similarly, are the dynamics of private, or "gated," online communities—those that require a password or are accessible only by permission—different from those that are easily accessible by the public? The viability of online communities in the short and long terms is also uncertain. The effects of

membership and changing demographics on community culture, maintenance, and sustainability are also unknown.

Research sheds light on many of these questions, which will be increasingly shaped by the evolution of ethical codes of conduct specific to Internet research. Research using human subjects is regulated by strict requirements to inform participants about risks associated with the research, and there is an emerging consensus that informed consent is a principle that applies to online individuals and groups as well (Frankel and Siang 1999; and Association of Internet Researchers 2001). The Association of Internet Researchers notes, however, that obtaining informed consent from Internet communities is complicated by the nature of the medium and its global scope and by anonymity in cyberspace. As a consequence, the emerging requirements for ethical and professional research practices online may limit what researchers ultimately learn about virtual communities and their role in society.

1. Introduction

Americans have been concerned about declining communities for at least a century. The U.S. industrial revolution in the late 1800s triggered a wave of urbanization that moved people into cities away from the villages and towns that represent the idealized traditional community. Instead of geography, ethnic identity and common interests—such as professional occupation, gardening, scouting, and sports—gradually evolved to become the basis of common social bonds. Communities of place declined, many believe, with the rise of cities, the growth of industry, and the emergence of more narrowly focused communities of interest. For reviews of these arguments, see Wellman 1979; Fischer 1982; Wellman and Gulia 1999; and Hampton and Wellman 1999.

The Internet and other computer-based network technologies are often seen as remedies for community decline. In theory, digital information networks could increase activism and democratic participation in local communities by giving people a greater opportunity to interact and mobilize their civic interests. Rural communities, increasingly marginalized by the global economy and American popular culture, can perhaps overcome their isolation through interactive telecommunications. People who feel lonely or alienated might explore identity and affiliation through online friendship networks.

At best, global information networks promise to rejuvenate flagging communities of place and connect dispirited people to online places of support and welcome. At worst, these networks could further isolate people from real and meaningful interpersonal relations and disrupt what fragile social capital still exists in communities of place (Putnam 1995).They could also create heightened states of social fragmentation and alienation. It is also quite possible that the technology would make little difference at all. As Claude Fischer, a prominent sociologist of telecommunications technology argues, "The historical record suggests that community patterns are remarkably resilient to technological change. As radical as the material transformations have been in the 120 years between Alexander Bell's novelty telephone and the Microsoft network, social lives remain more or less the same" (Fischer 1997, p. 116). Social networks—defined by patterns of interaction with family members, friends, and residents of physical communities—show limited change despite the emergence and evolution of new telecommunications and information technologies.

This report addresses these issues by exploring the theory and research on the implications of information and computer networks for creating Internet-based, or online, communities. It is one of a series of analyses funded by the National Science Foundation in an effort to understand the transformational social effects of new and emerging information, communication, and computational technologies (IT). However, because computer-mediated communities are such recent phenomena (dating from the late 1970s), the body of knowledge on this topic is still in the formative stages. The findings presented here are consequently not conclusive. They instead help construct a composite impression of how IT affects the potential for online community formation.

Scope of the Study

This study synthesizes the research that addresses how computer-based information networks affect *online communities,* an ambiguous term that generally refers to groups of people interacting through some form of reciprocal social relationship in a computer-mediated environment. Because of its relevance to the project, the literature included here represents some of the research on computer-mediated communication (CMC) as well as the psychological effects of computing on individuals. However, the CMC and psychological development literatures are not otherwise reviewed in this report.

The analysis here focuses as exclusively as possible on the characteristics and dynamics of societal (as opposed to work) communities. New information technologies have given rise to new forms of communities (often called *virtual* communities) with attendant implications for an individual's sense of identity and belonging. The scope of this study is therefore limited to the phenomenon of community behavior as mediated through electronic network environments. This includes, for example, social interaction in bulletin board-based systems, chat rooms, e-mail distribution lists (listservs), Internet Relay Chat, and multiuser domains (MUDs). Excluded from this report is research on CMC in formal work environments in the business, government, and nonprofit sectors; this research explores such topics as the effects of e-mail and other forms of computer conferencing on group decisionmaking and collaboration.

State of the Literature

The literature on computer-mediated communities is considerable, spans several disciplines, and reflects multiple methodologies. Insights are generated by research ranging from rigorous ethnographic studies to controlled laboratory experiments to content analysis. Participant-observer case studies are common, as are anecdotal discussions. Almost all of the literature is descriptive even when it is quantitative, and little empirical work focuses on outcomes of community dynamics for either participants or communities themselves. Notable exceptions include the work on friendship formation by Parks and Floyd (1996) and Parks and Roberts (1998), the study of an online support group for teenage mothers by Dunham and others (1998), and a comprehensive survey by the Pew Internet and American Life Project on Americans' participation in online groups (Horrigan 2001).

The research is nonetheless informative and a few broad generalizations can tentatively be made about the nature of computer-mediated communities. However, current knowledge is limited, and readers are cautioned against drawing definitive conclusions from this report because most research is not generalizable outside the context of a specific study.

Limited knowledge, which is not necessarily unusual in the early stages of research on a new social phenomenon, results from three conditions. First, much of the

existing research on Internet-based communities may be regarded as case studies of single communities, and case studies are typically designed to generate theory, not test predictions. Second, much of the existing empirical work rarely includes a control group—a notable exception is McKenna and Bargh (1998)—or randomly selects groups within a defined population. Many studies reflect rigorous scholarship but nonetheless suffer the limitations of quasi-experimental designs, implying that some research findings cannot be conclusively generalized to all online communities; instead, insights are generated only into communities that are representative of those in the study. For example, all online communities are characterized by "norms," and indeed norms are a signal feature of communities. However, because of methodological limitations, norms derived from a case study of online soap opera fans, for example, cannot be generalized to a community of computer hackers or to all electronic communities.

Third, even when studies meet requirements for making a statistically valid inference, the context in which they are undertaken may be too artificial to be typical of "real life." For example, an important body of research in CMC suggests that computer-mediated communications may be more antisocial and less status-oriented than face-to-face communications, but these findings are often generated by laboratory experiments under constraints that would rarely be present in most online communities. For more on this point and critiques of the CMC literature, see Spears and Lea (1994); Walther, Anderson, and Park (1994); and Parks and Roberts (1998).

Nonetheless, several important theoretical frameworks are implicit in much of the literature reviewed in this report, including the discussion of CMC. Media richness theory (Daft and Lengel 1984, 1986), models of self-identity and deindividuation (Spears and Lea 1992), and social presence theory (Short, Williams, and Christie 1976) enable analysts to evaluate electronic communication based on its ability to convey meaning, express emotions and attitudes, provide timely conversational feedback, and reveal social cues such as humor, tone, or disinhibition.

Because of the relative newness of the computer-mediated community as a social phenomenon, the literature quite reasonably includes anecdotal stories, case studies, and quasi-experimental research. But readers are cautioned against drawing conclusions from nonrepresentative samples of communities and from a cumulative body of research that does not yet capture the full breadth of online communities. There are many instances of contradictory findings in the research. For example, some online groups are hostile and verbally abusive, while others are supportive and empathetic; many communities encourage their members to remain anonymous, while others insist on clear names, identities, and credentials.

Such contradictions can best be explained not by methodological differences but by the understanding that online communities are as diverse as face-to-face communities. Few thoughtful people would suppose that the conclusions drawn from an ethnographic study of a rural community in Appalachia would yield accurate insights into residents living in the projects of South Chicago or retirees in Palm Beach, except in the most superficial ways. Similarly, the findings from an online group of hockey enthusiasts may

be quite misleading if applied to a computer-mediated support group of breast cancer patients. As discussed later in this report, there are literally hundreds of thousands of social groups interacting online.

One additional explanation for contradictory and inconclusive findings relates to the rapidly evolving interactions between technology and society in the 1980s and 1990s. The general public (and even programmers and developers) did not begin using e-mail, chat rooms, MUDs, and bulletin boards knowing how to use them, what to do with them, or even how communication would be affected by these electronic media. As people integrated these communication tools into their daily lives and became more mature users, patterns of both individual and group online behavior changed. Similarly, the features of the technologies have changed as designers reacted to software limitations and new expectations. When the ability to remove offensive participants from listservs and bulletin boards was added to many communities, for example, it undoubtedly affected some participants' conversational tone and content. Both technological novelty and novice use of electronic media affect social behavior online; because there will always be a mix of new and old technology and new and old users, contradictions and "noise" will exist in research findings.

Key Findings

Notwithstanding the above caveats, some basic conclusions about online, computer-mediated communities can be drawn from current research. The central theme of this report is that there are fundamental differences between online groups that primarily share information and those that create community through the interactive dimensions of computer-mediated communication. The collective body of research suggests the following about the implications of information technology for computer-mediated communities:

- **The concept of community cannot be taken lightly.** Discussions in the popular media often portray almost all computer-mediated groups as communities.[1] However, conversation about a common interest alone is not community. Identity, affiliation, and support derive from critical prerequisites for communities, including a shared identity, community standards and the means to enforce them, and reciprocity in social relations.

- **Virtual communities share many of the core attributes of face-to-face communities, but not all online groups are necessarily communities.** A number of discussion groups are little more than information-sharing networks, and many have such little interaction that they can scarcely be considered communities. However, it is also clear from a number of case studies and empirical analyses that many online groups fulfill the essential requirements of a community: culture, norms, sanctions, a shared sense of

[1] For examples, see The Web's Next Wave of Fun (1998); Hof, Browder, and Elstrom (1997); and critiques in Figallo (1998) and Werry (1999).

identity, reciprocal relationships, and a sense of affiliation and benefit for their participants.

- **Americans are active participants in online groups.** According to a study by the Pew Internet and American Life Project (Horrigan 2001), two-thirds of all American Internet users stay in regular contact with at least one specific online group, and about one-quarter of Internet users communicate actively with this group, sending several e-mails per week. Half of those who e-mail their online group do so to enhance personal ties with other group members, and more than two-thirds report that they e-mail to discuss group issues. These online groups, which mimic those in face-to-face communities, include professional and trade associations, fan clubs, and local civic organizations.

- **The potential of the Internet to liberate people from a sense of isolation is real.** Multiple studies—especially those of online support groups and individuals with socially marginalized or stigmatized conditions—indicate that many people develop a more positive self-image, a greater sense of affiliation, and a reduced sense of isolation or stress from their participation in online communities.

- **The Internet is not necessarily "the great equalizer."** Because computer-mediated communication lacks many of the social cues present in face-to-face conversations, electronic communities can, in principle, allow people to participate and contribute free from social prejudice and judgment. Many computer-mediated communities are not status-neutral, however. Anonymity is discouraged in some online communities, social status can easily be created among members within the community, and there are many ways in which gender, ethnicity, and identity are communicated in computer-mediated environments.

- **There is too little evidence to make generalizations about differences in online communities based on the type of Internet forum that they use.** No one really knows whether the character of communities, member identity, and affiliation differ fundamentally across bulletin boards, listservs, MUDs, and other online communities.

- **There is no compelling evidence to suggest that participation in virtual communities undermines an individual's primary social networks.** Notwithstanding some rather sensationalized media reports about studies that associate Internet use with depression or reduced states of social interaction (Kraut et al. 1998; and Nie and Erbring 2000), the evidence reported here indicates that many people are forming primary, intimate relationships online. Anecdotal evidence also suggests that online communities may strengthen themselves by meeting in offline gatherings as well.

Generally, the collective body of research on computer-mediated communities suggests that the best and worst of real-life society are being reproduced online. The needs, interests, virtues, and weaknesses of people are simply being acted out in a computer-mediated world. There are online communities that truly help stigmatized people accept themselves, fit into a group, and feel more comfortable in their real-life communities (Dunham et al. 1998; and McKenna and Bargh 1998). People who have limited geographic access to others in their community of interest, such as female drummers, can find community online (Pirone 1999). Many virtual communities also take care to foster civility and supportive discourse and over time develop democratic governance for themselves.

Yet other online locales are places of hostility and rudeness, evoking frequent reproaches to participants (Smith, McLaughlin, and Osborne 1998). The literature frequently mentions anecdotes about online sexual harassment, horrific cases of virtual rape and sexual assault, and other sociopathic behavior (MacKinnon 1997; and Williams 2000). "Bashers" visit virtual communities to verbally assault and heckle members, and some communities impose order with vigilante justice: virtual murder, executions, torture, and physical abuse are reported for several MUDs (Kitchin 1998; and A.D. Smith 1999). As in face-to-face society, some computer-mediated communities successfully rise to admirable levels of safety, affiliation, positive reciprocity, and collective governance. Others appear to exist a step away from alienation and anarchy. Unfortunately, one issue that is not addressed in the research is how and why some online groups successfully navigate their way in cyberspace, while others do not.

Organization of the Report

This report is organized into four sections. Section 1 discusses the purpose and key findings of this study. Section 2 describes the meaning of *community,* formats of online discourse, America's participation in online groups, and key issues in computer-mediated communities that are repeatedly raised in the literature. Section 3 explores the critical elements of computer-mediated communication and the basic question of whether virtual communities are really communities. Section 4 offers conclusions, and section 5 identifies important gaps in current knowledge about online, computer-mediated communities.

