

Motivated to Adopt: Understanding the Digital Effectiveness Divide (DED) in  
Volunteerism

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### ABSTRACT

The research sought to answer basic questions about the digital effectiveness divide (DED), a phenomenon that extends beyond insufficient access to include underutilization of information and communications technology (ICT) in voluntary sector organizations. The research asked questions about the extent to which a DED exists in volunteerism and what kinds of factors are associated with whether a volunteer or manager will be digitally effective or not. The research sought to clarify the extent to which being digitally ineffective is a problem. Multiple factors were found to be directly or indirectly related to the adoption of ICT in volunteerism suggesting digital effectiveness is a multidimensional construct and a complex problem.

The research showed volunteers and managers in Canada were at a low level in applying a variety of ICT systems and tools to volunteering and managing volunteers which suggests traditional forms of volunteerism continue to dominate. The research empirically tested a motivational theory and model of ICT effectiveness (ICTe) that showed differences in the rate of adoption could be explained by differences in the attitudes and expectations volunteers and managers had about ICT and several factors that were associated with the development of them.

Finally, the research sought to clarify the extent to which being ineffective was a problem. For volunteers and volunteer programs that have successfully met their needs for volunteering or demands for volunteer labour, at this stage, the low level of ICTe is a relatively low level problem. However, for volunteers who have become disconnected or who want to volunteer in specific areas or in specific ways that match their needs or preferences for work the problem is of greater significance. This is also the case for the manager of volunteer resources with a low supply of volunteers, and/or growing demand for volunteer resources. For these types of “end-users”, being digitally deficient either directly (as a result of self-deficiency) or indirectly (as a result of the volunteer program deficiency) puts them at a disadvantage in achieving their goals in the realm of volunteerism. Implications of the research are discussed from theoretical, social, practical, and policy perspectives. Recommendations for future research are presented.

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## DEDICATION

This dissertation is dedicated to my mother, Patricia Anne Cafik.

You set the example on coping with challenging situations.

In your words,

*God doesn't give you what you can't handle.*

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## Chapter One

### Introduction

The OECD (2000) has reported that more money is now being spent on information technology (IT) than all other general-purpose technologies combined, providing solid evidence for the emergence of a “new economy.” Much of the new economy literature has been concerned with the use of IT as a more efficient and effective means to conduct the work of organizations (Warren & Weschler, 1999; Zuboff, 1996). Together with the introduction of new communications technologies, electronic commerce and business applications have emerged that have enabled organizations to rethink how they perform tasks and, in the process, have redefined the nature of work and organization. Arnaut (2002) pointed out that this “‘rethinking’ process can be applied to just about any area of a business or organization: sales and marketing, accounting and finance, training and education, customer service, manufacturing or new business development” (p. 7). Because the current wave of information and communications technology (ICT) applications are so well advanced, organizations of all types and sectors of the economy are turning to new ICTs to help them meet their missions (Cooper, 2004).

Several studies pointed to the numerous benefits of ICT use in the voluntary sector on a number of levels, including increases in organizational efficiency and effectiveness, as well as improved relationships with constituents (e.g., Blau, 2002; Burt & Taylor, 2000, 2001; Saxton & Game, 2001). The literature indicates that voluntary sector organizations have adopted ICTs later than the private and public sectors but that adoption increasing in developed countries like Canada, the U.S., and U.K. (e.g., Brock, 2002; Parmegiani & Sachdeva, 2000; Seedco, 2002). Within the past five years, ICT has

penetrated the voluntary sector in several ways. For example, some voluntary organizations are using ICT as a strategic tool to enable better identification and response to emerging challenges, threats, and opportunities (Burt & Taylor, 2000, 2001), while others are using it to provide volunteer services (Cravens, 2000; Virtual Volunteering Project, 2001).

