The Effect of Technology on Social Interaction in Local Community Organizations

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Abstract

With each new innovation in technology since at least the Industrial Revolution, and probably before, optimists and pessimists have squared off in a cyclic debate over the impact of the day's newest technology. Self-proclaimed futurists for centuries have attempted to foretell the impact of technology on society with varied success. The goal of this research project is to study the effect of computer network technology on the social interactions of the local community organizations in Blacksburg, VA. Online surveys filled out by the leaders and members of these organizations measure different aspects of each organization and the use and usage of Internet technology within that organization. Correlations between the two may help us identify ways technology has affected the way we communicate with one another. Are community organizations communicating more or less? If so, how? Has face-to-face interaction been forsaken in lieu of technology such as email? The effects found in the survey results should give way to meaningful discourse on how technology can best be used to aid social interaction in local organizations.

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Chapter 1 - Introduction

With each new innovation in technology since at least the Industrial Revolution, and probably before, optimists and pessimists have squared off in a cyclic debate over the impact of the day's newest technology. Self proclaimed futurists for centuries have attempted to foretell the impact of technology on society. From the radio, to television, to the telephone, predictions abounded. New technology such as the telephone in the 1880's was viewed with the utopian hope of eliminating war. It was thought that if the leaders of the world could speak directly to each other that war could be all but eliminated (de Sola Pool, 1977). The same optimistic views were held for the television. But as one commentator put it, "Descriptions of television as the new household "hearth" that would bring families together failed to anticipate a TV in every bedroom and a cable channel for every taste" (Cohen & Prusak, p.159). Technology, it was often thought by baby boomers 30 years ago, would eliminate the need for the 40-day workweek. By the turn of the millennium, computers would automate much of our work leaving us free for leisure and learning.

Negative outlooks on technology also added to the debate. E.M. Forster described one of the most intriguing accounts of technology and society in the future almost 100 years ago. In his short story "The Machine Stops," Forster describes an eerily prophetic vision of the World Wide Web simply called "the Machine." In his story, people around the globe have long since given up on direct interaction with each other, opting instead to communicate and obtain new "ideas" through the Machine virtually. Each person occupies their own room that supplies all their material needs and makes "the terrors of direct experience" unnecessary and undesirable (Forster, 1969). Virtuality for the characters of Forster's story became reality.

In some ways virtuality *has* become reality, with the Internet and Internet technologies connecting geographically dispersed businesses, organizations, and families. So now the debate over technology's impact on society moves from telephone and television to the Internet. As Forster's account and others indicate, the Internet's effect on the way people

communicate and interact becomes a central question in this debate. Interaction with one another, it is reasonable to say, is one of the most deeply ingrained needs of human beings (Putnam, 2000; Ryan, 2000). The communities that are formed as a result facilitate almost every activity of our daily lives. It is no wonder that it is specifically communication technology (radio, telephone, television, Internet) that is commonly talked about when studying technology's impact on society. Yet as we talk about the effect of Internet technology on society, we do so with a measure of humility. Many researchers agree (Putnam, 2000; Cohen & Prusak, 2001) that it is indeed too early to truly know the Internet's full effect on society and predict any future effects. Early evidence shows that negative anticipations about technology's effect may be overestimated (Katz & Aspden, 1997). There remain many open questions about the observable effects Internet technologies are currently having on social interactions today.

1.1 Research Goals and Contributions

Two issues of interest arise when studying technology's effect on the way people communicate and interact with each other. First, how are people using technology to communicate; and secondly what effect does this use have on preexisting modes and habits of interaction? Interaction has been found to be one of the most important factors in the success of an organization (Cohen & Prusak, 2001). This makes the study of people's group interactions, and technology's subsequent effect, an important area of research.

Robert Putnam and others have studied social interaction from a national perspective (Putnam 2000). However, there is little research examining the impact of the Internet at the level of local organizations (Kavanaugh & Patterson, 2001; Kavanaugh, et. al., 2002). This is true despite the fact that trends identified by Putnam at the national level (e.g. fewer people participating in local activities) are taking place in a local context. Thus, studying effects of Internet technology on local community organizations will provide valuable shorter-term insight into possible longer-term effects on a wider scale.

Furthermore, there is a need for more empirical studies if the impacts of technology on society in general. Some work is beginning to emerge (Cohill & Kavanaugh, 2000; Carroll & Rosson, 2001; Kavanaugh & Patterson, 2001), but many concerns and issues are being addressed through discussion only.

The contribution of this project to the research community will be to provide valuable, and much needed, empirical research of technology's effect on social interaction at the local community level. The following chapters will describe research conducted on community organizations in Blacksburg, Virginia. In the next chapter, we will talk about existing research and then further elaborate this project's position in the continuing discussion. Following this, we will describe the methods employed by researchers and the subsequent results, ending with a discussion on the conclusions drawn from this work.

Chapter 2 - Background and Related Work

2.1 Introduction

Research measuring the societal impact of computing has been conducted for over 20 years now driven by a number of different motivations, be it politics (Kling, 1978; (Kling, Mar. 1978; Markus, 1983), capitalism (Kling, Aug. 1978), utopianism (Hertlein, 1990), or just the innocent pursuit of "knowledge for it's own sake" (Mowshowitz, 1981). The area is fascinating because its roots lie so deeply not only in computer science but also sociology. We will draw from both disciplines to introduce the concepts of this research project.

2.2 The Nature of Community

We should not venture much further into this paper without defining what we mean by the term 'community'. This understanding is indeed important. Freilich (1963) warns "since a requisite of science is specificity of terminology, we must conclude…that at this time 'community' is a non-scientific term unless separately defined in every paper which uses it." This points to the variable nature of the communities understanding of the term. We will elaborate in the following sections.

2.2.1 What is Community?

At our core, human beings are fundamentally social beings. As dependent as any human is on the material necessities of food and shelter for physical well being, the same can be said of community for our emotional and psychological well-being. Understanding this, Govier writes, "The center of human development is our relationships with other people" (Govier, 1997, p. 4). Sociologists have described *community* as "the most fundamental and far-reaching of sociology's unit ideas". (Bernard, 1973, p. 4) This having been said, though, finding exactly what is meant by a term that can cover such a large array of different sociological groups poses some challenge. Sociologists have avoided defining community one way at the exclusion of another, finding that too specific a definition excludes many groups that are, by their own right, a community. Conversely, a definition of community that is too general is of little use either. Almost the only point of consensus that can be found among sociologists about the term "community" is the difficulty in defining the term. (Maciver, 1970; Friedrich, 1959; Bernard, 1973; Ferlander & Timms, 1999)

One of the earliest and most basic definitions of community comes from Plato in the 4th century B.C.: "a having-in-common of pleasures and pain" (Friedrich, 1959). Plato's student, Aristotle, later defined community as "an aggregation of individuals 'aiming at some good'" (Friedrich, 1959). While the conclusion that all communities will have good intentions is both doubtful and ambiguous as to what "good" would mean, both of the aforementioned definitions bring attention to perhaps the "one unifying theme" within

the various understandings of community, that of *commonality* (Thorns, 1976, Ferlander & Timms, 1999). So at the risk of defining the indefinable, our basic definition will be "*a cohesive group of people, held together by different things which they share*." (Thorns, 15)

We can extend this basic understanding of community defined by commonality by exploring what aspects of community are shared. These aspects must be broad enough to cover the myriad of characteristics used to describe communities while, at the same time, being specific enough to be useful in our understanding of the term. We will look at three categories of the shared aspects of community: values, behavior, and geography. (Bernard, 1973; Grenz & Franke, 2001**)** These aspects may at first seem incomplete. However, many of the characteristics one might use to describe community (such as shared norms and conventions, traditions, and rules for membership) are in fact contained within these three aspects.

The aspect of *shared values* in community is perhaps at the center of our understanding of community. Values can be understood as a shared set of priorities within a community. In other words, what is important to this community? What are their goals? Values within a community shape what its members think, giving each member, either implicitly or explicitly, a sense of role and purpose within the community.

While values may shed light on how members think, *behavior* concerns itself with how members act and interact. Behavior refers to how the values and norms of a community

affect each member's view of self and, consequently, views and interactions with others. A member's view of self can affect his or her self-esteem, individuality, and value of others in the community. Social taboos, "group think", and peer pressure will all contribute to norms of behavior accepted within a community. The nature of relationships within the community, whether they be family, working, religious, or other will affect how members view and value others within the community and, consequently, how they interact.

Another commonality frequently sited by authors when discussing community is *geography* (or *locale*) (Maciver, 1970; Bernard, 1973). From the earliest stages of civilization, geographically collocated people shared dependencies on their environment and also on each other. Indeed, dependence on the people nearby was perhaps more important than the community's dependence on the environment. With the advent of farming techniques, the ability to depend on one particular location became a reality while dependence on each other still remained important. Later, transportation technology such as the automobile and the plane made travel more and more feasible diminishing the need to stay in any particular place, thereby lessening the importance of locale as an aspect of community. With the introduction of the phone, and later the Internet, the value of face-to-face interaction may not have lessened but it became less and less necessary in order to communicate and exchange ideas and information. Because of these advances in technology and its effect on our understanding of community, shared locale may be a less necessary aspect of community today (Maciver, 1970).

2.2.2 Online Communities

Despite the pervasive use of communication technology, shared geography and physical interaction remain a fact of life. In fact, the focus of this research is the impact of such technology on groups *who also* share a locale. Carroll and Rosson make this distinction as follows:

> A network community is a group of people whose communication and collaboration over networks strengthens and facilitates their shared identity and goals. A community network is a special case of a network community in which a physical community coextends with the network community. (Carroll & Rosson, 1998)

Our research project is concerned with interactions and feelings of community within the context of an existing community network (Carroll & Rosson, 2001; Cohen & Kavanaugh, 1997).

2.2.3 Social Interaction within Communities

Societal interaction can simply be understood as the exchange of information and ideas. This interchange of information and ideas is, of course, between two or more people but varies in mode and medium. Particularly if the medium of social interaction is face-to-face, social interaction can be multi-modal involving the face (expressions and eye contact), posture, and voice among others (Goffman, 1997). This rich multi-modal interaction is seen by some as integral to the health of a community.

> The basic premise is that interaction enables people to build communities, to commit themselves to each other, and to knit the social fabric. A sense of belonging and the concrete experience of social networks (and the relationships of trust and tolerance that can be involved) can, it is argued, bring great benefits to people. (Smith, 2001, web page)

A communication medium could also be as rudimentary as a letter or as complex and robust as a video conferencing system. Thus the richness of social interaction might be measured by the number of modes utilized in the exchange of information and ideas. So as our discussion progresses, it will be helpful to ask not only how often people are interacting (i.e. the *quantity* of social interaction) but also, what is the *quality* of that social interaction.