2. Background

Over the past 20 years, new information technologies have facilitated the formation of more than 200,000 publicly accessible online discussion venues—chat rooms, e-mail distribution lists, local community networks, Usenet newsgroups, multiuser domains (MUDs), and Internet Relay Chat (IRC) channels. The central questions of this study are, to what extent do these new modes of communication facilitate the formation of virtual communities and with what social consequences?

Answering these questions requires some background on several issues. First, a clear understanding of what analysts mean by the term *community* needs to be established. Second, the different formats of online discourse need to be explained, since these potentially have differing effects on community building. Third, computer-mediated communication is not like face-to-face conversation, so the nature and extent of America's participation in online groups needs to be explored. Finally, key issues in computer-mediated communities are repeatedly discussed in the literature, and these issues need to be identified for further exploration.

Meaning of Community

The emergence of virtual communities has triggered a wave of debate over the meaning of the term *community* (Jones 1995a; Doheny-Farina 1996; Gurak 1997; Healy 1997; Howard 1997; Lockard 1997; Lyon 1997; Wilbur 1997; Willson 1997; Baym 1998; Cherny 1999; and Mitchell 1999). However, this concept was not consistently used in social analysis even before the rise of electronic discourse. For example, Hillery (1955) found in the literature 94 definitions of the term with 16 distinct conceptualizations (also see discussions in Minar and Greer 1969; and Wellman 1979).

There are many sources of disagreement over what *community* means. An important root, however, is the endurance of the communitarian vision in American culture: communities have been thought of traditionally as idealized geographic entities. Perspectives that romanticize rural lifestyle and collective action are central features of communities in the Western philosophic tradition. From Aristotle[2] to de Toqueville to Etzioni, communities are described in almost mythical terms. Everyone knows and recognizes one another, community members are highly engaged in civic life, and moral obligations are the ties that bind. Community is a *virtue* that is practiced by people living in the same place. Contemporary social thinkers reiterate these idealistic themes

[2] Plato and Aristotle discuss the term *polis*, but this concept of the ancient Greek city-state is clearly the progenitor of the communitarian ideal. Plato espouses communities of citizen farmers, and even identifies the precise size limit for a community: 5,040 citizens. Aristotle does not quantify the limit but states that the central criterion for a community is its capacity for democratic self-governance, where each citizen can actively participate in decisionmaking. Consequently, communities should be of a size that makes them self-sufficient and allows all community members to recognize and know one another. See discussions in Mitchell (1999) and Kitto (1969).

(Doheny-Farina 1996; and Hesselbein 1998), but many critics reject the communitarian ideal. Anderson (1983) states flatly, "All communities larger than primordial villages of face-to-face contact (and perhaps even these) are imagined" (p. 6). The concept of community may, unfortunately, be "a convenient analytical metaphor that has been extended far beyond the bounds of acceptable reasoning" (Howard 1997, p. 115).

However, when people talk about virtual communities, they are often talking about *communities of interest*. This conceptualization of community is based not on reciprocal relationships that grow out of geographic proximity but on the social bonds of shared ethnicity, culture, or common interest. Communities of interest have existed for centuries, but are widely acknowledged to have become more significant as industrialization and urbanization began disrupting agrarian lifestyles. The industrial revolution reduced people's dependence on their neighbors, increased their mobility, and expanded their social contacts. All of these factors contributed to new patterns of community networks based on something other than a shared place.

The fundamental conceptual conflict between community as place and community as interest is evident in critiques of online communities (Doheny-Farina 1996; Foster 1997; and Lockard 1997). For skeptics of online communities, the concept of community is immutably tied to a grounded, material reality, and the critical question is whether or not online life will threaten or enhance communities of place. Online communities, according to some analysts, can simply never be considered true communities because—communitarian virtue aside—they cannot reproduce the role and significance of communities of place. Physical communities support physical lives by meeting the needs for homes, roads, schools, water supplies, police services, phone lines, recreational spaces, hospitals, places of worship, and so forth. These tangible artifacts of a community provide the infrastructure not just for a material standard of living but also for personal safety, health care, and spiritual needs. Local communities require civic governance and social capital, and suffer when they are neglected (Putnam 1995).

The most problematic feature of virtual communities for many analysts is, however, that they are created and sustained almost exclusively through computer-mediated interactions (see discussions in Baym 1998). Online communities are not perceived as real but are labeled instead as pseudocommunities of impersonal relationships (Beniger 1987). Critics may, however, overestimate the significance of day-to-day community ties. Wellman and his colleagues found that in Western urban societies, people may know about 1,000 others but hold primary social relationships with only about 20 people—typically family, neighbors, colleagues, and close friends (Suitor, Wellman, and Morgan 1997). People interact with others in their secondary networks much less deeply, without expectations of reciprocity, and typically in the context of their social role, not as people with unique identities and needs (Fischer 1982; Suitor, Wellman, and Morgan 1997; Mitchell 1999; and Wellman and Gulia 1999).

For most people, the sense of support and affiliation that comes from truly personal interaction involves fewer than two dozen people in a densely bound network. These primary relationships are persistent over time but not overwhelmingly so. Limited

evidence suggests that over the course of a decade, people replace two-thirds to three-quarters of these primary ties due to changes in life circumstances and personal needs (Suitor, Wellman, and Morgan 1997). The core personal relationships that people maintain over time are kinship ties and those that tend to be the most personally supportive. Otherwise, face-to-face social networks are neither tightly bound nor stable. Peripheral relationships—the vast majority of social ties—are replaced regularly and conducted somewhat superficially. The implication of the literature on social network analysis is that virtual communities are simply an extension of secondary social networks (Sproull and Faraj 1997; Wellman 1997; and Wellman and Gulia 1999). In addition, because intimate ties are so few, it is not unreasonable to suppose that people can form the small, supportive, and densely bound primary networks of their intimate relationships online.

Although computer-mediated interaction may consequently be an intrinsic part of an individual's social network, at what point does the connection between people transcend itself and become an institutionally distinct phenomenon known as community? Notwithstanding the profound conceptual concerns, enduring criteria for communities *are* represented in the literature. At a minimum, a community is characterized by:

- social interactions;
- common ties;
- reciprocity in relationships;
- shared beliefs, values, and cultural habits among members;
- a sense of belonging among members;
- a sense of solidarity, or community identity, among members;
- standards of conduct for members; and
- members' ability to take collective action.

McLaughlin, Osborne, and Ellison (1997) also indicate that effective communities enable the formation of primary personal relationships and are able to repair any social fabric in need of mending. Figallo (1998) complements this sociological perspective of *community* by adding that communities have a sense of history and some way of transmitting their institutional memory.

In short, community is an ambiguous concept, and debates about its meaning are complex and extensive. In this report, community is defined as a social aggregate that satisfies the sociological requirements of community behavior presented above. This report also proposes and uses the term *computer-mediated community:* a community in which social interactions are in some way facilitated by computer-based information networks.

Formats of Online Discourse

The potential for computer-mediated community emerged in the late 1970s with the development of technology that allowed personal computers to connect with other

systems via modems and telephone lines. Four of today's six distinct forms of computer-mediated community evolved about the same time in these early years of network innovation. Discussion-oriented networks servicing geographic communities were introduced in Berkeley, Cleveland, Chicago, Santa Monica, Colorado, and Sausalito from 1978 to 1985.[3] Usenet, the international bulletin board, was introduced in 1979 as three Unix-based computers connected by homemade modems.[4] The first MUD, loosely based on the game Dungeons and Dragons, came online in Great Britain in 1978 (Reid 1999). "Chat" interactivity, real-time conversations between two or more people, was first used commercially by CompuServe in 1980.

Today there are six core types of computer-mediated communities: (1) local community networks, (2) bulletin board constituencies, (3) MUDs, (4) chat groups, (5) e-mail discussion groups, and (6) communities of interest with integrated websites (see table 1). This typology of communities is effectively a snapshot showing the history of communication technology; it will undoubtedly change in the future and is not derived from theoretical insights about the nature of electronic communication.

Computer-mediated communities engage their members through online venues of conversation. These electronic modes of interaction are broadly categorized as either synchronous (in which people talk to one another in "real time," as in face-to-face conversations) or asynchronous (in which people read and respond to, in no particular order, messages that have been posted and stored in memory). Synchronous discussion spaces include chat rooms, IRC channels, and MUDs. Asynchronous forums include bulletin boards (or conferencing systems) and e-mail distribution lists (also known as listservs). Key to both types of communication is that conversations usually are not private but are accessible to and visible by the community at large—or at least to those who are logged on at the same time and sharing the same chat room, MUD, or IRC channel. Computer-mediated communities are essentially public forums, although individual members may also communicate privately with one another.

Until very recently, computer-mediated interaction had been almost exclusively text-based: participants read, and reacted and responded to, words on a computer screen. New tools offering video and voice contact are becoming more common, and many commercial web portals—such as *Yahoo!* and Excite—offer voice chat. Graphical interfaces can be found on some MUDs (making them look more like video games), and virtual reality and telepresence environments have been demonstrated (Damer, Kekenes, and Hoffman 1996; and McLaughlin, Osborne, and Ellison 1997). A more detailed discussion of the types of computer-mediated communities and their scope is presented below.

[3] For histories of these and other early community networks, see Morino (1994), Schuler (1996), and Rheingold (1993).
[4] See Hauben and Hauben (1997) for a detailed history of Usenet.

Table 1. Types of Computer-Mediated Communities

Type	Description	Estimated Number*
Local community networks	Networks servicing geographic communities. Now typically web-based, networks may offer chat, bulletin board, and listserv interactivity as well as hypertext information. **EXAMPLE:** the Blacksburg Electronic Village <http://www.bev.org> located in Blacksburg, VA. Local community networks are often referred to as "Free-Nets."	~150 "Free-Nets" in the U.S. ~16,000 neighborhoods supported through *Neighborhood Link,* a quasi-commercial service.
Bulletin boards	A common space for posting and reading messages organized by theme. Bulletin boards (BBs) are asynchronous and may be web-based or require specific client software. The most well known are Usenet newsgroups, but other BBs exist. **EXAMPLES:** *rec.pets.cats,* a Usenet BB for cat lovers; *Parent Soup,* a web-based BB for parenting issues <http://www.parentsoup.com>.	~30,000 Usenet newsgroups. • No estimates for ISP, private, or web-based bulletin boards or those on independent networks, such as FidoNet.
MUDs	Domains characterized by intense game or role-play interactions by "avatars" and the construction of virtual worlds. Typically characterized as social (role-play) or adventure (game), many MUDs are hybrids of both. MUDs are governed by elaborate rules and social structures and usually require special client software. **EXAMPLE:** *FurryMUCK,* a social MUD with anthropomorphic animals as avatars.	• No way to estimate total. • Web searches typically generate lists of ~250 MUDs, MOOs, MUSHs, and MUCKs.
Chat groups	Chat is real-time communication. There are two types of chat venues: web-based chat rooms and IRC channels. IRC is an Internet service composed of 99 independent networks. **EXAMPLES:** *Yahoo!* GeoCities themed neighborhood chat rooms <http://www.geocities.com>; *#scouting.ScoutLink,* a channel for scout enthusiasts on the IRC Scoutlink network.	~37,750 IRC channels, representing 27 networks and ~150,000 users. • No way to estimate total number of chat rooms; web searches generate lists of thousands.
E-mail discussion groups	Also known as listservs, e-mail discussion groups are asynchronous interactions. Individuals subscribe to topic-specific lists, generating a common pool of e-mail messages for all subscribers to read and reply to. **EXAMPLE:** *TECHWR-L@listserv.okstate.edu,* a discussion list for technical writers.	~90,000 indexed, publicly accessible listservs. • No way to estimate total number of private listservs.
Community-of-interest websites	Websites servicing communities of interest; sites offer integrated chat, bulletin board, or listserv interactivity as well as hypertext information. **EXAMPLES:** NativeWeb <http://www.nativeweb.org> for indigenous peoples in North America; Drummer Girl <http://www.drummergirl.com> for female drummers.	• No way to estimate total number of sites.

*Based on author's own research.
Sources**:** Local community networks, Organization for Community Networks <http://www.ofcn.org> and NeighborhoodLink <http://www.neighborhoodlink.com>, both accessed June 8, 2000. Usenet bulletin boards, IRC channels, e-mail discussion groups, and Liszt mailing list directory <http://www.liszt.com>, accessed July 10, 2000.

Local Community Networks

Local community networks initially were dial-up networking systems. Ward Christiansen introduced a local community network in Chicago in 1978, paralleling earlier efforts in Berkeley to link publicly accessible computer terminals to a community database (Morino 1994; and Schuler 1996). Soon to follow were the Old Colorado City bulletin board, geared toward political activism, in 1980; the Electronic Café in Santa Monica in 1984; the Whole Earth 'Lectronic' Link (popularly known as the *WELL*) in Sausalito in 1985; and the Cleveland Free-Net in 1986. All of these community networks were pioneering and experimental efforts based on the bulletin board concept (see below). The Berkeley Memory Project, for example, provided coin-operated computer terminals in laundromats and libraries, where users could explore messages and post ideas to a variety of discussion forums on cooking, politics, poetry, housing, and topics of civic interest (Schuler 1996).