Whereas survey research has shown that most voluntary organizations are quickly gaining physical access to ICT, there is mounting evidence that not all are making full use of their ICT resources nor benefiting from ICT to the same degree (e.g., Blau, 2002; Coffman, 2004; Hall Aitken, 2001; Ipsos Reid, 2001; Kerr, 2002; Kirschenbaum & Kunamneni, 2001; Ludgate & Surman, 2004; Manzo & Pitkin, 2002; Nonprofits' Policy and Technology Project, 1998; Ticher, Maison, & Jones, 2002; Saxton & Game, 2001; Schneider, 2003; Steyaert, 2000). The problem of a *digital divide* goes beyond lack of physical access to ICT and involves a more complex problem between those who get the most value from their ICT applications and those who do not.

### *Statement of the Problem*

Ineffective use of ICT in the nonprofit sector is a relatively new phenomenon that has recently surfaced in evaluations of how voluntary organizations are making use of ICT in their work<sup>1</sup>. The concern over this digital divide between those who do and do not have physical access to ICT has now evolved into a *digital effectiveness divide* between those who get the most value from ICT applications and those who cannot. While this problem is identified in the context of the voluntary sector, ineffective use of ICT is not

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<sup>1</sup> For example, Phillips (2000) provided the first insights into this phenomenon in Canada in her evaluation of the VolNet program (Government of Canada, 1999), in which the Government of Canada provided funding to 10,000 voluntary organizations in 1999 to increase computer and Internet access.

new and has been of concern to others who study the new economy (e.g., Cooper, 2004; McLoughlin & Harris, 1997; Zuboff, 1996).

Several important concerns are specifically associated with this problem. First, individuals and organizations that fail to maximize the benefits of ICT or that fall on the wrong side of the digital effectiveness divide (DED), may suffer disadvantages compared to those that do not. For example in an environment with scarce resources, voluntary organizations that are on the wrong side of the DED may face sustainability challenges. In the context of community economic development (CED) organizations, Jackson and Khan (2002) reported that “globalization and technology have combined to create a hyper-competitive environment for small businesses. Without knowledge-intensity, *any* small business, community-owned or otherwise, faces almost insurmountable challenges in the marketplace” (p. 6). Brock (2002) also viewed such sustainability challenges for voluntary sector organizations as a result of their failure to develop the business-like profile that funded arrangements now require of voluntary sector organizations. Voluntary organizations may also face human resource challenges as a result of increases in competition from voluntary organizations that can better meet demands of volunteer labour because of ICT (Schneider, 2003). In the volunteer labor context, some have argued that ICT can help a voluntary organization achieve a competitive advantage through integration of the activities associated with the volunteer process (e.g. as a tool to recruit volunteers, select them, and put them to work) (Cravens, 2000; VirtualVolunteer Project, 2001). Others have argued that being on the wrong side of the DED threatens the ability of an organization to gain a competitive advantage, produce new knowledge (Antonelli, Guena, & Steinmueller, 2000), and innovate (OECD, 2000; 2001).

A second concern is the extent to which a DED is a problem for the voluntary sector as a whole. Not all organizations will demonstrate the same need for ICT and that measures of effectiveness are dependent upon the context in which ICT is used (Seddon, Staples, Patnayakuni, & Bowtell, 1999, p. 166). Scholarly attention has started to examine the DED and its causes, but few studies have identified how significant a problem being digitally deficient is in managing volunteers and delivering volunteer programs. Even fewer have identified why some users are more effective than others, and none have advanced a theoretical perspective on the factors that predict what side of the DED a volunteer or volunteer program will be on.

#### *Purpose of the Study*

Based on the above observations, the purpose of this dissertation is to provide insights into the nature of this divide in volunteerism—including the extent to which it is a problem, its causes and influences—as well as to offer suggestions on how to overcome it. The key questions the research seeks to answer are as follows:

1. To what extent do volunteers and managers of volunteer resources in Canada have access to ICT?
2. To what extent are volunteers and managers making use of the ICT they have access to in their work?
3. What types of factors are associated with different patterns of ICT access and use by volunteers and managers?
4. What motivates individuals to want to adopt new ICT methods into their work?