2.2.4 Social Capital

When talking about community and the quality of life in that community, one term that often comes up is *social capital*. Social capital refers to the social interactions and relationships that motivate and facilitate cooperative effort and action (Coleman, 1990; Putnam, 2000). Understood in a more elaborate sense, "[s]ocial capital consists of the stock of active connections among people: the trust, mutual understanding, and *shared values and behaviors* that bind the members of human networks and communities and make cooperative action possible." (emphasis added) (Cohen & Prusak, 2000; supported also by Smith 2001) Note that Cohen and Prusak include in their definition of social

capital the three aspects of community discussed earlier: values and behaviors, with locale assumed implicitly to be shared in a real world community.

2.2.5 Trust

It would be helpful to briefly discuss what role trust has on the quality of life in a community. Trust becomes an important factor in measuring social capital because, as Robert Putnam has indicated in his book, a decline in trust has been associated with a downward trend in social capital across the United States over the last 50 years or so (Putnam 2000, 136-137). But what do we mean by trust?

> Though the word "trust" is often used vaguely and has a kind of warm, fuzzy aura about it, there is nevertheless a kind of logic or epistemology to trust. It is not entirely a matter of feeling and emotion. Trust presupposes beliefs, and often those beliefs are based on evidence (Govier 1997, 5).

Evidence and past experience that either violate or confirm trust provide individuals with a point (or points) of reference by which to assess how much trust to afford someone. The evidential nature of trust leads us to experience it within a range of varying degrees. In other words, one may trust a stranger or an acquaintance to mow their lawn but not to take care of their children. Fundamentally, trust is risk-based; therefore actions based on trust are performed if, evidentially, the risk of one's trust being violated seems low compared to the risk taken (Coleman, 1990). Two kinds of trust describe this range: thick trust and thin trust (Govier 1997). *Thick trust* may exist between family members or long time friends while *thin trust* may be shared in more passive friendships, as with a

mail carrier or a barber. However, thick trust toward a family member can be thinned if violations of that trust have occurred. Conversely, thick trust with one's barber of 20-plus years may have developed from what was initially thin trust.

A related concept that describes mutual trust is *generalized reciprocity*. We can liken this concept to the Golden Rule: treat others like you would like to be treated, and then we can understand generalized reciprocity as acts of good done with the expectation that sometime, in some way, a similar act will be returned. This expectation is grounded in experience. Trust and generalized reciprocity lay at the heart of the behavioral aspect of community because it is a major influencer of peoples' behavior toward others.

2.3 Studies of Community Behavior

Several books detailing research on community behavior offer particularly relevant insights and will help to contextualize this research project within the framework of existing work in the field. Robert Putnam's book, *Bowling Alone* (Putnam, 2000) provides some of the most comprehensive empirical evidence for trends in the social capital of American community available today. Don Cohen and Laurence Prusak's book, *In Good Company* (2001) focus on the development of social capital within professional organizations. These two books raise many issues relevant to the work described here.

2.3.1 Bowling Alone

In 1995, Robert Putnam published a short article in the *Journal of Democracy* pointing out that voting, volunteerism, and other social activities such as league bowling in America had sharply declined (Putnam, 1995). His hypothesis, built off from this seemingly insignificant observation, was that it pointed to a larger trend of decline in social capital in America. The article received unexpected and unprecedented attention by the popular media and political world, provoking both praise and criticism. Five years later, Putnam published a book with the same title of his now famous article, *Bowling Alone*.

Putnam championed the use of social capital measures (e.g., socialization with neighbors, volunteerism, etc) as an indicator of the quality of American community and a myriad of other things including birth weights, crime, health, and happiness. His research showed a general decline in many aspects of social interaction and civic engagement including voter registration, organizational involvement, and newspaper reading. His conclusion was that Americans on the whole are becoming less involved socially and civically. Putnam claimed that a great deal of this had to do with generational differences and shifts but that other factors may have effected social capital as well, including technology. The empirical weight of Putnam's arguments provides the power for many of his claims concerning social decline in America. This weight comes from his utilization of archived reports such as the Roper Report and the DDB Needham

Life Style survey which, together, contain almost a half a million detailed interviews covering an amazing range of information on each participant's life (e.g., church attendance, educational level, formal membership in at least one organization, picnic attendance, etc…).

Putnam's concern over American democracy and social capital makes his arguments comprehensive but broad in their scope, comparing entire states to one another and studying trends across the country. He attributes much of the declines in social capital to several things. The first major factor he draws out of the data are the differences in generations. (Putnam 2000, Ch.14) Putnam empirically shows declines in social and civic behavior to be greater in younger generations than in older ones. (Putnam 2000, p. 252) Such behaviors measured by Putnam include activities such as reading the newspaper daily, weekly church attendance, or attending a public meeting.

Other factors Putnam cites explaining the decline in social capital include the proliferation of mass media technology such as the television (Putnam 2000, Ch. 13). Electronic technology, in just the last half of the 20th century, now provides entertainment of about any kind on demand to the majority of Americans. Putnam goes on to say, "electronic technology allows us to consume this hand tailored entertainment in private, even utterly alone." (Putnam 2000, p. 217). Putnam believes that the ability to be entertained and consume information in

solitude has had a significant effect on the social life of American culture, particularly in generations who grew up with it.

According to Putnam, the jury is still out on Internet technology's effect on the decline of social capital in America. According to Putnam's numbers, by the time the Internet had reached only 10 percent of the American population, declines in social capital were already well under their way. This suggests that it is unfair to make the Internet the culprit for an effect that predated it. However, there is still the possibility that the Internet has *become* a contributing factor in this decline even if it did not start it. Putnam astutely points out that, "[t]he Internet is a powerful tool for the transmission of information among physically distant people. The tougher question is whether that flow of information itself fosters social capital and genuine community" (Putnam 2000, p.172). There is no easy answer as to whether "virtual social capital" is a contradiction in terms yet (Putnam 2000, p.170). Commenting on the Blacksburg Electronic Village, Putnam quotes Nohria and Eccles who suggest that a community network that is laid over an existing real world community with high social capital is likely to be highly successful. He goes so far as to say that social capital may move from being a consequence of community networks to a prerequisite for its success (Putnam, p.177).

2.3.2 Good Company

Whereas Putnam discusses social capital and social interaction on the state and national level, Cohen and Prusak have written a book, *In Good Company*, that considers the factors effecting social capital *within* professional organizations and the subsequent effects of social capital *on* the organizations. Both books present similar views on social capital and community, but they differ in their scope.

While Putnam's work contains suggestions for improving social capital within communities, his work is primarily a commentary on current trends in social capital. To his credit, Putnam considers trends in social capital at a national level where it is often difficult to cause or assess change across so large a population. Cohen and Prusak discuss more active, yet subtle, ways of influencing the social capital of professional organizations. They also include some intriguing case studies of several well-known organizations whose successful methods of increasing social capital illustrate the suggestions made by the authors. One contention, for example, is that high social capital within an organization will increase retention of talent. They comment, "[a]s the experiences of firms including UPS, Bristol-Myers Squibb, Xerox, and Russell Reynolds Associates shows, community membership and commitment to a shared aim are more reliable weapons in the war for talent – especially the war to retain talent – than signing bonuses and the shaky promise of stock-option riches." (Cohen & Prusak 2000, p. 19) They recount the hiring policies of companies such as UPS who

prefer to hire people who "fit the culture" and appear to share their values over people who are more experienced yet lack these values. (Cohen & Prusak, p. 21) Sacrifices such as this, are viewed by Cohen and Prusak as "investments in social capital" that turn out for the welfare of the company. One of the most compelling stories of organizational sacrifice is related in the book:

> In December 1995, fire destroyed the Malden Mills factory in Lawrence, Massachusetts. The facilities and equipment that produced the company's success polar fleece cold-weather fabrics were gone. Suddenly, 3,000 workers had no work to do. A few days later, CEO Aaron Feuerstein announced that he would nevertheless continue to pay their full salaries while the company designed and built a new factory. (Cohen & Prusak, p.24)

The employees have returned this loyalty to the company and, to this day, have sported an employee retention rate of over 95 percent. The development and maintenance of values such as culture and loyalty shows how trust can positively affect the welfare of a company.

A key concept discussed by Cohen and Prusak is *virtuality*. Virtuality refers to the concept of virtual work. This, of course, is not "fake" work but rather work that is done over a distance. (Cohen & Prusak, p.156) A more familiar term for such work is telecommuting, which may rely on technologies such as cell phones, email, video conferencing and other computer mediated communication channels.

Some of the earliest visions of virtuality predicted a day when millions of Americans would conduct much of their work from home, going to a common office only periodically. (Cohen & Prusak, 2001) This vision has not yet been realized. Instead, the concept of virtuality exists in a slightly different form in today's business world. The concept of "virtual corporations" refers to situations in which management, coworkers, and clients may be geographically dispersed all over the country or world. Despite the technology that makes communication between such geographically dispersed individuals possible, considerable business travel takes place by people who still feel it is important to actually *be* there. (Cohen & Prusak, p.155-156) Have these business professionals accurately recognized the inadequacy of virtuality relative to face-to-face interaction or have they simply not become accustomed to this new medium yet? It is difficult to answer this question because most of the supporting technology is still rather recent. An informed answer will require a longer term view. However, even now, it would be interesting to observe how technology has affected the behavior and mediums used for social interaction and then attempt to analyze its possible consequences.

With respect to our previous discussion of social interaction, we agree with Cohen and Prusak's claim that "[n]one of the technology of virtuality can (currently) carry even a fraction of the whole range of communications that people use to relate to one another and that build social capital." (Cohen & Prusak, p.163) This conclusion is supported by many studies conducted in the area of computer

supported cooperative work. (Isaacs & Tang, 1993; Markus, 1994; Neal, 1997) This is consistent with Putnam's contention that successful virtuality may be contingent on social capital that has been created by other more traditional mechanisms (Putnam 2000; Cohill & Kavanaugh, 2000).

2.4 Where the Bowlers Live

The work of Putnam and of Cohen and Prusak lead to many practical observations and suggestions already discussed. However, many of the trends that Putnam reports on nationwide are actually taking place at the local level. It is a community member in a town who decides whether or not to join a bowling league. Some of these changes may be occurring in the professional organizations studied by Cohen and Prusak, but even more may be underway in local community organizations such as the now infamous bowling leagues.