It was the Free-Net movement, however, that spurred the proliferation of community networks. Originating in Cleveland, Ohio, the Free-Net concept was based on the idea that citizens should and could have free access to computer networks that addressed issues in their communities and provided ways for members to interact with one another and with local officials. The National Public Telecomputing Network, formed in the late 1980s, was an umbrella organization that helped establish Free-Nets and a community network movement. Although this nonprofit organization has since gone bankrupt and the number of community networks has fluctuated, approximately 150 communities still enjoy robust networks.[5] In addition, Network Neighborhood introduced its innovative Neighborhood Link program in 1998. This company provides template-driven, interactive websites that enable neighborhood residents to interact with one another, their municipal government, and other community organizations. Websites are funded by corporate donors in the local area; Network Neighborhood advertises that it now has nearly 16,000 neighborhoods online in more than 32 U.S. metropolitan areas.[6]

The companion bibliography, *Computer-Mediated Communities: A Bibliography on Information, Communication, and Computational Technologies and Communities of Place* provides more in-depth references on the history, significance, and effect of local electronic community networks.

Bulletin Boards

Early local community networks were bulletin boards, but Usenet newsgroups are the most well known bulletin boards. Bulletin boards are a collection of messages organized around common themes. For example, the Usenet newsgroup *rec.arts.movies* is

[5] The actual number of U.S. local community networks is not clear. The Organization for Community Networks <http://www.ofcn.org> provides a list of Free-Nets in the United States, which numbered about 150 in 1998. This is undoubtedly not an exhaustive list of all U.S. community networks, however, since Internet searches uncover community websites not on the Free-Net list but with interactive community links.

[6] Network Neighborhood <http://www.neighborhoodlink.com>, accessed June 10, 2000.

a bulletin board with a constituency of 71,000 readers, who post about 80 messages per day (Sproull and Faraj 1997).

Usenet, the world's largest network of bulletin boards and the third most commonly used Internet service after e-mail and the Web, was invented in 1979 (M. Smith 1999). When it first started, Usenet had seven major groupings of bulletin boards (called hierarchies) for science, social discussion, alternative viewpoints, recreation, and so on. There were originally 15 bulletin boards (called newsgroups) organized within these 7 hierarchies. As of March 2000, there were 600 primary hierarchies and nearly 30,000 newsgroups worldwide; Usenet draws more than 59 percent of its participants from countries other than the United States.[7] Usenet is not, however, a centrally controlled network. There are more than 300,000 Usenet hosts, and not all hosts carry all hierarchies and newsgroups. Marc Smith (1999) reports that "on an average day, 20,000 people post 300,000 [Usenet] messages. In the 150 days ending November 15, 1997, 1.1 million people posted at least one message each for a total of more than 14 million unique posts" (p. 197).

Bulletin boards are ubiquitous on the Internet; they can also be found on other networks such as FidoNet, an amateur e-mail network, and on hundreds of websites. Parent Soup—a website for parenting information—hosts more than 2,100 bulletin boards alone.[8]

MUDs

MUDs and their related domains, MOOs,[9] are distinctly different from all other forms of computer-mediated communities (Curtis 1996; LeValley 1997; Reid 1999). Real-time, text-based modes of interaction, MUDs attempt to model physical reality by enabling participants to construct virtual spaces and move within them. Reflecting their origin in the late 1970s as a computer-mediated game similar to dungeons and dragons, MUDs can be mansions, caves, space stations, frontier towns, medieval kingdoms, forests, or any other kind of realistic or surrealistic place. People participate in MUDs by creating "avatars" for themselves—characters with a distinct physical description and personae. For many years most MUDs were created as adventure-based, role-playing environments, but gradually new MUDs (like *LambdaMOO*) were formed primarily for socializing and interacting cooperatively (Curtis 1996). MUDs are governed by elaborate

[7] Marc Smith (1999); Lewis S. Eisen, "Master List of Newsgroup Hierarchies v. 5.44," <http://www.faqs.org/faqs/usenet/hierarchy-list/>, accessed July 11, 2000; Liszt mail list directory <http://www.liszt.com>, accessed July 10, 2000. Virtually complete directories of Usenet groups can be found at Liszt <http://www.liszt.com> and Newsville <http://www.newsville.com/news/groups>.

[8] Parent Soup <http://www.parentsoup.com>, accessed July 12, 2000.

[9] There are acronyms for many different kinds of MUDs—MOOs (multiuser domains, object-oriented), MUSHs (multiuser shared hallucination), and MUCKs (multiuser chat kingdom), for example. The major distinctions among them are generally based on the orientation of the domain (fantasy game-playing, socializing, and so on) and the types of coded actions that are allowed by the software that runs the MUD. For example, MUSH servers are much less reliant on coded combat actions than MUDs typically do. MOOs are usually differentiated from all other MUDs because they allow extensive programming of objects in the MUD environment.

social structures where one's rung on the social ladder is closely associated with different kinds of power in the MUD.

MUDs also require specialized client software to participate—few are web-based domains. There are no comprehensive directories of MUDs because their owners may choose not to make them publicly known. However, the literature regularly provides counts of about 200–300 MUDs based on domains publicly listed on the Web (Bruckman 1996; Curtis 1996; and Parks and Roberts 1998). Several thousand people may participate in MUDs. *LambdaMOO* and *Diversity University,* two of the more popular domains, have more than 4,000 members each (Parks and Roberts 1998). Curtis (1996) conservatively estimates 100 members per MUD. Even though interactions are text-based, MUDs are often considered virtual reality environments because of the intensity with which they evoke a sense of place and action.

Chat Groups

Chat groups, which use real-time, synchronous communication, exist online in chat rooms and on IRC channels. Chat rooms are typically web-based and frequently found on commercial Internet service provider and web portals such as America Online, the Microsoft Network, *Yahoo!,* and Netscape. Chat rooms are categorized by topic, such as golfing, Christian chat, the environment, teen sex, and so on. Thousands of chat rooms exist. A web search for the term *chat rooms* will readily generate lists of more than 500,000 hits, often to sites containing multiple chat rooms. For example, a single network of chat rooms called the Palace boasted more than 1,000 rooms and 300,000 users in 1998.[10] In a national survey of Internet users, Nie and Erbring (2000) found that about one-fourth of Internet users participated in chat rooms and that most were under the age of 25.[11]

IRC is a collection of independent networks, and in 2000, there were 99 networks running IRC.[12] IRC operates much like a CB radio. Once people are logged on to an IRC network through specialized client software, they have access to multiple "channels" of conversation that they can participate in. For example, *#acoa.Superchat* is a discussion channel for adult children of alcoholics on the Superchat IRC network.[13] Operators, who have total technological control over access to their channels, privately manage each IRC channel.

Participation in IRC is considerable. Just 27 of the 99 networks support 37,750 channels and nearly 150,000 users,[14] and the rapid growth of IRC since its introduction in 1990 mirrors the exponential growth of Internet use generally.[15]

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[10] See The Web's Next Wave of Fun (1998).
[11] Their survey was conducted in December 1999.
[12] IRChelp, "Internet Relay Chat Help Archive" <http://www.irchelp.org>, accessed July 10, 2000.
[13] The notation for IRC channels is #channel name.channel network.
[14] See <http://www.liszt.com>, accessed July 11, 2000.
[15] Jarkko Oikarinen invented IRC in 1988. A history of IRC indicates rapid growth: 41 users in 1990, 5,000 in 1994, and more than 15,000 in 1995. See "Early IRC History" <http://www.the-project.org/history.html>, accessed July 10, 2000.

E-mail Discussion Groups

Computer-mediated communities may also interact through e-mail discussions known as listservs or mailing lists. Like bulletin boards, listservs are asynchronous communication technologies. Individuals subscribe to a topic-specific list; e-mail sent to the list address is automatically posted to all subscribers. Many groups successfully use mailing lists to build community. For example, they are common tools for online support groups and hobbyists (Sharf 1997; and Lam 1999). One example of an e-mail discussion group is *TECHWR-L@listserv.okstate.edu,* a discussion group for technical writers. Liszt, an online mailing-list directory, currently indexes more than 90,000 publicly accessible mailing lists, but thousands of private discussion groups exist as well.[16]

Community-of-Interest Websites

The Web can facilitate the growth of computer-mediated communities by offering a sort of "one stop shopping"—integrated websites that provide not only hypertext information for specific communities of interest but ways to interact as well. Websites for communities can include chat rooms and bulletin boards as well as offer direct links to a listserv. Examples of these integrated community sites include Drummer Girl <http://www.drummergirl.com>, a site that provides support for female drummers; Native Web <http://www.nativeweb.org>, a site that promotes community building and activism among North American indigenous peoples; and Dehai <http://www.dehai.org>, a site for peoples of the Eritrean Diaspora. Not only are there no estimates for the number of such websites, but they are not studied in the literature. Consequently, computer-mediated communities that use integrated web tools are not explored in this report.

America's Participation in Online Groups

A landmark study by the Pew Internet and American Life Project (Horrigan 2001) surveyed American Internet users' participation in, and involvement with, online groups. Although the study does not provide extensive data about activities online, it does establish the first publicly available, comprehensive profile of how many people interact with formal online groups and what types of interests draw their attention.

The survey, conducted in January and February 2001, found that 84 percent of the Internet users[17] in their study have interacted with a group online. Of this 84 percent, more than three-quarters stay in regular contact with at least one specific online group, and about one-quarter communicate actively with this group, sending e-mails several times per week. The purpose of this communication is not just information seeking; of all Internet users who have interacted with a group online, half of those who e-mail their

[16] Liszt mailing list directory <http://www.liszt.com>, accessed June 8, 2000.

[17] A September 2001 survey by the U.S. Bureau of the Census found that 54 percent of the U.S. population was using the Internet. See *A Nation Online: How Americans Are Expanding Their Use of the Internet* (Washington, DC: National Telecommunications and Information Administration, February 2002), available at http://www.ntia.doc.gov/ntiahome/dn/index.html, accessed June 1, 2002.

online group do so to enhance personal ties with other group members, and more than two-thirds report that it is to discuss group issues. Just over one-quarter of those who interact with online groups do so to contact or get information about their local communities, suggesting that online activities can be tools to foster social interaction within geographic communities.

Online groups represent people's varied interests. Table 2 summarizes the types of online groups American Internet users have contacted; these groups mirror interests in offline communities, such as trade and professional societies, fan clubs, local community organizations, medical support groups, and so on.

The Pew study findings clearly suggest that a substantial majority of American Internet users access the Internet in part to explore groups and associations, and more than 80 percent of these users stay in regular contact with at least one group for the explicit purposes of cultivating personal relationships and discussing issues. Although this interaction may not necessarily constitute community building online, it does reflect a high degree of social activity in what Horrigan (2001) calls "the virtual third place," alluding to Oldenburg's (1999) concept of the "third place"—coffee shops, beauty salons, corner bars, and other hangouts where locals talk and visit with one another. From this perspective, many online groups may constitute a middle ground between information and news forums at one end of the spectrum and "true" communities at the other—they are satisfying places to hang out in virtual space.

Table 2. Online Groups Contacted by American Internet Users

Type of Group Contacted	Percent of Internet Users Who Have Contacted Such A Group
Trade or professional association	50
People who share a hobby or interest	50
Fan group of a sports team	31
Fan group of a TV show or entertainer	29
Local community group or association	29
People who share a similar lifestyle	28
Support group for medical condition or personal problem	28
People who share similar beliefs	24
Political groups	22
Religious organizations	21
Sports team/league in which individuals actually participate	20
Ethnic or cultural group	15

Note: Data based on January–February 2001 survey. N=1,697. Margin of error ±3 percent.
Source: Horrigan (2001).

Key Issues in Computer-Mediated Communities

The theoretical and philosophical literature on computer-mediated social interaction includes ongoing speculation about a core set of problems and benefits associated with the online world. Broadly speaking, these concerns can be organized around three sets of questions:

1. Are virtual communities really communities? As discussed in detail in the previous section about the meaning of *community,* there is considerable concern among some analysts that virtual communities are not really communities and cannot offer either the material welfare or the social affiliation that people need (see discussions in Jones 1995a and 1995b; Doheny-Farina 1996; Foster 1997; Gurak 1997; Healy 1997; Howard 1997; Lockard 1997; Lyon 1997; Wilbur 1997; Willson 1997; Baym 1998; Cherny 1999; and Mitchell 1999). People may, through an illusory sense of community online, begin to shift their energies away from their face-to-face networks to an online world of pseudocommunities. The noted sociologists Amitai and Oren Etzioni (1997, 1999) criticize this perspective, however:

> The question of whether virtual communities match real ones is slanted…a different view emerges when we recast the question: What virtues of online communities are absent in offline ones? Computer-mediated and face-to-face communities each have their own advantages as well as their own weaknesses. We should investigate what real communities can do that virtual communities cannot do, and vice versa. (Etzioni and Etzioni 1997, p. 295)

2. How do online communities affect offline communities? There is a persistent argument that virtual communities can become a problem if they cause neglect of communities of place (Halfhill 1994; Turkle 1996a; Locke 1998; and Shapiro 1999). Online communities may potentially undermine those offline in various ways. First, virtual communities can perpetuate (or increase) social inequality by creating a digital divide: people with ready access to computers and the Internet (typically white, affluent, well-educated people) are better able to participate in the knowledge economy, gain access to information they need to improve the quality of life, and engage in the political system more effectively through electronic networking. The digital divide can also take on a spatial dimension. Low-skill, low-income communities may attract less IT infrastructure investment, further increasing their isolation in the information society. As Mitchell (1999) cautions, some places "will further cluster the affluent while leaving the poor in places with few good jobs and services" (p. 81).