This research is timely and important for several reasons. First, it fills a theoretical gap in the literature by examining what motivates ICT use in volunteerism. Assuming ICT

provides benefits, it also provides insight into the factors that predict the extent to which a volunteer or volunteer program manager perceive there are benefits.

From a social capital perspective, the research will help to resolve a controversy in the literature with regard to the usefulness of ICT in volunteerism; namely, whether ICT use—by its very nature, an isolating activity—is a depersonalizing force that is antithetical to the development of a civil society as has been argued (e.g., Kraut, Patterson, Lundmark, Kiesler, Mukhopadhyay, & Scherlis, 1998; Putnum, 2000). Moreover, it will provide information for managers of volunteer programs on how to manage the new relationships with volunteers that ICT makes possible.

From a practical perspective, the research will provide voluntary sector leaders and managers of volunteer resources (MVRs) with the information to make determinations about the appropriateness of ICT use in volunteer work. Additionally, it will offer advice on how to manage ICT change in volunteerism and to identify the implications of ineffective use.

Finally, the research has policy implications for governments and leaders of the voluntary sector concerned with addressing the declining rates of civic volunteerism and to increase the capacity of voluntary organizations in the new information economy. The research sheds light on the DED in volunteer programs and should inform developing policy to manage it effectively.

This research study grew out of two research grants from the Canadian Centre for Philanthropy (CCP) to study ICT use in and impact on Canada's voluntary sector. The first grant, awarded in 2001 to Professor Vic Murray with the researcher acting as co-investigator, was part of the International Year of the Volunteer (IYV) research projects

(Murray and Harrison, 2002a; Murray and Harrison, 2002b). The second grant, awarded in 2003 by the CCP as an extension or follow-up investigation to the 2001 IYV research project, was awarded to the researcher as the principal investigator, with Professors Vic Murray and James MacGregor acting as co-investigators (Harrison, Murray & MacGregor, 2004).

The research took place over a two-year period beginning with descriptive research examining the extent of access and use of ICT in 2001. Following data analysis, the study took on a deductive approach leading to the second phase in 2003. This phase focused on the existence of the DED in the management of volunteer resources and sought to gain better understanding of why this was so.

#### *Organization of the Dissertation*

The dissertation is organized as follows. Chapter Two defines technology and the evolving use of ICT in organizations. It describes the voluntary sector in Canada and provides an institutional analysis of the voluntary sector, including the nature of its work, size, and the new governance environment in which voluntary sector organizations now operate. This chapter also reviews the literature on ICT use in the voluntary sector, in volunteering, and particularly in volunteer management. The chapter concludes by reviewing the challenges facing the sector, as well as the broad challenges of ICT transformation in volunteerism.

The main focus of Chapter Three is to review the extent of uptake of ICT in voluntary organizations and to provide a review of different theoretical perspectives on ICT use and *models of ICT effectiveness* (ICTe), a term used in the dissertation to

describe information system success (ISS).<sup>2</sup> These models are critically reviewed for their contribution to explaining ICT use in the voluntary sector context. The chapter concludes by setting out a conceptual framework to guide the research.

Chapter Four outlines the survey research methodology for the two phases in which the research took place. For each phase of research, it reviews the research design, sample, instrumentation, and sampling procedures as well as methodological concerns. The chapter concludes with a summary of the research questions, methods, and proposed data analysis techniques.

Chapter Five presents and discusses the research findings. The chapter is organized around the four research questions. Within each section, the results of statistical tests and data are presented and discussed. The findings are discussed and interpreted in relation to the literature.

Chapter Six explores the broader implications of the findings with respect to theoretical, societal, policy, and practical perspectives. It concludes by suggesting further research that could build on the findings of this study.

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<sup>2</sup> The term ICTe is preferred over ISS because it does not imply that use of an information system is always a success. Note ICT is used in place of IS because IS consists of ICT components that when used in combination, allow information to pass within an environment (Clarke, 2001). ICT is defined as any ICT component or components used in combination (e.g. PC, Internet and web-based software application) to facilitate information.