Several considerations arise as we look at local community organizations and the effects of technology on their social interaction and relationships. There is a possible limitation of resources for community organizations, many of which are not for profit and not as well funded as business organizations. On the positive side, though, membership and participation in community organizations are strictly voluntary. Members are under no compulsion by government or management to implement or prohibit any activity or technology, which allows its use and effect to occur naturally. The smaller size of many local community

organizations (relative to groups at the state or national level) makes it possible for observations to be more comprehensive. The effect of the Internet on social interaction is a new area of research (Kavanaugh, 2002). Many of the benefits discussed above show potential for some interesting research projects.

Our expectation is that a study of the effects of Internet technology on local community organizations may be a very strong indicator of trends to be expected later at the state or national level. Thus while our research will consider specifically how a set of community groups is being influenced by network technology, we believe it will contribute at the more general level as well.

Chapter 3 – Research Methods

3.1 Introduction

The purpose of this chapter is to discuss the rationale for the research methods developed to investigate the relationship of Internet technology usage with aspects of community in local organizations.. We begin with a problem statement and research objectives then draw some hypotheses from this that will then guide our procedure and interpretation of the results.

3.1.1 Problem Statement

As stated previously, the sociology of computing has proven itself to be an important area of research based primarily by the number of research projects already devoted to it (Carroll & Rosson, 2001; Kraut et. al., 1998; Kavanaugh & Patterson, 2001; Markus, 1994; Mowshowitz, 1981). The discussion of Putnam's work in *Bowling Alone* and Cohen and Prusak with *In Good Company* outlined similar approaches with two very different sociological scopes. Much of the research discussed thus far has studied an array of computer technology and its effect on an array of different sociological units. **Our research question is what effect does *Internet* technology have on social interaction within a *local community organization*.**

3.1.2 Research Objectives

Several questions help to frame the research question:

- How is technology being utilized (use) within community organizations and to what extent is it used (usage)? By *use*, we mean whether a technology is utilized at all by a community organization while *usage* refers to how much a technology is used.
- What are some measures, both quantitative and qualitative that provide accurate measures of the social interaction within an organization?

- What is the correlation between an organization's use and usage of technology and the social interactions of that organization?

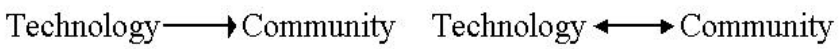
3.1.3 Hypotheses

As with any research work, existing prior knowledge, including the work of previous projects, shapes our expectation of the results. Forming hypotheses based on prior research knowledge will help us to connect our subsequent results to existing work and other tacit knowledge we may already have. Hypotheses will also help guide and give structure to our analysis of the results as we attempt to confirm the assumptions of our hypotheses.

Two main hypotheses will guide the research project:

- Because of its relative ease of use and inexpensiveness, Internet technology, particularly email, will increase communication among members of local community organizations.
- Increased communication among members and leaders will lead to an increased sense of community within the organization.

We should keep in mind, though, that our goal is not merely to understand the effect of technology *on* community organizations but also its relationship *to* them. Causality will be difficult to glean from some of these measures. For example, we may find that while technology may be a factor in the social interaction of an organization, the social interactions of an organization also affects what technology is utilized by the organization and how.



As one author puts it, "Even if a cross-sectional survey were to convincingly demonstrate that Internet use is associated with greater social involvement, it would not establish the causal direction of this relationship." (Kraut et. al., 1998) Thus, we anticipate that any relationship between community and technology will be two-way. We may see groups that interact regularly already utilizing email to communicate in a different way. By this,

the dynamics of the community organization would drive their usage of technology. In another case we may see a community organization that interacts more as a result of email because it is cheap and easy to use.

Since causality cannot be determined between simple measures of Internet use and sense of community (more on this in the next section) we will instead look at corollary relationships that suggest one may have an effect on the other. To further these observations, and to take a step toward causality, several questions were included in the surveys to measure the respondents perceived effect of technology on their organization. These variables will be important in our results and will strengthen the assertions made in our analysis.

We chose a survey method to collect the data necessary for our research objectives. Valuable guidance was drawn from similar work previously conducted on technology and community using surveys (Katz & Aspden, 1997; Kavanaugh & Patterson, 2001**)**. These surveys and others have taken many forms from phone interviews to hard copy surveys that were delivered by postal mail. We focused on data that could be easily collected through survey methods, and that could be conveniently distributed and collected from diverse community groups. For example, information on technology use, usage, and social interaction seemed to be things we could obtain through a survey since most of the questions could be coded into either a yes/no or multiple-choice question. We decided to use online surveys utilizing a new online survey maker resource. Because our focus was on use of Internet technology, the assumption that participants would have Internet access seemed a reasonable one. Also with the persistence of the survey online and the automated collection of the results, distribution of the survey was convenient for both the participants and the investigator. To supplement the survey data we conducted one in-depth interview as a case study.

3.2 Survey Design

One of the most important distinctions to make in our study was between the organizations' use of Internet technology, and their current social practices. Thus the survey was designed to collect measures relevant to both of these behaviors. For example, we needed to measure a group's frequency and the nature of social interactions, as well as the frequency and motivation for Internet technology use.

Two surveys were created, one for organizational leaders (see Appendix C) and one for members (see Appendix D) within the same organization. The leader survey contained more questions than the member survey. This was because we believed that leaders would be the most reliable and knowledgeable source of information on the organization. The member survey included questions designed simply to corroborate the information from the leader survey. The questions from both were designed to complement each other and to build a robust picture of the social interactions within the organizations and the technology utilized in that interaction.

3.2.1 Sense of Community

Questions measuring sense of community look at not only how many people each member knows but also how much members trust each other, their involvement in organizational events, their social interaction outside of regularly scheduled events, and their confidence (i.e., efficacy) in their organization (Bandura, 1977). With a good picture of the social activities constituting interaction within the organization we then asked about the use and usage of technology. All of these questions helped characterize an organization in terms of trust, sociability, closeness, and other aspects of its sense of community within the organization.

3.2.2 Technology Use and Usage

As previously noted, the use of technology focuses on whether a particular technology is used while usage emphasizes how much a technology is used. We asked users whether they used a certain technology such as a website and, if so, how much. Then, in an attempt to measure causality, we asked participants for their opinion on a technology's positive or negative effects on their interaction with other members of the organization. With the leaders, interaction was measured with two different types of people: with other leaders and with other members. We believed it would be important to consider in our analyses whether leaders interact more (or less) with leaders than they do with members, depending on the structure of the organization.

3.3 Community Organizations

Originally this project was intended to study the Blacksburg Electronic Village (BEV) (Carroll & Rosson, 1996, Cohill & Kavanaugh, 2000) as a community network and the community organizations within it. While many of the organizations on the BEV were prime candidates for this research project, restricting our study of organizations formally listed on the BEV pages would have excluded many groups who had never listed their organization on the BEV. Because presence or non-presence on the BEV pages was not expected to be a significant influence of group behavior, we decided to recruit any local organization who might be using Internet technology, whether or not they had a listing on the BEV website. Nonetheless, the BEV pages were an invaluable source of names and other contact information for many of the organizations we recruited.

One category of groups we chose *not* to study was student organizations operating at Virginia Tech. Because of the predominately transitional nature of these communities, with new students entering and graduating from the university every year, we decided that their membership was not stable enough to elicit results that could be generalized to community organizations on the whole. So while many of our participating organizations

have some student involvement, the focus was narrowed to local community-based organizations in Blacksburg.

One further consideration relates to type of organization. We wished to identify types of communities that had research potential (i.e. the possibility of generating interesting results) and were numerous enough to be significant. So for example, senior citizen organizations may be interesting but there may not enough of them to warrant their own category. The same is true for organizations devoted to hobbies such as bicycling. But these two groups can be studied together within a category of *interest-based groups*. A category such as *civic organizations* provides both research interest as well as the numbers to make this category significant. By grouping organizations with similar purposes and missions together in categories, such as civic and interest-based, we also hoped to find whether commonalities existed between these groups. So, for instance, we might not find any general trends, but that civic organizations who have a website and a list serve show a sharp increase in social interaction. Thus, we sampled organizations in four categories, both to look for category effects and to ensure a good distribution of organizational types.

The four categories that were chosen were civic, volunteer, religious, and interest-based. The civic category includes any organization whose mission has a political motivation. Volunteer organizations include non-profit organizations whose mission is to meet a particular need of the population they serve. The religious category is largely self-explanatory as a group banded together by a common belief of the divine even as each organization may have a different motivating goal influenced by their particular beliefs. Interest based groups are much like the religious category bonded together by one thing (in this case, a common interest) and differing in how that motivates the groups actions.

Within these four categories, approximately 10 organizations were chosen for initial contact. Our hope was that 3-5 organizations from each category would agree to participate. It was deemed necessary to find this number of organizations so that we could be reasonably sure of actually having 3-5 organizations per category actually agree

to participate. In each of these organizations, one leader would be contacted to fill out a survey. The leader would then be asked to solicit 3-5 members in his/her organization to fill out a survey as well. This would hopefully yield a participation pool of about 16 leaders and about 64 members for our research. Ideally, it was also hoped that 1-2 organizations would be interested in a follow-up interview that would enable us to elaborate on their survey results. This would provide us with some qualitative observations in addition to the quantitative results elicited from the surveys. A complete list of the organizations contacted and which ones chose to participate appears in the next chapter.

3.4 Survey Administration

Organizations were first contacted by phone. Every effort was made to find a specific contact name with a preference on people in a leadership position within the organization. After identifying himself and his affiliation, the investigator would describe the research project to each organizational contact and ask then if they would be willing to take part. The commitment required from each leader included taking the leader survey, which takes between 10 and 15 minutes, and soliciting 3-5 other members within the organization themselves to take the member survey. After a contact agreed to participate, a follow-up email was sent thanking the person for their involvement and directing them to the URL where the surveys could be found (more on this in the next section). Results were automatically collected and stored for the investigators to retrieve at a later date.

The URL that participants were directed to was http://filebox.vt.edu/users/jsnook/research/welcome.htm. The welcome page included links to both the member and leader survey. The surveys were created and published online using *Survey.vt.edu*, an online survey utility produced by a group called Virginia Tech Web Application Research and Development (www.ward.vt.edu).

Figure 1 – Survey.vt.edu online resource

It was our hope that distributing the surveys online could mitigate two major problems. First was the challenge of delivering possibly as many as one hundred surveys to individuals dispersed all over Blacksburg. This prospect made the small town of Blacksburg seem quite large and made the task of making over one hundred delivers unrealistic. The same problem of physical contact would, of course, be faced when collecting the results from participants. There was the additional concern of users losing a physical survey or being unreachable by the investigator. Of course, all of these issues assumed a hard copy survey were being distributed. By creating and publishing the survey online, access to the survey was easy for anyone with an Internet connection, which was an assumption already of our research project, and data collection was immediate and automatic.