Second, virtual communities may allow people to "escape" from their local community and its problems. For example, parents concerned about the safety or quality of public schools can join a home-schooling community online rather than make sure the roof does not leak at the local elementary school. Escapism may also contribute to heightened social stratification and increased intolerance. Several analysts have noted

that online communities could create an excessive pursuit of individual self-interest (Bellah 1985; Doheny-Farina 1996; Foster 1997; Mitchell 1999; Shapiro 1999; and Calcutt 1999). Through a process of "personalization," people can shape their experiences so narrowly that "if [they] don't want to encounter other races, classes, or genders, electronic interaction can effectively make sure that [they] never have to" (Mitchell 1999, p. 95).

Third, online communities can disrupt local political authority in a variety of ways. Local community standards influence legal liability for libel as well as standards for obscenity; several analyses suggest that local community standards have been overruled in favor of broader online first amendment protections (Branscomb 1995; *Harvard Law Review* 1999; and Levin 2002). In addition, the ability of "deviant" social groups, such as skinheads, militia, and white supremacists, to effectively organize themselves via online interactions could be threatening to local communities (Doheny-Farina 1996), as could the "direct democracy" and activism fostered by the Internet. In a society that has carefully crafted a slow-moving representative democracy, shifting power to online groups could be highly destabilizing (Lewis 1999). In the extreme, online communities could challenge the borders and the very sovereignty of geopolitical communities—the Internet has been used in other countries to support uprisings, promote dissidence, and circumvent state censorship (Loader 1997; Knudsen 1998; and Danitz and Strobel 1999).

However, virtual communities have the potential to strengthen communities of place. The absence of distinct identity in online communications can enhance political participation and contribute to more equitable decisionmaking. In communities oppressed by elites, virtual communities can facilitate grassroots activism or empower traditionally disadvantaged groups—the Mexican Zapatista movement and political dissent in Burma are both excellent examples (Cleaver 1998; Knudsen 1998; and Danitz and Strobel 1999). Online communities may also be a remedy for excessive self-interest and personalization of life experience—people can broaden their worldly perspectives and communicate with people they would not be able to otherwise.

3. Will virtual communities reduce social isolation or increase it?

Philosophers are also divided over whether participation in a virtual community will increase social isolation or reduce it. Several analysts raise concerns that interacting online could weaken people's sense of place and thereby heighten alienation rather than reduce it (Doheny-Farina 1996; Turkle 1996a; and Calcutt 1999). Some empirical evidence justifies these concerns; Kraut and others (1998) found that Internet use could be associated with states of depression and loneliness, and Nie and Erbring (2000) documented slight but observable declines in face-to-face interactions the more time people spent online.

Relatedly, the role of anonymity and the considerable potential for deception and antisocial communication online can undermine social trust and prevent people from building virtual community, furthering people's alienation and anomie. Virtual communities face challenges in creating meaningful communication among identified

community members that are not present in face-to-face interactions. However, the ability to participate in a community without the constraints of time or place can make communities more inclusive—consider the homebound, the residents of rural areas, or those with disabilities—and foster a sense of identity and affiliation for people who feel stigmatized or isolated in some way.

3. Sociological Dimensions of Online Communities

Online, or virtual, communities are distinct from face-to-face communities because they are created and sustained almost exclusively through computer-mediated interactions. They are also historically recent phenomena.

Online communities nonetheless share several sociological features with their offline counterparts: identity and boundary maintenance, norms and sanctions, and status and power. Moreover, people participate in virtual communities for information, support, status, affiliation, empowerment, and fun, much as they do in traditional communities (Correll 1995; Mickelson 1997; Sharf 1997; Flaherty, Pearce, and Rubin 1998; McKenna and Bargh 1998; Baym 1999; and Fox and Roberts 1999).

This section reviews the literature on computer-mediated communities by describing the social dynamics of online groups and how they do or do not differ from those in "real life." The particular constraints of computer-mediated communication (CMC) are explored as well as the nature of contemporary social networks and social dynamics related to community identity, cohesion, control, stratification, status, affiliation, and support.

Distinctions between two fundamentally different types of online communities should be made, however, since findings do not reflect all communities uniformly. Asynchronous discourse communities are represented by web-based bulletin boards, listservs, and Usenet newsgroups. These are communities whose shared sense of identity is built by text-based, serial conversation. Participants are represented online only by name and sometimes without a named identity at all;[18] an individual's personality and personae are communicated through words and signature lines in the context of narrative text.

In contrast, multiuser domains (MUDs) and object-oriented multiuser domains (MOOs) are real-time, or synchronous, communities that involve complex aspects of virtual space in which participants are represented by avatars. There is a high degree of role-play in MUD interactions and a heightened sense of the domain as a *physical place*. A MUD is by definition a virtual house, cave, space station, town, planet, or other representation of place that participants *inhabit*. Unlike participants in asynchronous communities, participants in MUDs do more than talk. They express movement and physical action—both within the virtual space and toward one another. Hierarchies of power in MUDs create elaborate controls over the manipulation of rooms and objects. As

[18] Names can be real or pseudonyms. In some circumstances, it is also possible to send messages anonymously, without either a signature line or an identifying e-mail address.

Reid (1999) describes, "there is indeed no moment on a MUD in which users are not enmeshed with a web of social rules and expectations" (p. 12).

MUDs therefore possess a spatial dimension of community and associated behavioral rules that are not generally present in other online communities. Notably, chat rooms and IRC channels are hybrids of the asynchronous communities and MUDs. These are real-time modes that use many of the physical gestures present in MUDs and also reflect aspects of play in the use of nicknames and pseudonyms. But they do not have the intense ambience of physical presence or the social structure that MUDs do. Interestingly, some newsgroups and bulletin boards also try to evoke a sense of place and space by describing places and rooms or creating rituals when logging on to a discussion—examples include *Rancho Delux,* a threaded discussion on *alt.cyberpunk,* and the Lesbian Café (Correll 1995; and Giese 1998).

The CMC research makes it clear that the capacity to build community online derives significantly from the ability of participants to communicate meaning, generate common social structures and functions, and enjoy the psychological benefits of community involvement and identity. Virtual communities are surprisingly able to reproduce the attributes of face-to-face communities online despite the constraints of CMC. In some instances, communities do so by creating a palpable sense of place (as in MUDs and MOOs). In others—virtual communities in the purest sense of the word—a strong sense of community is created and sustained solely through the content of electronic conversations.

Context of CMC

Several important theoretical frameworks provide the foundation for CMC research. Media richness theory (Daft and Lengel 1984, 1986), models of self-identity and deindividuation (Spears and Lea 1992), and social presence theory (Short, Williams, and Christie 1976) enable analysts to evaluate electronic communication based on its ability to convey meaning, express emotions and attitudes, provide timely conversational feedback, and reveal social cues like humor, tone, or disinhibition. Unlike face-to-face conversations, CMC lacks the basic features that allow users to register the identity, status, role, state of mind, emotion, and approval (or disapproval) of the people with whom they converse. CMC is primarily text-based:[19] people "talk" by writing, seeing, and responding to words on a computer screen without reference to social context cues, tone of voice, or face and body language.

Consequently, the absence of cues about social presence in online conversation can be both problematic and advantageous. On one hand, miscommunication and ambiguity can easily result from words not enriched by tone of voice, facial expression, mood, body language, or personality cues. Evidence exists that the lack of social cues causes computer-mediated communication to be less civil than face-to-face talk; it is often more task oriented (as opposed to social oriented), blunt, and uninhibited than

[19] More recently, audiovisual technologies allow teleconferencing and voice chat. Nontext interactions and virtual reality may change the nature of CMC in fundamental ways.

would otherwise be socially acceptable. On the other hand, people's inability to detect class, ethnicity, gender, age, and other indicators of social status can be beneficial to those who are often discriminated against in face-to-face situations. A frequently quoted cartoon by Peter Steiner in the *New Yorker* magazine celebrates this trait of CMC: a dog is shown sitting in front of a personal computer, paws on the keyboard, and commenting to a fellow pooch, "On the Internet, no one knows you're a dog" (Steiner, 1993, p. 16).

The literature suggests, however, that CMC is not as socially impoverished a medium as might be expected. People actively impose their need for rich communication on electronic discourse, and evidence shows that personality traits and socioemotional content can be conveyed online (Hiltz and Turoff 1978; and Rice and Love 1987). Online conversationalists have found many ways to convey what is lacking in text-only speech, so much so that many features of an "electronic paralanguage" (Flaherty, Pearce, and Rubin 1998) are standardized across millions of users. Emotions are readily conveyed through emoticons (smiley faces and other graphic markers),[20] shouting (the use of all capital letters in text), and acronyms such as "rotfl" (rolling on the floor laughing) and "imho" (in my humble opinion). People also qualify their speech to soften potential offense to others, using statements such as "I may be wrong" and "I would think." In real-time conversations, especially in MUDs, various emote commands provide missing body language: smile, nod solemnly, sigh, shrug, chuckle, and eye warily are commonly used. Cherny (1999) also notes the presence of "back channels" in MUDs—reactions such as giggling and nodding during a conversation by other avatars in a room.[21] CMC paralanguage is, in essence, textual shorthand for communicating emotion, facial and body language, and conversational intent.

There are two important issues in CMC that are relevant to computer-mediated communities. One is the issue of anonymity. The absence of social cues in CMC can, in principle, allow people to participate in and contribute to communities free from social prejudice. As one analyst noted, the metaphor of the Internet as "the great equalizer" is ubiquitous in popular debates (Wolf 1998). The second issue is the civility of online discourse. Some CMC research consistently demonstrates uncivil tendencies in online communication; if this is so, then computer-mediated communities may be characterized by linguistic dynamics (and conversational politics) that are absent in face-to-face situations and that have implications for successful community building.

Anonymity and Identity

CMC reflects considerable tension between anonymity and identity. Anonymity appears to be the norm in MUDs, MOOs, and chat rooms and on Internet Relay Chat (IRC) channels; it may otherwise be confined only to particular online groups or communities. For example, participants in online conversations of an intensely personal

[20] It is not clear how often emoticons are used. Witmer and Katzman (1998) found that they were used just 13 percent of the time in the 3,000 messages they studied across a random selection of Usenet newsgroups; Overby (1997), however, suggests that the culture of some online communities relies extensively on emoticons.

[21] Since MUDs try to re-create physical space, the enhancement of social presence is critical to the success of the virtual space.

nature (such as mental illness, sexual orientation, or domestic violence) adopt pseudonyms out of a need for privacy and personal safety—to prevent stalking, harassment, or being discovered by someone in their "real life," such as a boss or an abusive partner. However, even when pseudonyms are required, participants may resort to using real names to signify conversations that are more serious, more intimate, or about "real life" (Jacobson 1996). Anonymity on IRC channels can be particularly confusing; people use "nicks" (nicknames) that are not necessarily permanently assigned. Someone using the nickname "quick fox" one day may not be the person using "quick fox" the next.

In other instances, anonymity may be forbidden or aggressively discouraged, such as in newsgroups that share programming code or in listservs of physicians discussing troublesome cases. Schleef (1996) found that subscribers to a listserv on legal education were relatively hostile to anonymous postings, especially when assertions of law were being made. Burkhalter (1999) uncovered widespread use of racial and ethnic identifiers in his study of Usenet groups *soc.culture.african.american, soc.culture.jewish,* and *soc.culture.mexican.american*. The participants frequently volunteered identity information, but racial and ethnic judgments based on people's remarks were also common. Burkhalter found that racial identification was central to discussions in terms of qualifying, interpreting, and validating postings and conversations but also involved stereotyping participants.

Online groups are also active in what O'Brien (1999) calls "gender policing," attempts to verify the gender of a conversant. Gender switching—pretending to be someone of the opposite sex—is considered to be a profound deception in online communities and is often met with great hostility when discovered; however, it is encouraged in some MUDs and bulletin boards (Bruckman 1996; Reid 1996b; and Danet 1998). In other instances, when gender-neutral names or pseudonyms are used, some community members find the ambiguity intolerable. The query "M or F?" is widely used in CMC as a way of identifying gender, and O'Brien concludes that "the earnestness with which gender policing is conducted in a space in which ready cues are not available indicates that this institution is a fundamental basis for organizing social reality" (1999).

Identity is promoted not just by community dynamics; people all too willingly volunteer it. Burkhalter observed that "participants in Internet newsgroups seem more concerned with being known than remaining anonymous—they seem more interested in reception than deception" (1999, p. 64). Deception may also be more difficult to accomplish online than is commonly believed; although some people may exert great skill at pretending to be someone different, many are nonetheless detected while pretending to be women (Bruckman 1996; and Berman and Bruckman 2001), gay, or an

inauthentic member of a group.[22] Indeed, groups have developed many techniques for authenticating community members, and authenticating especially signature lines.