## Chapter Two

### Literature Review Part I

#### The New Technological and Institutional Context and the Voluntary Sector

No longer understood as a separate sector, the voluntary sector is considered the “cornerstone of community” that provides benefits at individual, group, social service, and economic levels (Hall, Evers, Johnston, McAuley, Scott, Cucumel et al., 2004). For this reason, to fully appreciate the extent to which ineffective use of ICT is a real problem in volunteerism<sup>3</sup>, it is necessary to provide answers to basic questions about information and communications technology (ICT), the voluntary sector and the new political conditions that have changed the context in which voluntary organizations and volunteers now operate.

To this end, the chapter begins with an evolution of ICT use in organizations followed by an institutional analysis of the voluntary sector, including its size and significance, the nature of its work and how it compares with and differs from the work of the private and public sectors. Next comes a description of the political context in which voluntary organizations now operate; particularly, new governance arrangements and policy instruments, including the use of new information and communications technology (ICT). This discussion is followed by a review of prior literature on the extent to which organizations in the voluntary sector have gained access to ICT and a presentation of the challenges facing the sector with respect to volunteerism and the relative newness of ICT as an instrument for meeting these challenges. Finally,

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<sup>3</sup> Ellis (2001) defines volunteerism as “anything relevant to volunteers and volunteering” (p. 1).

assumptions and expectations around ICT use in the voluntary sector are examined and the broad challenges of ICT transformation are discussed.

### *New Technological Context*

#### *What is Technology?*

An examination of the technology literature shows that much has been documented about the impact of technology on how people live and work. Organizations are considered a technology (Richter, 1982) and use other technologies, including information and communications technology (ICT), as a means of producing new knowledge or performing certain tasks to meet ends or objectives. In this regard ICT, like other technologies, possesses form and function (Richter, 1982).

As a form, technology has been defined by Richter (1982) as “knowledge of any technique for achieving specific objectives” (p. 7). Richter also described technology as the “systematic application of scientific or other organized knowledge to practical tasks,” (Toynbee, as cited by Nisbet, 1969, as cited by Richter, 1982, p. 7). In the latter definition, technology is “confined to those human societies that have attained comparatively high levels of sophistication” (Richter, p. 7). As a function, technology can be described as “tools and practices deliberately employed as natural (rather than supernatural) means for attaining clearly identifiable ends” (Richter, p.8). According to this definition, technology is a process for the purpose of achievement. The most primitive example of technology is “use of tools by chimpanzees to catch termites” (Richter, p. 9). Moving drastically forward in time, a similar process can be seen among nineteenth century workers in their use of tools to “perform tasks” (Zuboff, 1984, p. 40).

*Information and Communications Technology (ICT) Use in Organizations*

While there is no generally accepted definition of ICT, one way to understand it is to look at the makeup of the ICT sector, delineated by the Organisation for Economic Co-operation and Development (OECD) (1997) as “limited to industries which facilitate, by electronic means, the processing, transmission and display of information” (p. 1). It follows then that ICT is any technology that facilitates the passage of information, whether through conversion, storing, processing, and/or transmission. ICT includes such things as computer hardware (e.g., cellular phones, handheld computers, desktop computers [PCs], and fax machines), software (off-the shelf programs and specialized software such as software that runs or is accessed from remote servers over the Internet), and network infrastructure, like an Intranet or the Internet. An information system (IS) consists of ICT components that, when used in combination, enable information to be passed within the environment (Clarke, 2001).