Even with the electronic distribution of the surveys, an informed consent form was also necessary from each participant who filled out a survey (see Figure 1). Distributing a hard copy of the consent form presented the same difficulties as the surveys did. Yet again it was decided that the best way to mitigate these problems was to publish the consent form online as well. The text of the online consent form was similar to what participants would have seen in a paper survey. Participants were thanked for their help and a description of the research project's goals and procedures was provided. The participants were told how much time was expected to complete the survey and encouraged to take as much time as they needed to answer as thoroughly as possible. They were also told that their answers were anonymous and identified only by the organization they were in. Consent, it was noted, to the terms described in this text was given by the user when they clicked on the link pointing to the applicable (either leader or member) survey. The Virginia Tech Institutional Review Board approved this procedure on April 2, 2002.

3.5 Recruitment Procedure

Approximately ten organizations were identified within each of the four categories described earlier (volunteer, civic, religious, and special interest). These organizations were further subdivided into two groups that were contacted to request their participation in two "waves". The two waves were composed of a subset of the full set of organizations, selected on the pragmatic criterion that all pertinent information such as email, phone, and address could be found. The other organizations would be more difficult to contact making this first subset preferable to contact first.

3.5.1 First Wave

The distinction between the first and second wave was between which organizations were visited in person to make a face-to-face (first wave) versus those who were contacted only by phone or email (second wave). The first wave consisted of 10 organizations whose location was known to the investigator and could be visited with relative ease.

These organizations were relatively large volunteer or religious organizations with a central location (i.e. office) that could be visited. Protocol for these visits was fairly informal. First, the investigator would locate the office or front desk of the organization. After introducing himself and his affiliation with the college to whomever he met, he briefly explained the project and the explained the role and importance of the surveys to our research questions. The investigator provided a "leave piece" (see Appendix A), a piece of paper containing information on the project and the web address (see Appendix B for a hardcopy of the web page they visited) of the online surveys (see Appendix C & D for the leader and member surveys). The investigator asked that a leader fill out one of the leader surveys, and if that leader would ask 3-5 members of the organization to fill out a member survey. The investigator reiterated the importance of their input and thanked them in advance for their help.

In the first wave, groups were first contacted through a personal visit. In keeping with our previous assumptions about social interaction and applying them here, face-to-face contact seemed the preferable mode of contact for organizations that would maximize their likelihood of participation. After this, telephone and email, or a combination of both, provided the best and easiest way to recruit organizations about participation.

3.5.2 Second Wave

The second wave of organizations did not have a central office or point of contact that investigators could visit. Most of these organizations did, however, have a person serving as the central point of contact. In all of these cases this contact person ended up being either the president, a chairperson, or in some other position of leadership suitable for completing the leader survey. Protocol for contacting this second wave of organizations was similar to the first wave except for the medium used. Organizations were initially emailed a brief introduction of the investigator and the research project. An electronic copy of the leave piece given out to the first wave was attached to each of these emails. The salutation was personalized to the contact that the investigators had for each organization and the organization name was included in the concluding paragraph

stating the importance of their response to this research project. A link to the online survey page was also included in the email. This served two functions. First, leaders could simply click on the link in the email and be taken directly to the survey. Secondly, the leaders could then simply forward that email onto members they thought would be willing to fill out a member survey. Fourteen organizations were a part of the second wave that was contacted in this way.

Several days later, the investigator contacted the second wave organizations with a follow-up phone call. On this same day, five organizations (a combination of organizations from both waves) that had responded with leader surveys were contacted by email for follow-up. In each email, the contact person was thanked for their participation and encouraged again to ask 3-5 members to fill out a member survey. Like the emails initially sent to the second wave organizations, a link to the online survey page was provided. Leaders were encouraged to simply forward this on to members they thought could help. In likewise fashion, every subsequent contact that filled out a leader survey was sent the same such email. Response to these follow-up emails were mixed but several groups did respond almost immediately with 3-5 members. Finding leaders who were willing to contact members about the survey remained the most significant challenge of the research project. In many cases members may have been asked and simply decided not to participate. The member surveys were a subset of the leader survey that in fact only takes about five minutes to complete. While more member surveys would have possibly given a more robust picture of the sense of community and technology usage, their role was simply to corroborate the information found in the leaders surveys.

Chapter 4 - Results and Discussion

4.1 Introduction

As we begin our analysis of the survey results, it will be important to recall our original hypotheses. First, that Internet technology, particularly email, will increase communication among members of the local community organizations studied. Secondly, subsequent to this increase, the sense of community within the organization will be increased. The following analysis will attempt to confirm or disprove these hypotheses with the results found.

Response to the online surveys was encouraging. The majority of the organizations contacted (20 organizations out of 32) responded by filling out at least one leader or member survey. Table 1 shows all the organizations that were contacted, how they were contacted, and what each filled out (i.e. # of leader and member surveys returned):

	First/Second Wave	Leader Surveys	Member Surveys
Civic			
American Association of University Women	Second	1	1
Big Bros/Big Sisters of NRV	Second	-	-
B'burg Host Lions Club	Second	-	-
B'burg Parks and Recreation	First	1	0
C'burg Toastmaster's Club	Second	-	-
Kiwanis Club of Mont. County B'burg	Second	1	0
Kipps Elementary School PTA	Second	-	-
Blacksburg Middle School PTA	Second	-	-
Chinese Student Association	Referral	1	0
Council of International Student Organizations	Referral	1	0
National Association of Retired Federal Employees	Second	3	0
Volunteer			
YMCA	First	0	5
Alpha Phi Omega	Referral	1	4
Mont. County Red Cross	First	1	5
Campus Awareness and Appreciation Club	Referral	1	0
Habitat for Humanity	Second	0	1
Association for Early Childhood Education	Referral	1	3
Volunteer Action Center of NRV	Second	-	-
VA PAWS	Second	-	-

Religious			
B'burg Baptist Church	First	-	-
B'burg Chinese Christian Fellowship	First	1	0
B'burg Christian Fellowship	First	1	0
BCF Women's Ministry	First	1	0
B'burg Presbyterian Church	First	-	-
Luther Memorial Lutheran Church	First	-	-
Tried Stone Christian Church	First	1	0
Interest			
NRV Bike Club	Second	1	0
Emotions Anonymous	Second	1	0
B'burg Masters Swimming	Second	1	1
B'burg Area Darters	Second	-	-
BEV Seniors Organization	Referral	1	0
NRV Beekeeping Association	Second	-	-

Table 1 – Organizations Contacts and Responses

Figure 2 shows the percentage of organizations represented in the survey. To be "represented" means simply that one leader from each organization returned a survey.

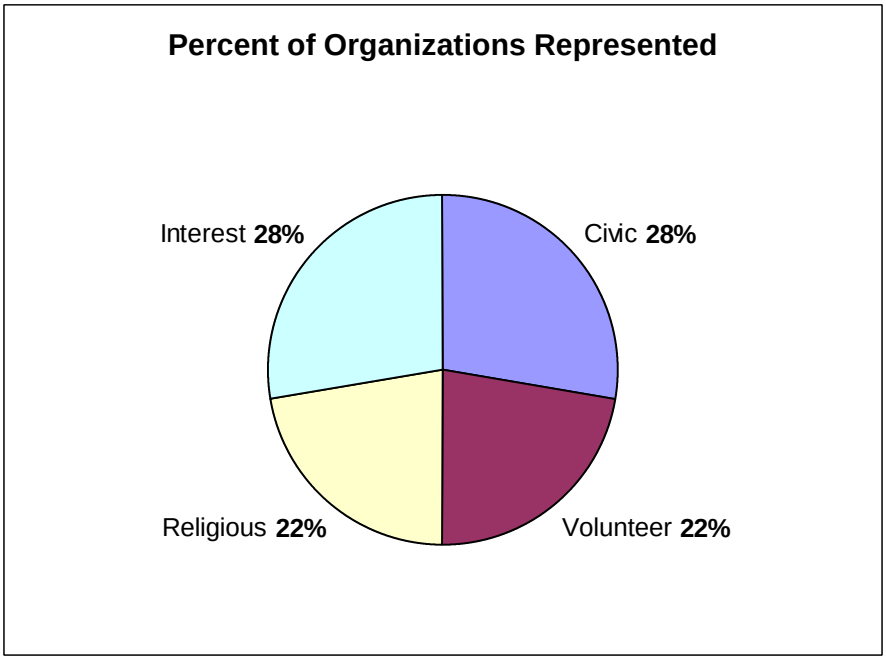


Figure 2 – Percentage of Organizations Responding by Category

Not only was the response rate good overall but each category responded at a very similar rate. Volunteer organizations responded the most with 6 out of 8 reporting back. Six out of 11 civic-based organizations responded as well as 4 out of 6 interest-based organizations and 4 out of 7 religious organization. Of course, as previously stated, the

greatest difficulty was encouraging leaders to solicit members to fill out member surveys. Figure 2 displays the number of surveys returned from leaders and members within each category.

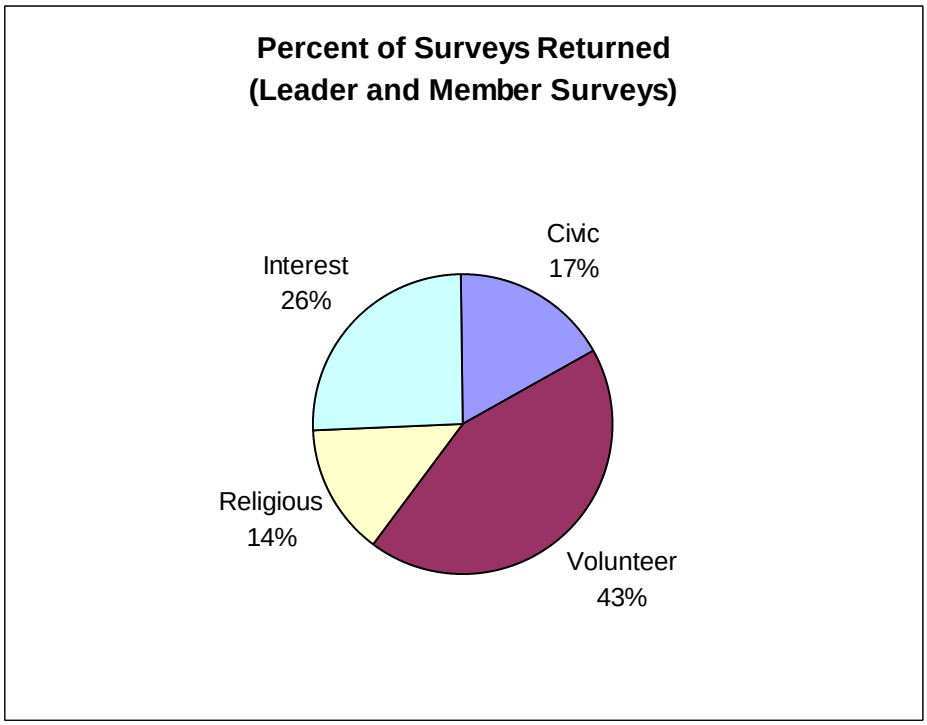


Figure 3 – Percentage of total surveys returned by each organizational category

Religious and Civic groups remain fairly equal relative to each other but volunteer organizations now represent the majority of surveys returned. The volunteer organizations tended to be those that returned both a leader survey and 3-5 member surveys (see Table 1). This category also included one very enthusiastic organization willing to serve as a case study of technology use and impacts (described in Section 4.4). These results do not seem too surprising. Perhaps it is fair to say that volunteer organizations would be more apt to consent to voluntary participation in a study such as this. We will also investigate the differences among organizations, to see if the organizational type influences the social interaction or Internet use.