Signature lines are particularly revealing about their senders, ranging from "business card signatures" that provide extensive detail of real-life identity (name, phone numbers, business, e-mails, etc.); to inside jokes, artwork, and witticisms that reveal personality; to specialized subculture signature codes (geeks, goths, magic players) that reveal physical appearance, style of dress, and attitudes; to community-specific codes, like those used on *alt.rec.motorcycles* where signatures are "a virtual world substitute for the colors and badges of real-world biking" (Donath 1999, p. 44). Donath concludes that "signatures are the on-line world's most deliberate identity signals" (p. 40).

In sum, although many online communities encourage and tolerate anonymity, authenticating one's identity may be critical for validating claims and establishing legitimacy and authority in other forums (Galegher, Sproull, and Kiesler 1998). In the world of electronic communities, people reveal more about their personal characteristics than is, perhaps, typically required to establish credibility as a community member. Being online does not guarantee anonymous conversation or necessarily involve the lack of an identity. The need to have an identity and to judge what people say may, in very important ways, override the neutrality of presence that computer-mediated conversation offers.

Civility and Discourse

Many studies have found that computer-mediated communication is often more offensive than face-to-face communication. There is more flaming (verbally hostile and personally insulting language) and fewer attempts to be social during communication (for reviews of this literature, see Walther, Anderson, and Park 1994). As Parks and Floyd (1996) summarize, "CMC groups have greater difficulty in moving toward shared points of view, more verbal aggression, blunt discourse, and nonconforming behavior than face-to-face groups" (p. 81). Reid (1999) concludes that in MUDs, users are "both more intimate and more hostile with each other than would be socially acceptable in everyday life, especially when considering that hostility or intimacy may be shown among users who are strangers to one another" (p. 112). Sara Kiesler, a CMC scholar who conducted many of the early studies that detected more offensive behavior in computer-mediated conversations, stated that "I don't mean that people turn into beasts on networks, but on average there is more misbehavior, there is more gossip, there is more flaming, there are more extreme opinions, and there is more harassment on networks than there is in other areas" (as quoted in Denning and Lin, 1994, p. 27).

[22] For a fascinating exploration of the ability to create and sustain an alternative identity online without being caught, see *The Turing Game* developed by Amy Bruckman and Joshua Berman at Georgia Tech <http://www.cc.gatech.edu/elc/turing/information.html>, accessed June 1, 2002, and described in Berman and Bruckman (2001). Individuals log on to the game pretending to be someone completely different from who they actually are (for example, a woman instead of a man, black instead of white); others ask questions and try to determine the false identities.

Considering that many online groups are formed to be supportive, this is somewhat surprising. Indeed, there is evidence to contradict the implications of these findings. First, as Smith, McLaughlin, and Osborne (1998) point out in their study of several Usenet groups, flaming and other offensive behaviors were not particularly tolerated and were often reproached within groups, and some groups had much lower levels of offensive conduct than others. Second, some online groups are clearly able to establish supportive, friendly discourse when flaming and conflict are rare (Sharf 1997; Baym 1999; Bird 1999; Donath 1999; and Fox and Roberts 1999).

Third, in a meta analysis of the CMC research addressing offensive discourse, Walther, Anderson, and Park (1994) take issue with the overall characterization of CMC as negative and inflammatory. They argue that this body of literature contains faulty statistical analysis, erroneous reporting practices, and exaggerations by researchers. They critique research that reports statistically significant differences between face-to-face and computer-mediated groups in terms of uninhibited speech "but for which there may have been fewer than one uninhibited remark in the CMC group to begin with" (pp. 463–64). Their meta analysis concludes that "the actual magnitude of negative behavior in CMC may or may not be as large as has become the discussion thereof. The overall effect size for CMC versus [face-to-face] negative communication from our analysis appears minute" (p. 485). In short, the evidence on the antisocial nature of CMC is mixed. Although some of the contradiction in findings may be attributed to research design and statistical analysis, it is also apparent that not all online groups are the same. Some are civil and foster supportive discourse, while others are more hostile and intimidating—as are offline groups.

In sum, CMC creates special challenges for communicating meaning online, but people have demonstrated a considerable capacity to adapt to the medium to meet their communication needs. Facial expressions, actions, moods, tones of voice, and identity can be communicated if people choose to do so, and it is clear that people can and do engage in the full scope of conversations online—intimate, angry, humorous, blunt, caring, helpful, scolding—and reveal their true identities at the same time. Although anonymity and deception exist, people are abundantly capable of communicating socioemotional content and likewise have socioemotional responses to their online conversations.

Are Online Communities "Real"?

There are ongoing concerns about the ability of people to construct a meaningful and real sense of community online. However, as explored previously, whether or not online social interactions constitute "real" communities largely depends on how *community* is defined. If *community* is understood strictly as a geographic place where residents live in a network of ties that support them economically, socially, and spiritually, then online networks do not qualify. If *community* is perceived as a person's network of primary interpersonal relationships, then online networks may again not really be considered communities. As Wellman and others point out, most people sustain only about 20 such primary ties, typically with family members, colleagues, neighbors, and

close friends, and this has not changed with the development of new telecommunications technologies (Fischer 1982; Suitor, Wellman, and Morgan 1997; and Hampton and Wellman 1999). From these two perspectives, online groups may be better understood as "pseudocommunities," associations of somewhat impersonal relations facilitated by a mass medium (Beniger 1987, p. 369), or simply as social networks of secondary interpersonal relationships.

Alternatively, if *community* is conceived of as a large group of people with common interests and concerns who come together to form reciprocal social bonds—such as garden clubs, scout troops, professional associations, amateur sports leagues, and support groups—then many online groups do pass muster as communities of interest. Online and offline communities of interest typically have a regular membership and routine interactions, some form of governance (such as formal political structure or basic rules of conduct), group identity and boundaries, norms, and group-specific cultures. They also provide affiliation, identity, and support for their members and give people the opportunity to form new friendships. From this sociological perspective, an online group may readily function as a community of interest (see Jones 1995a, 1995b, 1998; MacKinnon 1995, 1997; and Overby 1997).

It is also clear from both ethnographic and empirical analyses of online groups that many participants derive a sense of identity and community from their online interactions (Rheingold 1993; Correll 1995; Turkle 1995, 1996a, 1996b; Howard 1997; Sharf 1997; Baym 1999; and Lam 1999) and that the more frequently they interact with their communities online, the more likely they are to develop strong friendships and a sense of community (Parks and Floyd 1996; Dunham et al. 1998; McKenna and Bargh 1998; and Parks and Roberts 1998). Relatedly, a Business Week/Harris poll conducted in 1997 found that nearly one-third of the people who used e-mail considered themselves part of an online community (Hof, Browder, and Elstrom 1997).

Turkle's (1996a, 1996b) research also suggests that for some people, virtual communities are more conducive to growth and experimentation than communities of place, an idea reinforced by McKenna and Bargh's (1998) empirical study of marginalized groups online. These authors compared mainstream online groups to groups with socially stigmatizing conditions such as obesity, stuttering, cerebral palsy, baldness, drug use, homosexuality, and unusual sexual preferences (bondage and spanking) or with marginalized political ideologies (represented by skinheads, militia groups, and others). McKenna and Bargh found that participation in online communities reduced marginalized groups' sense of social isolation and that "virtual groups do matter to people with marginalized concealable identities, more so than to those with visible stigmas or in the mainstream" (p. 687).

Not all online interactive venues represent communities of interest, however. Marc Smith (1999) conducted an extensive quantitative analysis of Usenet newsgroups and found that 7 of the 10 largest groups were devoted simply to job announcements and queries. One-fifth of the newsgroups he studied were entirely empty, and 42 percent of the newsgroups had fewer than 100 messages over a 10-week period. Overby (1997)

concluded that the listserv *TECHWR-L* "seems to function as little more than an on-line advice column…dominated by requests for help and subsequent helpful responses" (p. 205). There was no indication that this group of writers used the technology to build community. In short, an online group may not be equated with a community of interest just because it exists.

Nevertheless, the literature indicates that online groups can exhibit many, if not all, of the notable features of traditional communities. For example, many online groups:

- treat deception as a community offense;
- develop a shared identity, with boundaries and means for detecting outsiders;
- develop their own culture and ethos, norms, expectations, and sanctions;
- foster a sense of community; and
- include status and hierarchy in their infrastructure.

In addition, several studies suggest that many people may be forming strong personal (primary) relationships through online communities. Parks and Floyd (1996) randomly surveyed 176 users across 24 Usenet newsgroups. They found that on quantitative measures of interdependence, breadth of relationship, depth of feeling, intimacy, and understanding, about 30 percent of those surveyed had developed highly personal relations of "great strength" online. Notably, about two-thirds of these relationships began to connect offline through telephone conversations and personal meetings.[23] Similar findings of high rates of friendship formation were found in the empirical study of MOOs by Parks and Roberts (1998) and in a case study of a "telegarden" by McLaughlin, Osborne, and Ellison (1997). Several other case studies also reported that members of online communities eventually arranged to meet offline (Rheingold 1993; Correll 1995; LeValley 1997; Sharf 1997; Finn 1999; Dunham et al. 1998; and Cherny 1999). The Pew Internet and American Life Project study of online communities reported that about one-fifth of listserv users in their survey had "arranged to meet in person someone in the group that they first met online" (Horrigan 2001, p. 12).

Online communities also share the same membership dynamics that characterize physical communities. Some members stay a long time and are highly active, others participate for only a short while, and others ("lurkers") listen to conversations yet do not participate in them. Baym (1995), for example, found that only 10 percent of members accounted for half of the messages in *rec.arts.tv.soaps,* and only one-fifth of the 6,600 members of the *WELL* in San Francisco posted messages at all. The effects of membership dynamics in online communities have not been explicitly studied, but the research generates the impression that more senior members enjoy higher status and that the activity level of different participants mimics patterns of civic engagement in offline communities. Some people act as leaders and are responsible for institutional memory and maintaining the group, while other members act as "free riders" and enjoy the

[23] The strongest predictors of relationship formation were the length of time (chronologically) individuals participated in an online community and the number of groups an individual associated with. Women were significantly more likely to form relationships than men: 72 percent of women vs. 55 percent of men in the Parks and Floyd study had started a personal relationship through a newsgroup.

benefits without expending much energy to support the group. As in face-to-face communities, people online can both move in and move away.

In sum, the research literature consistently finds evidence that it is possible to create "real" communities online through computer-mediated interaction. Through structured discourse, shared involvement, and conversational interaction on a topic, online groups can form what Baym (1995) has called meaningful communal enterprises.[24]

Community Cohesion and Control

Creating community online is challenging. Participants are more limited in their ability to communicate the social cues that physical proximity provides. Because barriers to group entry are low, groups may include people with weak ties to the community's core interest or with little motivation to actively participate (Sproull and Faraj 1997). Group members cannot rely on face-to-face cues to build the trust essential for community health, nor can people looking for a group use the symbolic cues of architecture and space (such as a clerk behind a counter) to signal the nature of a community or the spaces within it (Mitchell 1999). Consequently, "the systems of cultural significance and methods of social control…in on-line worlds in some instances parallel ones we are already accustomed to and in some instances do not" (Jones 1995b, p. 15).

Yet online groups create community largely the way offline groups do—through acculturation and by providing a forum in which members can discuss a shared interest. Both activities are achieved almost exclusively through computer-mediated conversation and sometimes with cues that have no real-world analogue. In general, online communication builds cohesion by (1) creating identity and transmitting culture, (2) developing norms of expected behavior, (3) establishing reciprocity and supportiveness among participants, (4) providing social control of the group, and (5) reinforcing the boundaries of the group.

Identity and Culture

Group identity and culture are created, maintained, and transmitted online in various ways. A common vehicle is posting a list of frequently asked questions (FAQs), which can provide a substantial amount of information about the community's character, core purpose, expectations, taboo topics, norms, and so on. Groups also establish linguistic conventions such as signature styles,[25] header subject categories, unique

[24] Baym based her conclusions on an intensive participant-observer analysis of the newsgroup *rec.arts.tv.soaps*. She analyzed 32,000 postings to this group.

[25] For example, in the newsgroup *soc.couples.wedding,* signatures are formatted as the first name of the bride followed by the fiancé's first name and the wedding date in parentheses. On *misc.kids.pregnancy,* participants sign off with their name and due date; on *alt.rec.motorcycles,* bikers include shorthand descriptions of their motorcycles as well as the membership number of any official biking clubs they belong to. See Donath (1999) for more detail.

abbreviations, and specialized vocabularies or spellings (such as "kewl" for "cool") that not only reflect their culture but also readily identify group members (Donath 1999; and Fox and Roberts 1999). Giese (1998), for example, found that members of *alt.cyberpunk* used narrative and slang to identify subgroup members, and questions about a particular set of song lyrics were a dead giveaway in the fan club *Phish.net* that the participant was not a regular contributor to the group (Watson 1997).