The use of ICT in organizations initially began in specific economic sectors like manufacturing, where it was used to gather quantitative information about the organization with the intent of improving production efficiency (Warren & Weschler, 1999). Soon after, computers and computer software applications evolved to enable these same organizations to gather more information—the what, where, and how something should be done—with the same intent (Warren & Weschler). Subsequently, computers, software, and the Internet came to be used as a means of decision-making support and a means of communicating (Rocheleau, 1999). There has been growing emphasis on the use of IT as a primary means of improving organizational efficiency and the effectiveness of public sector organizations. Thompson (1998) describes its impact,

The computer is rapidly eroding economies of scale in administration, production, and marketing and, thereby, the comparative advantage of hierarchy and bureaucracy. Today any organization that can afford a computer workstation and software (about \$20,000) can have first-class administrative systems ranging from purchasing and inventory control to human resource management to financial planning and capital budgeting to marketing and logistics. (p. 1004)

Most recently, however, it has been advancements in the Internet and related software applications that have enabled all types and sizes of organizations to transform their organizations both internally and externally, leading to a new organizational model—the borderless electronic enterprise. The OECD (2000) pointed to the explosive rise in the Internet and, most notably, electronic commerce and business in the private sector as the current focus in organizations. Whereas e-commerce “is the buying and selling of goods and services using a variety of technologies singly or in combination including the Web, email, electronic funds transfer (EFT), electronic catalogs, credit and smart cards; e-business is the leveraging of these same technology tools to redefine core business processes to improve the performance of the enterprise and to reduce operating costs” (Casey, as cited in Langford & Harrison, 2001, p. 396). Nevertheless, the two are complementary because e-commerce, a process concerned with facilitating financial transactions, is thought of as an enabling strategy for how firms structure their work and organize themselves (Segil, 2001; OECD, 2000).

The level of institutional change associated with the use of these new technologies can be better by examining the stages of e-government (Fountain, 2001; Langord &

Harrison, 2001; Layne & Lee, 2001), particularly as exemplified in Layne and Lee's four-stage e-government model:

- Stage 1: Creation of a simple Internet Website for information sharing (one-way);
- Stage 2: Local digital transactions offering interactive opportunities such as online requests or applications (two-way);
- Stage 3: Vertical integration by which digital information in the form of databases is accessible by members of an internal or intranet network (three-way);  
and
- Stage 4: Horizontal integration by which digital information in the form of databases is accessible by members of an external or internet network (automatic propagation of digital information) (four-way).

The model illustrates that with each stage, information becomes more available as does the level of integration and potential for collaboration and work-sharing (Langford & Harrison, 2001; West, 2000).

Because of the current range of e-business applications, well-advanced private sector businesses are now using ICT to rethink their institutional arrangements and manner of performing tasks. Its purpose is to transform, redefine, and reengineer the nature of the organizational work in order to increase efficiency and effectiveness while decreasing the overall costs (Cooper, 2004). Arnaut (2002) explained that this rethinking process can be applied to almost any area of a business or organization, including "sales and marketing, accounting and finance, training and education, customer service, manufacturing or new business development" (p. 7).

As e-business has taken root, ICT has evolved even further into Web-based applications (not websites) that are accessed and hosted externally to the user within the online environment. McDonald (2003) defined these new ICTs, called Web Services (WSs), as a movement “away from transactional-based business process to a service oriented approach, often involving collaboration of multiple organizations to provide an integrated service to customers” (p. 2). The rationale behind Web service technology (WST) has less to do with the inadequacy and performance of older technologies and more do with the cost and performance challenges of developing technologies that can be accessed and shared within a network environment (McDonald).

Not to be outdone, governments have been quick to jump onto the borderless bandwagon by forming partnerships with the private sector to create e-government ICT applications to enable similar transformations (Langford & Harrison, 2001). Governments in Canada, the U.S., and the U.K. use advanced ICTs to transform the way they do work. By expanding their networks, they are becoming more integrated with other levels of government, partner organizations, and citizens (Langford & Harrison, 2001; West, 2000). In the case of e-government, technology is used as an enabling strategy to transform government and its relationship with its constituents. Sharing of knowledge and continual learning through new vertical and horizontal networks is at the heart of these technologies.

Transformation occurs when an organization dramatically changes the way it works and conducts business. What this transformation means for the new borderless enterprise is “new opportunities to combine the advantages of small scale with the economies of scale provided by ‘clusters’ and networks” (OECD, 2000, p. 9). In this new

context, “collective innovation is fed by the interaction among an institutional variety of learning players within multidisciplinary technological networks” (Guena & Steinmueller, 2000, p. 90). It is this combination that “has emerged as the dominant mode of organization and the production of new knowledge” in the new economy (Guena & Steinmueller, p. 90).