4.2 Leader surveys

The first portion of the survey asked leaders for some general information about their organization. From these responses, we found that the average age of members in the

organizations was 40; several community organizations had a strong student presence, but these were balanced by some of the senior citizen organizations. The median number of members in the organizations was 45, with a range of 21 to 70. On the average, leaders reported that over half (61%) of their members attended the regularly scheduled meetings and 40% of them socialized with each other outside of the meetings.

4.2.1 Organizational Characteristics

Several variables reflect aspects of community within the organizations studied. These include:

size	Number of members in the organization
turnout	Percentage of members attending meetings regularly
socialization	Percentage of members that socialize outside of regular meetings
closeness	Self-perceived measure (1-5) of the closeness of community
efficacy	Perceived success (avg. score from 5 organizational efficacy questions)
mission	Whether or not the organization has a mission statement

Table 2 – Organizational variables for leader surveys

For most variables, the average value for each is an accurate characterization of the organizations on the whole. In the case of the organization size, the mean and median differ by 66. This discrepancy is due to one particular organization with a membership of 700. The next closest organization has 219 members. For this reason, the median (45.5) would better characterize the organizations on the whole.

		Members	Turnout	Socialization	Closeness	Mission	Efficacy
N	Valid	20	18	17	20	19	20
	Missing	0	2	3	0	1	0
Mean		111.50	**53.67**	**48.24**	**3.15**	**.89**	**3.860**
Median		**45.50**	55.00	40.00	3.00	1.00	4.000
Minimum		2	11	0	2	0	2.6
Maximum		700	100	100	5	1	4.8
Range		698	89	100	3	1	2.2

Table 3 - Summary description of organizational variables

For the other variables we will use, the difference between the mean and the median is small enough that the mean will be a useful measure.

A correlation analysis of the leader surveys reveals that the greater the membership of an organization, the higher the average turnout at regularly scheduled meetings ($r = 0.91$, $p < .001$). This is not surprising since turnout in larger organizations would be a subset of a larger set of members. In this analysis, turnout was operationalized as an absolute number; however our main measure of turnout is normalized by group size, and reflects turnout as a percentage of the whole organization.

When turnout is measured as a percentage of total members, a positive correlation is found with the efficacy variable which measures confidence or perceived success in a organization ($r = .572$, $p < .05$). These results indicate that organizations who perceive themselves as more confident and successful also report greater participation in organization events. Interestingly, for organizations who reported having a mission statement, size ($r = -.514$, $p < .05$) and turnout ($r = -.649$, $p < .01$) were negatively correlated. This raised the question of whether or not structure (one element of which could be a mission statement) has an adverse effect on members and turnout. Examining this further, organizations that required dues for membership also reported a lower turnout percentage ($r = -.565$, $p < .01$) and perceived closeness ($r = -.485$, $p < .05$).

A significant correlation was found between socialization and closeness ($r = .517$, $p < .05$). Because socialization is a measure of frequency with which members engage in face-to-face activity with each other, this relationship provides one indicator that face-to-face interaction may positively affect the sense of closeness in a local organization.

4.2.2 Internet Technology, Usage, and Impact

Leaders were also queried in the survey as to their use of four specific Internet technologies: bulletin boards or newsgroups, email, listserv, or instant messenger. The usage (i.e. how much a technology is used) of these technologies by the organizations is illustrated in the following graph:

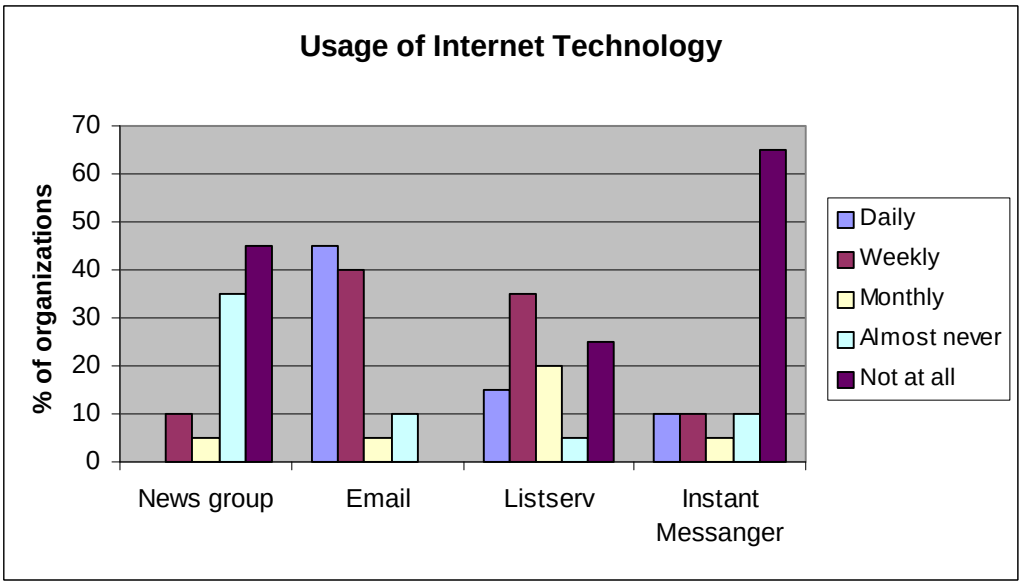


Figure 4: Usage of 4 major types of Internet technology

Because a majority of organizations indicated very little use of newsgroups (80%) or instant messenger (75%), it is not surprising to observe an absence of correlations between these variables and other measures. Conversely, email was used at least monthly by 90% of the organizations responding and listserv by 70% of organizations. As a result, the focus of our analysis instead was on email and listserv usage. We defined the following variables as measures of technology use and impact:

email	Usage of email
listserv	Usage of listservs
effcom	Perceived effect of technology: more efficient communication
leadercom	Perceived effect of technology on communication among leaders
membercom	Perceived effect of technology on communication among members

Table 4 – Technology variables for leader surveys

The usage of email and listserv was indicated on a number scale (1-5, 5 being more frequent) by respondents in terms of frequency: daily, weekly, monthly, almost never, or not at all. Efficient communication was measured by a Boolean value, so either technology resulted in more effective communication or did not. Similar to the first two usage variables, the last two variables measured the effect of technology on communication on a 5-point scale ranging from a great increase in communication to a great decrease.

Two very strong positive correlations were found among these six variables. First, the usage of email and listservs in an organization was highly correlated ($r = .749$, $p < .001$). Though a correlation was expected here, given that email and listservs are related technologies, the strength of the correlation was further confirmation of this. The reported increase in member communication and the increase in leader communication are also highly correlated ($r = .808$, $p < .001$).

The use of email was a major indicator of perceived increases in communication; correlating with more efficient communication ($r = .695$, $p < .001$) as well as increases in communication among leaders ($r = .493$, $p < .05$) and members ($r = .492$, $p < .05$). A bilateral increase of both leader communication and member communication due to email is further supported by a strong positive correlation between membercom and leadercom variables ($r = .808$, $p < .001$). A positive correlation between listserv usage, which as previously stated correlated strongly with email usage, and leadership communication ($r = .449$, $p < .05$) seems to strengthen this point.

		EMAIL	LISTSERV	EFFCOMM	LEADRCOM	MEMCOMM
EMAIL	Pearson Correlation	1.000	.749	.695	.493	.492
	Sig. (2-tailed)	.	.000	.001	.027	.027
	N	20	20	20	20	20
LISTSERV	Pearson Correlation	.749	1.000	.427	.449	.388
	Sig. (2-tailed)	.000	.	.061	.047	.091
	N	20	20	20	20	20
EFFCOMM	Pearson Correlation	.695	.427	1.000	.330	.256
	Sig. (2-tailed)	.001	.061	.	.155	.277
	N	20	20	20	20	20
LEADRCOM	Pearson Correlation	.493	.449	.330	1.000	.808
	Sig. (2-tailed)	.027	.047	.155	.	.000
	N	20	20	20	20	20
MEMCOMM	Pearson Correlation	.492	.388	.256	.808	1.000
	Sig. (2-tailed)	.027	.091	.277	.000	.
	N	20	20	20	20	20

Table 5 - Correlation table for technology variables

4.2.3 Community Character and the Internet

Because communication (i.e. social interaction) is such a central part of the social dynamic of a community organization, the correlations of email use and reported consequences for group communication are relevant to our central question: what is

technology's effect on social interaction and sense of community? In fact, while several peripheral observations and findings contribute to the overall picture, the results so far already suggest that email has a positive influence on communication within an organization. This supports our hypothesis that email is not likely to merely replace face-to-face communication but actually should facilitate communication that might not have happened otherwise.