Rituals are also common ways of developing culture. For example, "waving hello" when entering a particular chat room or ordering a drink from the bar when first entering a virtual café may be customary (Correll 1995). Wedding rituals abound in some MUDs (Jacobson 1996; and LeValley 1997), and the international MOO *Dreamscape* (with more than 50,000 members) evolved its own storytellers and myths to defuse the cross-cultural conflict emerging among the community's multinational participants (LeValley 1997). Access to the newsgroup *alt.hackers* is controlled through an initiation ritual: to post messages, participants must first hack into the group's site. Community history and "institutional memory" are also found online in the archives of both asynchronous communities and MUDs.

A sense of shared identity derives largely from the common focus that brings communities of interest together, but the cohesiveness of that identity may also be enhanced by:

- collective narratives of commiseration, such as the burdens experienced by general practitioners on the listserv *gp-uk* (Fox and Roberts 1999) or newsgroup sufferers of chronic fatigue syndrome (Davison and Pennebaker 1997);
- a heightened feeling that members of the group are substantially different from outsiders, such as the perceptions of Macintosh computer enthusiasts in the *MacMarines* discussion group (Lam 1999);
- norms of reciprocity and supportiveness communicated through attenuated speech, empathetic responses, information sharing, and timely replies to questions or requests for help, such as those found in an online support group for teenage single mothers (Dunham et al. 1998);
- a crisis within the community, such as the virtual rape in the MUD *LambdaMOO* (Dibbell 1994);
- threats presented by "bashers," outsiders who are antagonistic to a community's interests and who post hostile messages to the community (Correll 1995);[26] and

[26] Treatment of bashers is also a form of boundary maintenance, but reactions vary widely among groups depending on the nature of the threat. Responses can be quite civil, as in the case of the *MacMarines* (Lam 1999). Bashing may, however, incite flame wars, as on *rec.pet.cats* (Donath 1999), or mob violence, as in the MOO *JennyMUSH* (Reid 1999).

- the process of collectively working through challenging community issues, such as conflicts over ownership of guns and weapons, which were resolved in the MUD *Habitat* (Turkle 1996b).

In sum, shared identity and culture are fundamental aspects of online communities, which, like offline communities, build these characteristics through empathy, boundary definition, ritual, common expectations, helpfulness, a perception of "us versus them," threats to the group, and so on. The singular difference is that many of the community-building dynamics that take place through tangible cues in face-to-face discussions (the use of fashion, personality, body language, and facial expression) are replaced with the stylistic conventions of CMC—specialized vocabularies, coded signature lines, emoticons, and so forth.

Group Norms

Critical to community cohesion is social control through the development and enforcement of group norms. Multiple mechanisms exist for developing norms of expected behavior and enforcing compliance with those expectations, ranging from unilateral actions by system operators to elaborate rules of governance in some MUDs.

Norms of online civil discourse, or "netiquette," are relatively standard across Internet communities (Whittle 1997; and Kitchin 1998), although individual groups may disregard some rules and expand others depending on group culture (Smith, McLaughlin, and Osborne 1998). Norms may emerge through explicit dialogue about what the rules should be, as evidenced by the MUDs *MicroMUSE* and *Habitat* (Turkle 1996b; and A.D. Smith 1999). They may be imposed unilaterally by the system operator, or they may evolve from "conduct-correcting episodes" in which group participants are reproached for their behavior (Smith, McLaughlin, and Osborne 1998). Netiquette is typically posted regularly, sent to new subscribers, or included in a community's FAQs.

Some offenses are simply bad manners (poor spelling, posting messages that are too long), while others represent what would clearly be criminal behavior in real life (stalking, verbal and sexual harassment, and assault). Good manners involve actions such as providing clear subject headers, marking potentially offensive content, and appropriately referencing prior messages. Bad manners typically include flaming,[27] profanity, and spamming.[28] Trolling, a unique form of online communication, is also widely regarded as problematic except when it represents a nonmalicious practical joke on

[27] Unless groups, such as the newsgroup *alt.flaming,* allow it, or unless flaming is for purposes of social control rather than personal insult. Surratt (1998) contends, "when the threat to the newsgroup is serious enough, flame wars are the most important means of social constraint on the Usenet system" (p. 209).
[28] Spamming is excessive cross-posting or e-mailing a group for advertising purposes.

community members.[29] Impersonation, or using another person's signature line, is also a major offense. In an analysis of reproaches posted to five major Usenet newsgroups, McLaughin, Osborne, and Smith (1995) identified seven categories of Usenet offenses, ranging from novice use of the technology to rather serious ethical violations (see table 3). What constitutes offensive behavior can also be driven by the medium. Using audible beeps in IRC and "flooding"[30] in synchronous communication domains are community violations that technologically cannot occur in asynchronous bulletin board and listserv communities.

It is not clear how common these different transgressions are, to what degree they characterize all online community discourse, or how serious the offenses may be overall. As discussed earlier, although evidence exists that online conversations may be less civil than face-to-face conversations, there may be serious reason to doubt incivility as a universal characteristic. Smith, McLaughlin, and Osborne (1998), for example, found that reproachable conduct constituted only 15 percent of the postings on five popular newsgroups, and that 75 percent of the violations fell into three categories—violating newsgroup norms, inappropriate language, and factual errors. In addition, 40 percent of the total reproaches in the study were attributed to the raucous newsgroup *rec.sports.hockey,* suggesting that incivility is not characteristic of all computer-mediated interactions.

This impression of limited incivility is also supported by case study evidence. In a 3-month study of an online self-help group for people with disabilities, Finn (1999) found no messages with demeaning or hostile content, and in another group, only one complaint of flaming was sent to the system operator over a 6-month period (Dunham et al. 1998). Relatedly, Correll (1995) observed that bashers accounted for less than 1 percent of the messages posted over a 3-month period on the Lesbian Café bulletin board.

Smith, McLaughlin, and Osborne (1998) also uncovered distinct patterns of friendliness and helpfulness among the five different newsgroups they studied. The style and tone of reproaches varied according to the nature of the offense and the newsgroup. Depending on the circumstances and group, reproaches reflected friendliness, wit, factual

[29] Trolling is one style of CMC that does not have a clear analogue in real life. It is generally done to embarrass individuals, provoke argument, disrupt real-time chat or an asynchronous conversational thread, or incite a flame war. Less commonly, it is conducted as a harmless and friendly practical joke or to identify newbies. In any event, trolling is a word-based fishing expedition (c.f., trolling bait) designed to trick people into believing the message is an authentic comment or request for help. The trickery can be either in the content of the message itself or in confusion over whether the posting is from a legitimate community member (or both). For example, a message ostensibly posted by a 13-year-old girl to the newsgroup *rec.pet.cats* suggested squirting a cat in the face with hydrogen peroxide to stop it from chewing on electrical cords. Confusion and flaming erupted immediately over whether the girl was both serious and a cat lover, since peroxide in the eyes is tantamount to animal abuse. "She" was gently corrected by some members, flamed by others, and accused of trolling by still others. In the end, the girl turned out to be a male college student who was subsequently denied access to his local Usenet server, essentially cut off from easy access to Usenet. See Surratt (1998) and Reid (1999) for fuller accounts of this incident.

[30] "Flooding" is filling a participant's screen with scrolling, repetitious, and meaningless text. It can often freeze an individual's telecommunications link to the online community.

correction, criticisms of behavior (instead of the offending individual), and personal attacks.

Table 3. Taxonomy and Examples of Reproachable Conduct on Usenet

Incorrect/Novice Use of the Technology

Editing and formatting errors, multiple postings or signatures, failing to use follow-on option.

Bandwidth Waste

Excessively long article or signature, indiscriminate cross-posting, asking a frequently asked question.

Violation of Network Conventions

Incorrect or missing subject headers, failing to encrypt offensive material, posting to an inappropriate newsgroup or otherwise demonstrating a lack of regular reading.

Violation of Newsgroup-Specific Conventions

Failing to use spoiler warnings, lack of familiarity with and failure to use appropriate subject headers and abbreviations, failing to conform to group spirit or style and group tradition regarding appropriate topics.

Ethical Violations

Posting private e-mail or personal information about others without permission, harassment of individual posters, misattribution of quotes or misquoting.

Inappropriate Language

Flaming (personal attacks or ridicule), hostile or coarse language, linguistic affectations that distract or detract from message content.

Factual Errors

Spelling and grammatical errors; mistakes with respect to names, dates, places, and events; errors in summarizing others' posts.

Note: Taxonomy based on content analysis of postings to *comp.sys.ibm.pc.games, rec.sport.hockey, soc.motss* (members of the same sex), *soc.singles,* and *rec.arts.tv.soaps.abc* during May–June 1993.

Sources: Smith, McLaughlin, and Osborne (1998); and McLaughlin, Osborne, and Smith (1995).

Social Controls

Online communities have many ways of disciplining members to promote civil discourse and curb sociopathic behavior.[31] Sanctions can fall into one of three categories

[31] Forms of communication and aggression that would represent crimes against persons, property, or community if conducted in other settings.

representing escalating degrees of severity: applying peer pressure, disconnecting the offending participant, or invoking real-life law (Denning and Lin 1994).

Peer pressure includes periodic reminders of the group's netiquette by the system operator, postings by high-status group members indirectly criticizing the tone of the group's discourse, outright lectures and warnings, public reproaches, and private e-mails to offending participants. In MUDs, shaming an individual can be accomplished through "toading"—transforming a member's online physical persona into another embarrassing appearance, typically a toad. (For example, a MUD avatar repeatedly attacking other MUD members might be transformed from a furry kitten into a toad as an attempt to publicly ridicule its behavior.) Silence and shunning are more extreme forms of peer pressure accomplished by simply ignoring offensive participants or placing them in a "kill file."[32]

When all members of an online community invoke a kill file for the same person, the offender is effectively and completely shunned. Because no one can see the individual's postings or comments, no conversations are ever conducted with that person again. On Usenet, cancel-bots are a system-level equivalent of the kill file. These programs seek and delete specific messages and are designed to eliminate spam and cross-postings before community members see them. System operators are typically the only people who can implement a cancel-bot, and there are Usenet norms about when these can legitimately be used (Surratt 1998).

Disconnection, a more serious sanction against community offenders, requires technological solutions by system operators or those with designated authority to deny someone electronic access to a community. In IRC, the "kick" command removes someone from a channel temporarily and a "ban" can remove people permanently (Reid 1996a). In asynchronous communities, offenders can be removed from listserv distribution lists or blocked from bulletin board access. In MUDs, avatars can be removed permanently from the community through a variety of commands variously referred to as toading (which also means to transform an avatar's appearance), nuking, execution, player killing, and site locks. For example, "@boot" and "@toading" commands will disconnect or permanently remove undesirable guests from a site.

A participant can be disconnected at the request of the community or unilaterally by the system operator in an asynchronous community or chat room, by a channel operator on an IRC channel, or by a wizard or god in a MUD. Communities may have norms for collective decisionmaking about expelling someone from the group, but the literature suggests community-governance efforts have not been particularly successful (MacKinnon 1997; Kitchin 1998; Kolko and Reid 1998; and A.D. Smith 1999). In addition, disconnecting a participant is never a final solution to the problem; someone can

[32] A kill file is a programming tool that removes postings sent by "killed" participants. The person invoking the kill command does not receive or see the offender's messages. In synchronous venues such as IRC channels, chat rooms, and MUDs, the conversation of killed participants does not appear on the viewer's screen.

often circumvent a site lock by simply obtaining a new e-mail or Internet address and assuming a different identity.

Imposing legal sanctions against online offenders is problematic, and the range of offenses is substantial. Online communities may struggle to deal with libel, hate speech, obscenity, sexual harassment, copyright infringement, spamming, and other types of civil and criminal offenses (Branscomb 1995; Andrews 1998; *Harvard Law Review* 1999; and Levin 2002). Yet community members cannot sue another participant for libel, for example, if the online group in which the defamation occurs is an unmoderated forum. [33] In addition, court rulings have been inconsistent about whether real-life local community standards regarding obscenity and hate speech apply to online groups (Levin 2002). Very simply, Internet law regarding online communities is complicated by first amendment protections of free speech; by fragmented local, state, and federal jurisdictions; and by newly emerging, antisocial behaviors online.[34]

In general, the legal system is also apparently not equipped to deal with the issue of virtual crimes committed by online personae. The law is written to punish tangible crimes committed by real people, not virtual crimes acted out by online representations of self (MacKinnon 1997). Verbal and sexual harassment, "capturing" another member's line of communication, and masquerading as another community member are severe offenses that cannot be prevented when an offender is truly intent on committing these acts online. Several case studies also recount sociopathic behavior. Three frequently discussed and cited incidents include the virtual rape on *LambdaMOO* involving the avatars Mr. Bungle, legba, and Starsinger; a posting on *alt.sex.stories* by a University of Michigan student who describes the rape, sexual torture, and murder of his real-life classmate; and a basher on *JennyMUSH* who subjected group members—survivors of incest and sexual assault—to severe degradation and further verbal assault.[35] A.D. Smith (1999) also reports that on *MicroMUSE,* a space station environment designed for K–12 students and educators, "violence, obscenity, racism, pornography, harassment, theft, and invasion of privacy are prohibited but not absent" and that assault, spying, and theft are typical complaints registered by *MicroMUSE* members.

These accounts illustrate not only that heinous real and virtual offenses may occur online but also that they are particularly vexing for both online and offline communities. *MicroMUSE*'s attempts to create a citizen's council and quasi-judicial system were a complete failure (A.D. Smith 1999). *LambdaMOO*'s citizens debated in a democratic forum how to punish Mr. Bungle—virtual punishment or real-life prosecution of the individual behind Mr. Bungle's personae—and came to no closure[36] (Dibbell 1994; and MacKinnon 1997). The University of Michigan student was prosecuted in real life, but

[33] On some listservs and bulletin boards, discussions are moderated. All postings are channeled through a person who filters them for appropriateness and content before distributing messages to members.
[34] A useful website for exploring the basics of Internet law is http://www.phillipsnizer.com/internetlib.htm, accessed June 3, 2002.
[35] For overviews of these incidents, see Dibbell (1994), MacKinnon (1997), and Reid (1999).
[36] When *LambdaMOO*'s constituents could not decide what to do about Mr. Bungle, he was quietly killed by one of the MUD's wizards. Mr. Bungle problematically resurfaced days later as Mr. Jest when his avatar simply got a new Internet account and circumvented the lockout.

charges were dropped since the legal system was not designed to deal with crimes of personae instead of real people. *JennyMUSH* citizens responded to their aggressor in a virtual mob attack and assault, and then instituted more rigorous technical controls to defend against bashers.

The literature suggests that some MUDs may experience offenses of much greater severity than those occurring in other online communities and that MUDs often resort to forms of justice that are clearly illegal in today's society. For example, *MicroMUSE* deals with offenders through enslavement, imprisonment without trial, and teleportation against an avatar's will (A.D. Smith 1999). The MUD *Revenge of the End of the Line* offers bounties for community members wanted for malicious mayhem (Reid 1999). Torture, physical abuse, and virtual capital punishment are also possible. However, executions often take place without the real-world equivalent of formal systems of jurisprudence or due process (MacKinnon 1997; and Kitchin 1998).

The literature clearly suggests that MUD governance is either autocratic or tantamount to that in the frontier-era American West. Gods, wizards, system operators, and community owners can summarily ban, kick, or execute people without the constraints of collective governance, acting in essence as benevolent dictators.[37] Some MUD communities, such as *Habitat, Dreamscape,* and *LambdaMOO,* have clearly risen to the occasion and at times developed effective democratic processes (Dibbell 1994; Turkle 1996a, 1996b; and LeValley 1997). Yet several authors refer to the frontier mentality and ethic, in which reactive mob rule deals with the crime at hand (Kitchin 1998; MacKinnon 1997; Kolko and Reid 1998; and A.D. Smith 1999). A.D. Smith recounts of *MicroMUSE* that there was "A frontier ethic in terms of taking the law into your own hands. Retaliation and counter-retaliation in escalating cycles were common, and formation of posses and use of hired guns occurred" (A.D. Smith 1999, p. 147).

A.D. Smith (1999) and Kollock and Smith (1996) suggest that at a basic level, computer-mediated communities may simply not be able to resolve deep conflicts and issues because of the nature of the medium. A.D. Smith, a former conflict mediator for *MicroMUSE,* argues that implementing formal conflict resolution techniques online is tremendously difficult. In her experience, problems associated with fact finding, the inability of people to interpret messages correctly because of limited social cues, the inability of people to *write* effective messages given the thinness of the medium, and archive sabotage were barriers to effective conflict mediation.

Echoing many of the same concerns, Kollock and Smith (1996) argue—from a theoretical perspective—that the basic nature and structure of Usenet newsgroups prevent these communities from successfully managing themselves. They argue that although online communities have the basic characteristic of a collective good (or a commons), they lack the critical features Ostrom (1990) has found necessary for successful collective action. In particular, online group boundaries are "both undefendable and undefined," and most people are not able to participate in developing community norms and expectations.

[37] As Surratt (1998) points out, malevolent despotism by online community owners/operators cannot last long because people will simply leave the community.

Social Stratification and Status

One of the expected benefits of online interaction is more egalitarian communities. Without the traditional social cues that normally serve to stratify society—indicators of class, race, ethnicity, gender, and age, for example—community dynamics should shift in favor of more balanced participation, tolerant discourse, and democratized decisionmaking. As Wolf (1998) explains, there is a prevailing hope that the Internet will be society's "great equalizer."

Data on the equalizing effect of computer-mediated interaction are mixed. Spears and Lea (1994) reviewed the literature on computer-mediated communication and found evidence that members of traditionally underrepresented groups—such as women and minorities—tend to speak out more in computer-mediated formats. However, abundant case studies suggest that new hierarchies of power are emerging online, that social status matters, and that gender continues to be a critical way to categorize people and their experiences. Crowston and Kammerer (1998) summarize the ambiguity of research results to date by observing, "Some [studies] suggest that the use of CMC allows more equal levels of participation and influence; others find that the use of CMC can leave differences in perceived contribution and influence" (p. 188). Three characteristics of online communities that can explain these contradictions are explored below.

Hierarchies of Power

Behind every online discussion group, bulletin board, listserv, MUD, IRC channel, and chat room is a technology that provides access to the electronic forum. Control of that technology represents ultimate power in a community because it is the power to control access to the group. Although online communities exist in a virtual space, they can lock out undesirable people and control the kinds of things members can do once in the community.

Nonetheless, publicly accessible newsgroups, listservs, chat rooms, and bulletin boards are unmoderated, open-access discourse communities. Anyone with Internet access and the appropriate client software can, either automatically or through minimal efforts, subscribe and participate.[38] There is no gatekeeping in these communities, and system operators are typically the only people who can remove a member from the group or delete postings. The literature suggests that these actions are rare, being implemented only in cases of severe abuse or, in cases involving expulsion, at the request of the community. The extreme openness of online communities is based largely on the culture of openness that was intrinsic to the emergence of Usenet specifically and the Internet more generally (Hauben and Hauben 1997). Online groups therefore have no meaningful hierarchy of power. System operators can be quite powerful, however, not only in their

[38] Note that in the case of commercial online communities—such as those hosted by America Online, CompuServe, Prodigy, and the Microsoft Network—a person must subscribe to that Internet service provider to gain access.

control of membership and postings but also through command of kill files, cancel-bots, and other technical features of the domain.

On IRC channels and in MUDs, this is decidedly not the case. IRC is characterized by a hierarchy of power that includes (ranked from lowest to highest) newbies, regulars, channel operators, and operators (Surratt 1998). Higher ranks are associated with greater system powers granted by the system operator, such as the ability to use the "kick" command, which disconnects people from the channel while they are talking. Surratt (1998) notes that participants in IRC climb the social ladder based on their helpfulness and contribution to the channel and that people are simply treated differently depending on their rank and seniority in the channel.

MUDs have even more elaborate hierarchies because of their basic nature and purpose. Interacting with other avatars and objects to obtain power is an essential aspect of role-play in adventure MUDs and many social MUDs. Various system privileges accrue as participants move up in rank from guest to basic user, privileged user, wizard, and god. The ability to create certain kinds of objects and rooms, manipulate general and specific objects, and discipline players through teleportation or toading are powers that are differentially distributed to MUD community members. Unlike bulletin boards and listservs, many MUDs never intend for their members to be equal participants in the domain. Relatively weak members may exercise power in a MUD only by manipulating objects that they themselves have created and other avatars have found to be useful or desirable, such as a mirror with magic powers.

Power and rank may not exist in some domains, but computer-mediated environments are not necessarily egalitarian or inclusive. Not only does an explicit hierarchy and rank exist in MUDs and on IRC channels but, as is widely reported in the literature, a few active participants dominate most online communities and their discourse. For example, Baym (1995) discovered that 10 percent of the members of *rec.arts.tv.soap* accounted for 50 percent of the messages, and in the early 1990s, only 20 percent of the *WELL*'s 6,600 members posted messages (Sproull and Faraj 1997). Most case studies also report similarly high rates of "lurking" (reading but not posting messages) and conversational dominance.

Social Status

Status is not entirely absent online, despite the relative lack of social cues in a computer-mediated environment. As some authors have found, real-life status criteria have simply reproduced themselves in cyberspace. Burkhalter (1999) found that racial and ethnic identification was commonplace in several Usenet newsgroups[39] and stimulated prejudicial interpretation of members' discussions; he also believed that this online prejudice was "more immutable in online interaction than offline" (p. 63). Mitra's (1997) analysis of *soc.culture.indian* revealed that the ethnic antagonisms among Indian Tamils, Begalis, and Punjabis were being reproduced online, as was the general hostility of India toward Bangladesh and Pakistan.

[39] These were *soc.culture.african.american, soc.culture.jewish,* and *soc.culture.mexican.american*.

Participants in online groups also engage in status-enhancing activities based on status criteria in real life. Donath (1999) found, for example, that members of poetry groups submitted poems to establish status within the group, while participants in the weight lifting newsgroup *misc.fitness.weights* provided physical descriptions and even photographs of themselves. In online support groups, providing credible medical knowledge enhances status (Sharf 1997; and Galegher, Sproull, and Kiesler 1998). In general, signature lines may add as much information about status as about identity.

In a very revealing study about the role of status in a computer-mediated group, Weisband, Schneider, and Connolly (1995) found that knowledge of a group member's status clearly had an effect on group dynamics. In a controlled study of undergraduate and graduate students participating in a group decisionmaking environment, these authors noted that when status cues about students were hidden, participation patterns changed and status differences in influence virtually disappeared. One experiment in the same study also indicated that face-to-face groups were actually less sensitive to status differences than computer-mediated groups. In online groups, low-status members were seemingly judged on factors other than their actual participation in the group.

Unfortunately, the literature does not indicate why or under what circumstances some online groups appear to be egalitarian and others do not. Although computer-mediated interactions may in theory facilitate more inclusive communities, the research suggests that these outcomes do not happen routinely.

Gender Issues

Research on computer-mediated interactions suggests that on one important social dimension people are not allowed to be anonymous: gender. Not only is gender switching generally regarded as a hostile action within a community but also gender-neutral pseudonyms often provoke intense queries about whether a person is male or female (Bruckman 1996; Reid 1996b; Danet 1998; and O'Brien 1999). The inability to hide one's gender, at least for women, may in fact matter greatly in online discourse.

Several studies have found that in mixed-gender discussions, women tend to encounter the same status and power problems online as offline (see reviews and findings in Herring 1992, 1996a, 1996b, 1999; Herring, Johnson, and DiBenedetto 1995; Spender 1995; Wylie 1995; Reid 1996b; Carstarphen and Lambiase 1998; Crowston and Kammerer 1998; Denzin 1998; Smith, McLaughlin, and Osborne 1998; and Fox and Roberts 1999). Anecdotal reports of online sexual harassment are frequent, and male-dominated patterns of communication—talking more, talking longer, challenging rather than supporting, flaming, objecting to women's topics of discussion, and ignoring women's remarks—are observed in the content analysis of several studies.[40] In one notable example, discussions in the newsgroup *alt.feminism* (in which the majority of members were women), men dominated as much as 70 percent of the conversation. Other

[40] For a good example of the contrast between "female" and "male" online styles, see Denzin's (1998) analysis of discussions on the newsgroup *alt.recovery.codependency,* and see Herring (1992, 1996a).

studies show, however, that mixed-gender online groups do not necessarily experience this problem (Davison and Pennebaker 1997; Galegher, Sproull, and Kiesler 1998; Baym 1999; Bird 1999; and Klemm et al. 1999).[41]

Although women's online speech is believed to be more attenuated and supportive than men's, one study of 3,000 messages from a variety of online groups found that women flamed and used more challenging language than men did (Witmer and Katzman 1998). In an analysis of five popular newsgroups, Crowston and Kammerer (1998) found that there was no statistically significant difference in the degree to which men and women mixed both adversarial and attenuated/supportive speech in their postings.[42] Klemm and others (1999) found, however, that the *number* of supportive messages posted by women in mixed-gender online cancer support groups was double the rate of men's supportive postings. Even in groups that are heavily represented by women, there are nonetheless distinct differences in style and tone of women's communications, as Davison and Pennebaker (1997) detected in their analysis of several online medical support groups.

As more women go online, the gender dynamics of online communities may change; contradictory findings are often between earlier studies, in which women were clearly the minority online, and later studies, in which they were more strongly represented in online communities. A Nielsen NetRatings study in December 2001 found that in the United States, women made up 52 percent of home Internet users,[43] a demographic shift that is likely to affect online community behavior. Nonetheless, it is also clear that the culture of each online community is different and that gender alone does not predict communication patterns or behavioral norms.

Finding Affiliation and Support Online

Critics of virtual communities question whether online interactions enhance social affiliation and instead argue that time spent online will increase social isolation. Other analysts raise concerns that interacting online could weaken people's sense of place and that this loss of "grounding" would heighten alienation rather than reduce it (Turkle 1996a; Doheny-Farina 1996; and Calcutt 1999). Some empirical evidence justifies these concerns. Kraut and others (1998) found that Internet use could be associated with states of depression and loneliness, and Nie and Erbring (2000) documented slight but observable declines in face-to-face interactions the more time people spent online.[44]

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[41] Bird (1999) did find, however, that in the discussion group for the television show *Dr. Quinn, Medicine Woman,* men posted the more aggressive and inflammatory remarks.

[42] The only gender differences Crowston and Kammerer found were at the extremes: messages that were entirely adversarial were almost always posted by men; messages with completely supportive/attenuated speech were almost always posted by women.