Efficiency of communication was only one of five possible effects investigated regarding the perceived effects of Internet technology. Other possible effects included: increased membership, increased participation, increased attendance at meetings, reduced cost, or other. Leaders were asked to give a judgment on technologies effect in each of these areas. The following graph indicates the response to each:

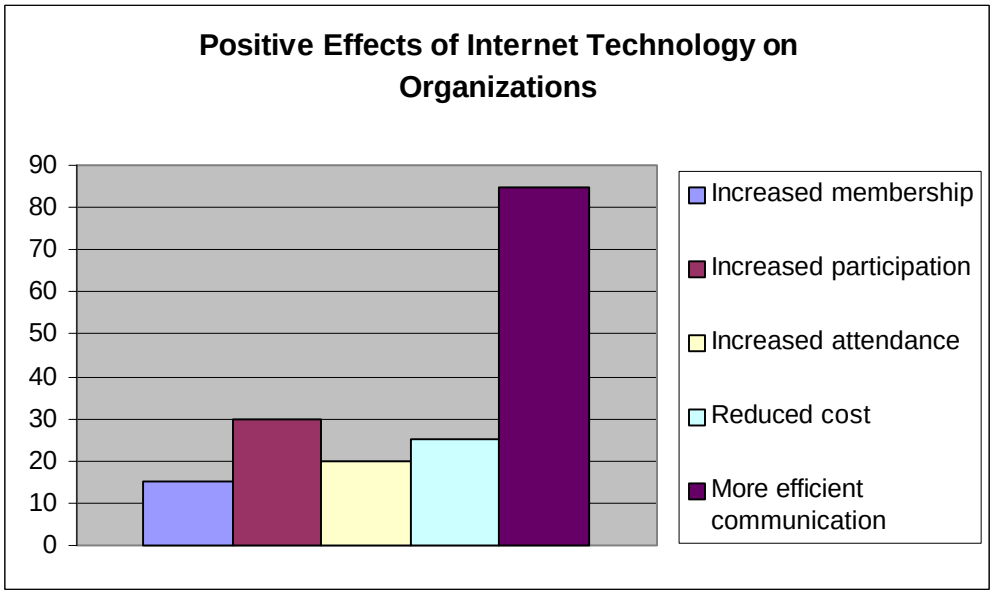


Figure 5: Positive effects of Internet technology

Besides the obvious effect of technology as a catalyst for more efficient communication, which is evident both from our previous discussion in section 4.2.2 and Figure 4, several other interesting observations can be made. The first is, while 85% of the organizations responding indicated that they were communicating more efficiently, only 25% indicated a reduction in cost due to Internet technology. So more efficient communication did not necessarily mean monetary saving for many of the organizations. Also, when asked whether the organization's web page was built for members or non-members, 14 out of

19 organizations indicated their intended audience was *potential* members. With this intent in mind, though, only 15% of organizations indicated an increase in membership and 30% an increase in participation. So these results show an increase in communication but little effect on the organizational sense of community due to Internet technology.

It is important to note, though, that the positive effects of technology on these organizations, as sited by the leaders, are very subjective. The leaders responding to the survey are not really in a position to see the actual effect of technology unless they were a part of the organization when it was implemented, a factor to which we did not ask about. With this in mind, however, leaders were asked if technology had a conversely negative effect, to which they cited none. So from this we can conclude that leaders are reasonably confident that Internet technology is having a positive effect.

Our hypothesis at the beginning of our study suggested that Internet technology might increase the sense of community within an organization. The results of the leader survey show that email and listserv were, by far, the most used Internet technologies (refer to Figure 3) and showed strong correlations with increased and more efficient communication (refer to Table 5). The usage of newsgroups and instant messengers was so limited that they became non-factors in our results. There was, however, no correlation between any of the technology-related communication variables and the those measuring sense of community indicating that while Internet technology, primarily email, has increased communication by its ease of use, this has not resulted in closer communities. This supports our first hypothesis that social interaction increases as a result of Internet technology. This did not support our second hypothesis, though, that this increase in interaction would have an effect on sense of community.

4.3 Member surveys

The member surveys contained a more concise series of questions that measured individual involvement, socialization, and technology usage within the organization.

Whether one attributes the difference between leaders and members to responsibilities, interests, concerns or something else, the outlook and opinions of the two tend to differ. So a similar analysis of sense of community and technology use will further elaborate on the results of the previous chapter.

4.3.1 Organizational Characteristics

The results of the member survey revealed some very interesting correlations between related measures of social interaction and sense of community. An analysis of these variables will lead to subsequent connections in our discussion between these and measures of technology use. Several brief introductory questions provide us with a summary understanding of the overall member demographics. Twenty-one member surveys were returned representing eight different organizations.

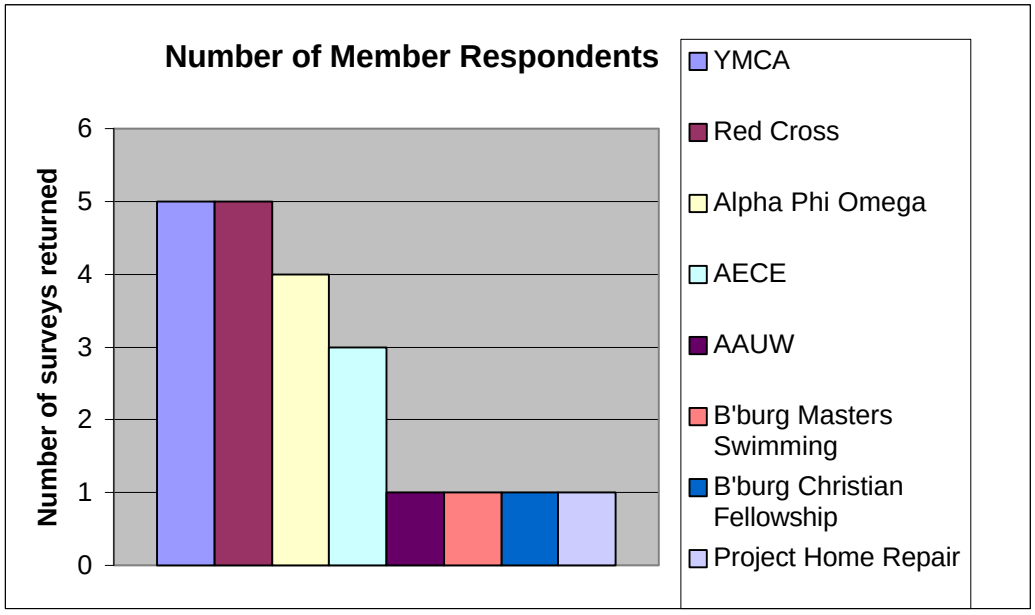


Figure 6 – Respondents according to organization

Thirteen respondents identified themselves simply as members while the rest specified more official titles such as 'social chair'. The average length of involvement was 2.2 years while the average level of involvement specified by the members (ranging from 1

to 5, 5 being the highest) was 4.3. The high level of involvement specified by the members can probably be attributed to self-selection (i.e. the most involved members of the organization would be more apt to fill out a survey of this kind).

Five variables from the member surveys were defined to characterize the sense of community in the participating organizations (Table 6).

Involvement	Self perceived level of involvement (1 to 5, 5 = Very Active)
Socialization	Number of times in a month members socialize outside of meetings
PersonalNum	Number of people in organization known personally by respondent
EmergencyNum	Number of people in org respondent would approach in an emergency
Interaction	Perceived degree (1-5) to which technology has effected interaction

Table 6 – Organizational variables for member surveys

Members reported that, on average, they socialize with other members outside of regularly scheduled meetings 7 times per month. Members knew an average of 13 people personally and would approach 4 of them in an emergency. These measures, in addition to the aforementioned involvement index (4.3), give a strong indication of trust and closeness of the communities in the organizations responding.

		Involvement	Socialization	PersonalNum	EmergencyNum	Interaction
N	Valid	21	21	21	21	21
	Missing	0	0	0	0	0
Mean		**4.29**	**7.38**	**12.86**	**4.24**	**4.57**
Median		4.00	2.00	10.00	3.00	5.00
Range		2	30	50	15	2
Minimum		3	0	0	0	3
Maximum		5	30	50	15	5

Table 7 – Summary description for organizational variables

Of particular interest to our research question is the degree to which members indicated that Internet technology has an effect on the quality and frequency of interaction. On a scale of 1 to 5, members indicated, on average, a 4.57.

For purposes of understandability, we will postpone discussion of interaction until the end of this section. As already indicated, involvement among members responding to this survey was particularly high. Correlation results indicated that highly involved members were likely to have known more people in the organization they would contact in an emergency ($r = .478$, $p < .05$). A similar correlation with the number of people

members would approach in an emergency existed with members who socialized outside of meetings with others in the organization ($r = .596$, $p < .005$). Not surprisingly, people who were close with many others in the organization were likely to have more contacts in an emergency ($r = .699$, $p < .001$). Using the number of members respondents are close to and the number of members they would approach during an emergency as indicators of closeness and trust in an organization, high involvement and sociality seem to be good indicators of an organization's sense of community.

Members who socialized more regularly with others from the organization also reported a strong effect of technology on social interaction ($r = .446$, $p < .05$). While a causal relationship between these variables cannot be definitively made, one likely interpretation is that technology is serving as a catalyst for sociality.

4.3.2 Internet Technology and Organizational Impact

Members' reports of socialization were strongly correlated with their use of instant messenger technology ($r = .686$, $p < .001$). This correlation might indicate a positive influence of technology on social capital but given the leaders reported minimal use of instant messenger, this may be less significant than it seems. To investigate this further, a frequency analysis was conducted on the use of the same four Internet technologies (email, listserv, newsgroups, and instant messenger).

Most members used email (95%) and listservs (81%) but few used newsgroups (9.5%). A third used instant messenger (33%). We did not ask about amount or level of usage. Only 20% of leaders used instant messenger more than monthly. The higher proportion of members using IM might be explained by the younger average age of member respondents relative to leader respondents. Unfortunately, the member survey did not ask for the age of the respondent. Nonetheless, this claim seems well substantiated given the number of respondents indicating involvement in student-based organizations. With a third of members using instant messenger, correlations between socialization and

interaction (see Table 6) ($r = .459$, $p < .05$) make strong claims for the effect of Internet technology on these two major characteristics of community.

The results from the member survey seem to confirm our hypothesis that the use of Internet technology may be serving to increase social interaction, thereby increasing social capital in community organizations. The effect of technology on social interaction, as indicated by the interaction variable in section 4.3.1, correlated strongly with other measures of community (see Table 6). These results confirm our hypothesis that technology may be serving to bolster social interaction and, as a result, the sense of community within these organizations.

4.4 Case Study: Red Cross

Members of the Red Cross were enthusiastic about this current research project. On the investigator's second visit, Mitzi Tuck, the donor recruitment representative introduced herself. Mitzi heads up the Blacksburg donor center, affectionately called the "Canteen". As she spoke about email and other Internet technology used by the Red Cross, it was apparent that the successful use of these technologies fueled her excitement for our project. She had received our leave piece from a volunteer the day before and had already asked several members to fill out surveys. Her readiness to participate and her comments on the effectiveness of email to the organization's success prompted the investigator to ask about the possibility of a follow-up interview. Over the next few days, a leader and 5 member surveys came in.