[43] *Number of Female Net Surfers Grows Faster Than Overall Internet Population According to Nielsen/NetRatings,* January 18, 2002, http://www.nielsennetratings.com/pr/pr_020118_monthly.pdf, accessed June 3, 2002.

[44] For critiques of these two works, see Papadakis (2003).

However, one of the significant advantages of online communities, in theory, is their ability to connect people who are socially marginalized, disadvantaged, or geographically isolated (Hiltz and Turoff 1978; Marlett 1988; Correll 1995; Scheerhorn 1997; Dunham et al. 1998; McKenna and Bargh 1998; and Davison, Pennebaker, and Dickerson 2000). People who have stigmatizing conditions (such as a visible handicap or disfigurement), are physically isolated (such as prisoners or rural citizens), or live in very small communities without access to others with similar concerns (such as gay teens) may have difficulty developing social networks that provide support and friendship. Feelings of isolation, loneliness, or low self-esteem can result. Online communities may offer considerable opportunities: they are available to everyone, regardless of location, 24 hours a day, 7 days a week. In addition, the size of an online group may offer a scope of expertise and experience unavailable in the local community. Online communities also offer a degree of privacy that people may not find in their city or town.

The research on online support groups tends to support the broad theory that online communities can provide a viable, and even preferred, substitute for face-to-face interactions. For example, a few studies have found that marginalized or isolated people are more likely than others to seek interaction online. Davison, Pennebaker, and Dickerson (2000) found in an extensive survey of online and face-to-face support groups that people with stigmatizing or potentially embarrassing conditions were more likely to seek online support than were people with more socially acceptable conditions. Thus, people with AIDS, alcoholism, and prostate cancer were more likely to go online for social support than people with heart disease, who tended to join face-to-face support groups. Dunham and others (1998) found that socially isolated teen mothers—those without support from family, friends, or the baby's father—were more active on a bulletin board than mothers with positive social support. Mickelson's (1997) comparative study of face-to-face and online support groups for parents of mentally retarded, autistic, or developmentally delayed children also is revealing: the more that parents perceived their child's condition as stigmatizing, the more likely they were to go online for support. Parents in online support groups in this study also considered their social networks much less supportive than did parents in the face-to-face support groups, and the more stress parents perceived with respect to their child's needs, the more likely they were to go online.

There is also some evidence that online support groups and newsgroups provide an observable benefit in terms of affiliation, identity, and support. Scheerhorn's (1997) case study of HIGHnet, a network for hemophiliacs, suggested that this online group addressed the needs of the chronically ill by providing information that reduced medical costs, improved health, and created and sustained friendships. Marlett (1988) found similar results for a Canadian computer-based network for the disabled. Once a critical mass of participants was reached, new friendships were created, small businesses emerged, and the disabled developed new social roles for themselves.

Studies of online support groups also strongly suggest that participation has potentially therapeutic effects on its members. Weinberg and others (1996) found that for an online group of six breast cancer patients (a size comparable to face-to-face groups),

the message content reflected statements of universality, hope, and group cohesion that were typical of face-to-face support groups. Finn (1999) found similar results when he examined 718 messages over a 3-month period for an online self-help group for those with disabilities. Although Finn did not expressly test for therapeutic outcomes, the messages contained expressions of empathy, support, catharsis, and other feelings that one would expect to find in a group self-help setting. Sharf's (1997) analysis of the posting to a breast cancer survivors listserv found evidence of empowerment: "connectedness, an internal sense of self, and a resulting ability to take action."

Participation in an online support group may also have positive psychological benefits. Dunham and others (1998) analyzed a private bulletin board comprising 42 single mothers ages 15–20 and found statistically significant differences in participants' levels of stress and the length of time they interacted online. The more they posted to the bulletin board, the greater the reduction in stress. McKenna and Bargh (1998), in a complex set of three studies on socially marginalizing conditions (including those that are visible, such as obesity, and those that are not, such as sexual orientation), found that participation in online newsgroups consistently contributed to "the transformation of an individual's social identity" (p. 691). For many participants in these newsgroups, conversing online helped them feel more socially acceptable and less marginalized and contributed to a more positive self-image.

People who are isolated or socially marginalized are not, however, the only ones finding affiliation online. As discussed earlier, the Pew Internet and American Life Project survey of participation in online groups found that a sizeable majority of American Internet users (two-thirds) stayed in regular contact with at least one online group (Horrigan 2001). Virtual groups provide 24-hour, 7-days-a-week convenience; universal access; and a sense of community for everyone, including people who can meet others face-to-face. The Pew survey found, for example, that a quarter of Internet users contact and visit online groups to interact with members of their own physical community. This finding is consistent with Katz and Aspden's (1997) research that showed that long-term Internet users belonged to more community organizations than any other group in their study. In addition, in the Pew study, respondents most often reported that they connected to groups with which they were already involved or had common interests (Horrigan 2001).

Association with an online group also appears to foster involvement and a sense of affiliation. According to the Pew study, 60 percent of Internet users, on average, who interact regularly with an online group e-mail other members. People who belong to listservs actively read, and post to, the list. They report that these activities have enabled them to meet people they otherwise would not have met and also help them feel connected to other group members. Moreover, the most actively engaged e-mail other group members at a much higher rate than the average—70 percent or more e-mail their group regularly. These online "groupies" typically are:

- members of online political groups (predominantly white, well-educated males who have been online for at least 3 years);

- looking for others with common lifestyle interests (predominantly male, but younger and more ethnically diverse than the typical Internet user);
- members of online ethnic or racial groups (predominantly young, well-educated, experienced Internet users. This group also has more balanced gender composition, with women comprising 48 percent of these people.); or
- people who go online to interact with groups affiliated with their local geographic communities (slightly older, more educated, and more experienced on the Internet than the typical online user).

Horrigan concludes of the Pew study findings that:

> Online communities are enabling Internet users to build bridges to other groups and people, while at the same time deepening ties to groups and ideas with which people are already involved…As the Internet disseminates more broadly throughout the population, there are signs that online groups may facilitate new connections across ethnic, economic, and generational categories. (Horrigan 2001, p. 19)

The ability to create affiliation online should not be viewed through rose-colored glasses, however. Like face-to-face activities, some online community activities can be socially destructive. New evidence on hate groups (Lee and Leets 2002; and Levin 2002) suggesting that it is possible to build "negative" community online corroborates McKenna and Bargh's (1998) data on people with marginalized political identities.

4. Conclusions

As Internet access and use continue to grow, Americans are clearly participating in online groups as a way to extend their social networks. The Pew Internet and American Life study on online groups indicates that roughly two-thirds of all Internet users interact regularly with a group online (Horrigan 2001) and derive a sense of community participation from their interactions. Although all of these online associations certainly do not constitute a "community," it is nevertheless possible for people to build community through an electronic medium.

Online community members must build trust and character through narrative, cannot rely on face-to-face cues, and risk chronic miscommunication. Nonetheless, online groups construct community and meaning much as face-to-face groups do. Through the development of norms, rituals, symbols, culture, sanctions, and a shared identity and purpose, both online and offline communities create the ties that bind their members. The research literature suggests, in a compelling way, that it is quite possible for people to create meaningful social bonds online.

Many online groups are information-sharing forums without the qualities of community—common experiences, reciprocity, shared beliefs and values, and a sense of solidarity and support. True virtual communities may in fact be quite rare. Although hundreds of thousands of groups exist online, only a few dozen have been studied intensively. Few of these are communities, and the empirical research shows high proportions of relatively inactive online venues.

True online communities are best compared with face-to-face communities of interest because common interests and concerns unite their members. Online communities are not, however, constrained by time or place in terms of the frequency or timing of their interactions. Indeed, their interactions are almost exclusively electronic, and to this extent, computer-mediated communities cannot share the tangible experiences that their face-to-face counterparts enjoy—ball games, camping trips, motorcycle rallies, community cleanup efforts, and so on. Several studies reviewed here do suggest, however, that members of many online communities begin to meet offline as well, demonstrating their emerging role in social network formation.

The research also suggests that some common perceptions about online communities may not be well founded. Incivility and flaming are not necessarily widespread, and some groups do not experience these problems on a regular basis. The most frequent violations of netiquette also appear to be low-level offenses regarding the structure and clarity of messages.

However, perceptions of online communities as places of egalitarian participation are not necessarily supported in the literature. The computer-mediated communication (CMC) literature is mixed in its evidence regarding online discourse as the great

equalizer; hierarchy and status are present online as well as offline. There is also no consensus regarding anonymity among online groups. Strong pressures exist in some communities to authenticate one's identity by revealing personal information about gender, ethnicity, or life experience.

Fundamentally, all online and offline communities are different once their basic, common sociological features are recognized. Their strengths, weaknesses, culture, style, activities, and character vary. Community dynamics depend on the composition and personality of the membership, the quality of leadership, and the historical context in which they operate. Levels of civic engagement are neither constant nor necessarily high. Lurking online is not appreciably different from attending membership group events only every few months or once a year. The domination of an online group by a few active and committed leaders is comparable to the dynamics in many face-to-face societies.

Essentially, only two features really distinguish online from face-to-face communities: (1) community building is accomplished through computer-mediated interaction and (2) community participation is not constrained by time and place. However, it is much, much harder, but not impossible, to form online communities because of these differences. CMC makes it harder to communicate effectively, and the lack of time and space constraints may make community boundaries excessively fluid. Nonetheless, once online communities have formed, very little separates them from a "real" community.

The viability of computer-mediated communities primarily depends on what they do for their members. The literature on social network analysis implies that virtual communities are simply an extension of secondary social networks, which apparently are more fluid and impersonal than commonly perceived (Sproull and Faraj 1997; Wellman 1997; and Wellman and Gulia 1999). In addition, because people tend to have a small network of only a few intimate ties, it is not unreasonable to suppose that people can form their small, supportive, densely bound primary networks online. In fact, research suggests that:

- people do form primary friendships and intimate relationships online;
- citizens use the Internet as a way of staying connected to the civic groups in their communities of place;
- online relationships can migrate offline and become face-to-face friendships and groups; and
- the benefits of face-to-face support groups may be created online for such personal and distressing conditions as cancer, single parenting, and other socially marginalizing conditions.

Online forums have clearly become virtual third places, creating opportunities for people to socialize with others they otherwise would not have the opportunity to meet. These interactions clearly provide psychological and social benefits to participants.

5. Knowledge Gaps

It is not clear why some online groups gel and become civil communities while others remain nothing but insulting electronic give-and-take sessions. Other considerable knowledge gaps exist as well.

First, there is scant outcomes research. What does participation in an electronic community *actually offer* people—empowerment, support, affiliation, new information? The research on support groups online suggests there are real psychological benefits from being online, but most of these findings are inferred from the content of messages. Direct studies of individual benefits—and the mechanisms for experiencing those benefits—would shed important light on what computer-mediated community actually means and how it works for individual members.

Second, what does it mean to be left out? If participation in many kinds of online communities provides social and personal benefits—for example, higher self-esteem, affiliation with others in the local community, or access to crucial health information—what kinds of new stratifications and divisions in face-to-face society are being created by lack of participation in or exclusion from online groups? Relatedly, what larger social forces influence and structure access to and participation in online communities? For example, are commercially sponsored online groups different in any important ways from grassroots groups? Are the online dynamics of local civic groups different in any important ways from those in geographically diffuse groups? Similarly, are the dynamics of private online groups different from those in publicly accessible groups?

Third, what are the outcomes for people who have been victims of lies, libel, flaming, gender switching, virtual sexual assault (such as on multiuser domains (MUDs)), ethnic or gender slurs, hate speech, misinformation, and so forth? What are the consequences of destructive behaviors for individual members?

Fourth, two of the key issues raised in the preface to this report are not addressed by existing research:

- The ways that the implications of information, communication, and computational technologies (IT) vary among people and groups, and what variation says about the causes of different social outcomes. For example, how are the effects of IT influenced by the economic, social, and cultural capital of the community of IT users; by the characteristics of the user; and by the social and institutional setting within which it is used?
- The viability of the community in the short and long term. For example, how do online communities evolve in the long run? What effects do membership dynamics have in terms of absolute numbers and demographics?

Fifth, what effects, if any, do differing online technologies (synchronous, asynchronous, graphical, text, MUDs, chat, bulletin board) have on online community formation and maintenance?

Research that would shed light on many of these questions will, in the future, be increasingly shaped by the evolution of ethical codes of conduct specific to Internet research. Face-to-face human subjects research is regulated by strict requirements to inform participants about risks associated with the research, and there is an emerging consensus that informed consent is a concept that applies to online individuals and groups as well (Frankel and Siang 1999; and Association of Internet Researchers 2001). However, the Association of Internet Researchers (2001) notes that obtaining informed consent from Internet communities is complicated by the relatively greater:

- risk to individual privacy and confidentiality presented by online discourse;
- difficulty in determining identity, and hence, obtaining individual consent; and
- problems in developing ethically appropriate consent and confidentiality procedures due to the various types of online communities (e-mail, chat rooms, bulletin boards, and so on) and the international scope of these communities (legal principles and cultural values differ across countries).

Consequently, the emerging requirements for ethical and professional research practices online may limit what is ultimately learned about virtual communities and their role in society.

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