In preparing for the interview, the investigator made several interesting observations. First, the leader survey indicated that the sense of community within the organization was not very close at all while the members described the community as very close. Also, while the leader, as a positive effect of technology, cited more efficient communication, no increase or decrease in communication was specifically indicated. The members, though, indicated more of an increase in the quality and frequency of their social

interactions. Four out of the five members indicated a "great increase" while the other said there was a "slight increase" in social interaction due to the Internet.

We speculate that the leader's indication of no increase in communication resulted in her perception that the rate of communication had not changed, but rather the medium by which the communication occurred had evolved. This was supported by a comment during the interview that correspondence used to occur over the phone. Therefore an organizational-wide message would take much longer to manually communicate to each member. So with email, the information communicated may be similar in type and quantity but take far less time to disseminate. Here we see technology's effect on not necessarily the frequency, but rather the mode through which communication takes place. So if the quantity of communication did not change, what about the quality of this communication? We examined this question during the interview.

A little over a week after first contacting the Red Cross the investigator sat down with one of the administrators, Sandy, for the follow-up interview. Our original contact was in another county running a blood drive. First, an understanding of the structure of the organization was needed. The investigator asked about the apparent difference or distinction between the volunteers at the *canteen* and the Red Cross Club, which was named by each of the members responding to the survey. The representative verified that there was in fact a distinction between the volunteers running most of the blood drives and the members of the club. The main function of the members in the club (which was predominately student-based) was to raise awareness of the Red Cross' mission on campus and educate students on the importance of that mission. Only occasionally, when needed, were members utilized for the actual blood drives.

The Red Cross, instead, seeks out other organizations to "sponsor" blood drives both at the center and at other locations around town. Other organizations are sought by the Red Cross to sponsor certain days at the center or drives. For example, a local fraternity may volunteer to staff the center on the first Tuesday of every month. Another church group may staff the center on another day, while a dorm decides to sponsor a blood drive in

their building. The representative commented on this arrangement saying, “We wanted to be a focal point of community activity.” She indicated the dual desire to staff the center and increase volunteerism throughout the local community.

These were very interesting insights presenting a robust view of overlapping communities. The structure, described as simply as possible, has a community-based core which runs the actual blood draws and management of the center. There is also a student-based element that is important for accessing potential donors on campus. Finally there are other organizations who take part in the running of the center and other drives as part of their desire to volunteer within the larger community of the town. The result is a multi-faceted community whose involvement differs by the function in which they serve. They are all, nonetheless, involved in this organization and, to some degree, they are all members.

The investigator asked how technology had specifically helped to reduce cost (this was pointed out as a positive effect of technology along with more efficient communication.) Actually responding to both positive effects, our contact explained that many processes of interaction were augmented by electronic means now. For example, while many cards are still mailed out to donors each month, email has lessened the need for this printing and mailing or at the very least provided yet another means for communication to encourage involvement. One interesting fact was that the Blacksburg Chapter of the Red Cross had been the first in the country to offer online registration for giving blood. Methods such as these have the added benefit of eliminating factors such as weather that used to inhibit efforts to find donors. She went on to explain this further, stating that many times donors were sought on campus using tables set up outside in high-traffic areas. With other persistent ways of gaining donors such as online registration, she said, “the weather doesn’t control us anymore.”

Another factor effecting communication with potential donors is the set of restrictions placed by the University on contacting students about donorship. These restrictions are not specific to the Red Cross but common to all organizations. There are restrictions on

where posters and signs can be placed as well as prohibiting leaving information under or at residents' doors. Since the Red Cross is given no preferential treatment, email becomes an integral way of contacting students about possible donorship. The Red Cross constantly seeks out other listservs and email addresses to contact. So here, email becomes a valuable venue for communication where communication may not have been otherwise possible.

The listserv had also emerged as an extremely valuable way of disseminating information, such as last minute items and the latest news, to members. One example given was if a three-day blood drive is too far under the donor goal after the first or second day, they may send out a message on the listserv alerting people to both the blood drive (perhaps one in the student center) and the need for donors to make the goal. She said many people assume that enough blood has been or is being donated so they do not come out. Email and the listserv have increased the Red Cross' ability to alert students and other members of the community to the need for donors. So as a result, email and listserv has increased the ability of leaders to communicate the members of the organization as well as volunteers outside the organization. The positive tradeoff of more efficient communication with a lower resource requirement has resulted in a positive affect on the organization as a result of Internet technology.

The results of the surveys and the findings of the subsequent interview seem to support our hypothesis that *Internet technology has facilitated social interaction within the Red Cross and throughout the community with which they are interacting*. Technology such as email and web pages have allowed the Red Cross to interact with groups previously untapped in the community, particularly the large student population at Virginia Tech. Rather than decreasing or replacing face-to-face communication, Internet technology utilized by the Red Cross has facilitated, and indeed generated, communication that was not otherwise possible.

But, supporting the findings of the leader surveys, there is no indication that closeness, sociality, or any other social capital measures have increased as a result of Internet

technology. The effect of Internet technology had its greatest effect on the success of the Red Cross' business process, which was definitely aided by the increase in communication. This effect will be elaborated on in the next chapter.

Chapter 5 - Conclusions and Future Work

5.1 Hypothesis Revisited

The results from the leader and member surveys presented two slightly differing views confirming different hypotheses initially laid out in this paper. The hypothesis which drove this research project suggested that the use of Internet technology would increase social interaction in the local community organizations studied, which would, thereby, increase sense of community in the organization.

5.1.1 Leader surveys

In section 4.2.3, the results from the leader surveys show strong correlations between the usage of Internet technology, particularly email, and increases in social interaction. This included more efficient communication overall, increased member-to-member communication, and increased leader-to-leader communication. Correlations were also found between such social capital measures as membership and turnout, turnout and confidence, and socialization and closeness. However, no correlations between the social interaction and community measures could be found suggesting that while the use of Internet technology may have increased, this had no direct effect on the sense of community within the organization. Thus the results of the leader survey confirmed the first part of the hypothesis emphasizing its direct relation to social interaction, but did not support the more indirect effects on the sense of community.

5.1.2 Member surveys

The member surveys presented a slightly different, and therefore somewhat intriguing, results pertaining to our hypotheses. In section 4.3.2, the results from the member surveys indicated strong correlations between variables such as involvement, closeness, trust, and socialization. These variables also correlated with the perceived positive effect of technology on the quality and frequency of interaction within the organization

indicated by the members. Here again, the results from the member survey echo the positive effects of technology on social interaction found in the leader surveys, confirming the first part of our hypothesis. Furthermore, the members' use of technology did confirm the second part of our hypothesis indicating a positive effect on the sense of community within an organization. In particular, positive correlations were found between the use of instant messaging clients, socialization and trust. The use of email was also correlated to organizational confidence (efficacy). Therefore, the results from the member survey confirm both parts of our hypothesis.

5.2 Discussion

Drawing from the results of both the leader and the member surveys, use of Internet technology was shown to have a positive effect on social interaction. Results were, however, split as to whether this had an effect on the sense of community within the organization. Given these mixed results, a case could be made for further empirical research studying the effect of Internet technology usage and/or social interaction on sense of community within organizations. Differing perspectives and concern may also account for differences in the results between the two (more on this in section 5.4).

Several other explanations exist for these mixed results. For instance, the sample is small, which restricted the kinds of analyses that could be performed, and also the confidence of our assertions. Although we had hoped to examine possible interactions of technology use and group type, we were unable to carry out these analyses because of relatively low and variable levels of participation in the four group types (see Figures 1 & 2). We might have discovered a more complex relationship between technology use and its impacts on organizations if we had been able to control for group type. This speculation also points to further research in this area.

5.3 Contributions

Amidst much speculation on the social impact of computing, particularly in the area of Internet technology and social interaction, the need for further empirical study of the research questions presented in this project is clear. Research projects such as Putnam's (discussed in Section 2.3.1) showed convincing evidence for technology's effect on declines in social capital nationally. These effects were attributed to technology such as television and radio. Empirical research projects such as this one will help determine whether the Internet's effect on society will be analogous to these. Since national trends will need some time to emerge, more research at the local level is needed in the meantime. Not only did this need motivate this project but it will hopefully also motivate more like it in the future. Though, with the explosive growth and proliferation of the Internet, observable national trends are not far off.

The methods utilized in this study can serve as a blueprint for subsequent work. The distribution of online surveys is one good example of this. Not only were distribution and access both made easy but the results were also collected automatically. Administering separate surveys for members and leaders was also a valuable way of collecting different perspectives on community organizations. Mixed results between the leader and member surveys on the effect of technology on sense of community perhaps indicate a more goal-oriented mindset and orientation for the leaders suggesting a new area for research projects.

For the community organizations involved, several helpful observations can be gleaned from the results. The first observation was that correlations reported in section 4.2.1 indicated a strong negative correlation between organizational formality indicated by rigid membership requirements and ties to a national organizational structure, and certain measures of community such as turnout and closeness. While such structure may be necessary, a casual element to the organizational dynamic (i.e. lower membership requirements, less structure at meetings, more social activities) may go far to increase sense of community.

More relevant to our research project, email and listservs usage correlated strongly with increased communication within the organizations polled. Leaders can utilize this technology, if they have not already done so, to keep members better informed about the organization. The results from the members surveys (refer to section 4.3) indicated that increased communication (some of which could most likely be attributed to the leaders) encouraged closeness and trust among them. Other technology such as instant messenger clients promise similar effects on communication as email and listserv. One could think of such technology as synchronous email perhaps having similar effects on the organizations. However the use of web pages by leaders to attract new members did not seem to be successful as both membership levels and participation were not affected in organizations having a web page (refer to section 4.2.2). These results should not be used to discourage the use of web pages by an organization, but it should motivate new design possibilities to increase exposure or attract new members.

5.4 Future Work

Future work should also take advantage of the large student population in the area. While the student population, as previously mentioned, will remain largely transitional, the demographics will remain stable from year to year. Concerns are also often voiced about how seriously student respondents would take a survey of this type. This is a faulty assumption on the maturity of 20-somethings. Given the experimental and academic environment the population is steeped in, students would most likely respond well to the surveys. Indeed, non-response seems a more likely possibility than a flippant, inaccurate, or incomplete response. Trends in Internet technology use and usage will almost assuredly be different in younger populations, which would be an interesting study in itself. The effect of different trends in usage would also be an interesting extension to this current research project.

Many other effects of technology on community organizations could be studied as well. Perhaps the study of technology's effect on social interaction and sense of community

carries with it the assumption that leaders and members are trying to bolster a greater sense of community within the organization. That may not be a leader's primary intention. Use of technology could be more goal-oriented, motivated by mission rather than the desire to build community. So the effect of technology might be more prevalent in other areas of community organizations. Efficacy variables could play a greater role in subsequent studies, measuring, for instance, the success people experienced using Internet technology to accomplish the goals and mission of the organization.

The Red Cross case study is a good example of this. Members of the organization evaluated the closeness of the community at 3.8 while the leader indicated a 2 (on a scale of 1-5 with 1 being the lowest). From a purely quantitative sense, this measure seems to indicate that the leadership of the organization may have seen technology's effect somewhere else. This was evident in the investigator's initial conversation with the leaders and the subsequent follow-up interview. As the case study indicated, the use of Internet technology enabled the Red Cross to accomplish donor goals and community involvement much more effectively and successfully. So mission success and goal achievement were perhaps more affected by Internet technology such as email. More empirical work in this area would be worthwhile.

The conclusions of this research project affirm the unlikelihood of Forster's vision in *The Machine Stops* (Forster, 1969). The need or desire to "just be there" will not soon disappear despite the pervasiveness of Internet technology in American society. It seems likely that the need for face-to-face communication will persist even as social interaction increases due in large part to Internet technology such as email and instant messaging. Of course, distinction between the prophetic and the foolish can only be decided by history itself.

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Appendix A - Leave Piece

Jason Snook
503 #3 Center St.
Blacksburg, VA 24060

Dear Fellow Community Member,

My name is Jason Snook and I am a graduate student at Virginia Tech hoping to complete my M.S. in Computer Science this May. I have also been a resident of Blacksburg for six years now and hope to be here for many more. Over the years, Blacksburg has indeed become a home for me and the local community here is one that I very much feel a part of. Recently, my research interests and my interest in our local community have coincided in a very interesting project that I am currently involved.

I invite you to read on…

Since the early nineties, Blacksburg has been recognized around the world as one of the most wired cities. This notoriety has benefited both Virginia Tech's academic programs as well as the town with many new high-tech companies bringing new jobs into the area. Internet-related technologies have also become a part of everyday life for many individuals and community organizations in Blacksburg.

Much has been documented on the availability and utilization of the Internet in Blacksburg. Still more has been written on the initial effects of this technology on our community. Now, after almost 10 years, the effect of technology on our lives is a vital question. **The project I am currently involved in focuses specifically on technology's effect on local community organizations such as yours**. Further, how has Internet technology (such as web pages and email) affecting how members of your organization communicate with each other?

Are we communicating more or less with each other? How are we communicating? Is it face-to-face or is it over email now? These are the kinds of questions you can help us answer. Your participation in this project is extremely valuable and very convenient. **The total time required to participate is less than 20 minutes.** Below you will find a link to our online survey. As a leader, we ask that you would fill out the leader survey and then ask three to five of your organization's members to fill out the member survey located on the same page.

http://filebox.vt.edu/users/jsnook/research/welcome.htm

Thanks again for your partnership as we work together for a better Blacksburg!

Sincerely,

Jason Snook

Appendix B - Online Consent and Welcome Page

VirginiaTech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Computer Science
@VIRGINIA TECH

The Social Effects of Technology on Local Community Organizations

Welcome! You are invited to participate in a research project examining the positive and negative effects of technology on community organizations such as yours. The effects found could vary from social interactions that were hindered or eliminated as a result of technology to the opposite, social interactions that were encouraged or created. **Your input on this survey will help us better understand how technology is affecting our interaction with each other**. The results of this research will hopefully shed light on ways we can better utilize technology to enhance the quality of community in your organization and others.

Below you will find two links to online surveys. The first link is for individuals in a position of leadership in your organization. The second link is for the other members of your organization. **Each survey will take approximately 15-20 minutes to complete**. The survey contains general questions about your organization as well as questions concerning the utilization of technology by your organization and also your personal use of technology. Please take as much time as you need to answer the questions as thoroughly as possible. Your answers will be completely anonymous and your participation is greatly appreciated. If you have any questions, please feel free contact Jason Snook.

This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University, by the Department of Computer Science at Virginia Polytechnic and State University. IRB Approval Date Approval Expiration Date: April 2, 2003

Should I have any questions about this research or its conduct, I may contact:

Jason S. Snook (Investigator)	(540) 818-2103	jsnook@vt.edu
Dr. Mary Beth Rosson (Faculty Advisor)	(540) 231-6470	rosson@vt.edu
David M. Moore (Chair, IRB Office of Research Compliance Research & Graduate Studies)	(540) 231-4991	moored@vt.edu

By clicking on one of the below links you agree that you have read and understand the purpose of this research and hereby give your voluntary consent to participate in the research.

Organizational survey for Leaders Organizational survey for Members

Appendix C - Online Leader Survey

Community Analysis - Leaders

Hello and thank you again for taking the time to fill out the following survey! Again, your answers are completely confidentle so feel free to answer as honestly and completely as possible.

Organization Name

Is your organization a chapter of a national or international organization?

- Yes
- No

How long has this organization existed?

Position *(e.g. president, treasurer, webmaster, etc...)*

How long have you held this position?

How many members are in the organization?

What is the average age of the members?

Do you have regular face-to-face meetings for members? If so, how frequently?

If your organization does have regularly scheduled meeting, what is the average turnout?

What percentage of members would you estimate meet with each other outside of regularly scheduled meetings?

Which one of these best describes the community within your organization?

- Extremely close
- Very close
- Close
- Not very close
- Not close at all

Does your organization have a mission statement?

If so, where can it be found? *(Check all that apply)*

- [ ] Electronic - available online
- [ ] Paper - brochure or other document
- [ ] Verbal - passed on by word-of-mouth

Other:

What kind of requirements are there for membership? *(Check all that apply)*

- [ ] Dues
- [ ] Qualification
- [ ] Induction
- [ ] Sponsorship
- [ ] Form/Application

Other:

For the next five questions, please select the degree to which you agree or disagree with each of the statements pertaining to your organization.

Our organization can present itself in a way that attracts new members even when we have little resource for publicity.

- ○ Strongly Agree
- ○ Agree
- ○ Neutral
- ○ Disagree
- ○ Strongly Disagree

We can impress people outside our organization even if they know little about our overall goals and activities.

- ○ Strongly Agree
- ○ Agree
- ○ Neutral
- ○ Disagree
- ○ Strongly Disagree

Our organization can avoid an "us" versus "them" mentality regarding other organizations, even when we disagree about values and approaches.

- ○ Strongly Agree
- ○ Agree

- Neutral
- Disagree
- Strongly Disagree

Our organization can focus it goals in a way to make us effective, even when there are many things we want to do at the same time.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Our organization is able to develop and express a united vision, even when some members have widely differing opinions.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Technology

Do you have a website?

- Yes
- No

If so, what is the web address? _____

How many times per month/year (please specify) are updates or changes made to the website?

_____

Briefly explain the reason(s) your organization created a website.

_____

What are the three major functions of your website?

Would you say your website is focused more on members or prospective members? Why?

The following questions ask which Internet technologies you use to communicate within other in your organization and to what extent you use each one.

How frequently do you use a news group or online bulletin board to communicate with others within your organization?

- Almost daily
- About once a week
- About once a month
- Almost never
- Not at all

How frequently do you use email to communicate with others within your organization?

- Almost daily
- About once a week
- About once a month
- Almost never
- Not at all

How frequently do you use a listserve to communicate with others within your organization?

- Almost daily
- About once a week
- About once a month
- Almost never
- Not at all

How frequently do you use an instant messanger *(AIM, ICQ, MSN)* or other chat

utility to communicate with others within your organization?

- ○ Almost daily
- ○ About once a week
- ○ About once a month
- ○ Almost never
- ○ Not at all

What positive effects have the above technologies had on your organization? *(Check all that apply)*

- ☐ Increased membership
- ☐ Increased participation in events
- ☐ Increased attendance at meetings
- ☐ Reduced cost
- ☐ More efficient communication

Other: _____

What negative effects have the above technologies had on your organization? *(Check all that apply)*

- ☐ Decreased membership
- ☐ Decreased participation in events
- ☐ Decreased attendance at meetings
- ☐ increased cost
- ☐ Less efficient communication

Other: _____

What effect has Internet technology, such as a webpage or email, had on the frequency of *face-to-face activities or interactions* among everyone in your organization?

- ○ Great increase
- ○ Slight increase
- ○ No change
- ○ Slight decrease
- ○ Great decrease

What effect has Internet technology, such as a webpage or email, had on your *overall communication* with the **other leaders** within your organization?

- ○ Great increase

- Slight increase
- No change
- Slight decrease
- Great decrease

What effect has Internet technology, such as a webpage or email, had on your *overall communication* with **the members** within your organization?

- Great increase
- Slight increase
- No change
- Slight decrease
- Great decrease

Would you like a copy of the results once they are published?

- Yes
- No

Submit

Appendix D - Online Member Survey

Community Analysis - Members

Hello and thank you again for taking the time to fill out the following survey! Again, your answers are completely confidentle so feel free to answer as honestly and completely as possible.

Organization Name

Is your organization a chapter of a national or international organization?

- Yes
- No

What is your position in the organization? *(e.g. member, treasurer, social chair, etc...)*

How long have you been involved with this organization?

Which would best describe your involvement in the organization?

- Very active
- Active
- Somewhat active
- Hardly active
- Not active

How many times a month would you estimate you socialize with members **outside** of regularly scheduled events?

How many people in the organization do you know personally?

In an emergency, how many people in the organization, if any, would you feel close enough to to approach for help or support?

Which one, in your opinion, best describes the sense of community within your organization?

- Extremely close
- Very close
- Close

○ Not very close

○ Not close at all

Are you a member of any other organizations?

○ Yes ○ No

If so, which organizations are you invoved with?

Which technologies, if any, do you use in your interactions with others in the organization?

☐ Webpage

☐ Newsgroup/Online Bulletin Board

☐ Email

☐ Listserve

☐ Instant Messenger*(AIM/ICQ/MSN)*

other:

To what extent have internet technologies affected the quality and frequency of your interactions with others in the organization?

○ Great increase

○ Slight increase

○ No change

○ Slight decrease

○ Great decrease

For the next five questions, please select the degree to which you agree or disagree with each of the statements pertaining to your organization.

Our organization can present itself in a way that attracts new members even when we have little resources for publicity

○ Strongly Agree

○ Agree

○ Neutral

○ Disagree

○ Strongly Disagree

We can impress people outside our organization even if they know little about our

overall goals and activities.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Our organization can avoid an "us" versus "them" mentality regarding other organizations, even when we disagree about values and approaches.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Our organization can focus it goals in a way to make us effective, even when there are many things we want to do at the same time.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Our organization is able to develop and express a united vision, even when some members have widely differing opinions.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Would you like a copy of the results once they are published?

- Yes
- No

Submit