### *Institutional Analysis*

#### *What Is the Voluntary Sector?*

Much interest has evolved in recent years in understanding the voluntary sector, also referred to in the literature as the “third,” “independent,” “nonprofit,” “invisible,” “resilient,” and “civil” sector (Salamon, 2002, p. 1). Whatever the term applied, the voluntary sector and the organizations that comprise it draw keen interest. This sector is thought of as “one of the least understood...yet also one of the most crucial” aspects of a healthy society (Zimmerman, 1999, p. 598). At a general level, it consists of “a diverse collection of private institutions that mobilizes individual initiative for the common good” (Salamon, 2002, p. 1). In reality, the sector is complex and consists of a range of organizational types and sizes.

While recognizing that there is no firm definition in the literature of what constitutes the voluntary sector—and that there is even a lack of agreement within the sector itself (Bowen, 2003; Betcherman, Bernard, Bozzo, Bush, Davidman, Hall et al., 1998; U.K. Cabinet Office, Strategy Unit Report, 2002)—this study draws upon the following sector characteristics presented in the literature to define voluntary sector organizations:

- These organizations have an established organizational presence—either informal or formal (Dreesen, 2001; Salamon & Anheier, 1999);
- They are considered “private” organizations that are not controlled by government (Dreesen, 2001; Salamon & Anheier, 1999, p. 1);
- They do not share profits with their owners (Salamon & Anheier, 1999);
- They invest in the “basic mission of the organization” (Dreesen, 2001, pp. 11–12);
- They provide benefits to their members or the public (Murray, 1998);
- They are considered “voluntary” (Harris, 1997; Murray, 1998; Salamon & Anheier, 1999) in the sense that they must exhibit “some meaningful degree of voluntary participation, either in conducting the organization’s activities or in managing or directing its affairs” (Dreesen, 2001, p. 11–12); and
- They have limited control over voluntary participation (Harris, 1997).

While there is agreement that voluntary organizations share, to varying degrees, similar characteristics, a review of the literature suggests there is variation when it comes to the characteristics of voluntary sector work.

#### *Nature of the Work of the Voluntary Sector*

To understand the nature of the work of the voluntary sector, it would be useful to examine how this work differs from the work of organizations in the private and public sectors. Although not an exhaustive list, the most obvious differences can be found in the area of core purpose or values (Leete, 2000; Murray, 1998). In terms of the nature of the work, Murray noted that most voluntary organizations are characterized by a “mission” with “strong commitment to the cause for which it was created, be it finding food for the

hungry, 'saving souls,' showing great art or finding a cure for cancer" (p. 2). While voluntary organizations are thought to be mission driven, Leete described an additional purpose—"to produce goods or services while abiding by certain moral, intellectual, aesthetic or religious principles" (p. 424).

Whereas the voluntary organization is mission driven, the "ultimate goal or purpose" of the private sector organization "is to make profits for company owners or shareholders. The growth or continued existence of a business is dependent therefore, upon the rate of return on investment" (Murray, 1998, p. 1). Thus, it is the profit motivation that drives the innovative process, which, in turn, is necessary to achieve desired outputs in terms of "new or less costly produced products" (Zimmerman, 1999, p. 598).

Whereas the private organization is concerned with profit and innovation, the public sector organization is concerned with serving "the political process" (Murray, 1998, p. 1). Public organizations "exist because legislators determine the services they are to provide and they survive only as long as political leaders want them to. Hence they must always be conscious of the political agenda of elected officials" (p. 1). Moreover, public organizations face restrictions that private organizations do not. More specifically, they face more management constraints (Wilson, 1989). Wilson identified three constraints public agencies face with respect to how they achieve their goals:

1. Public organizations cannot lawfully retain and devote to the private benefit of their members the earnings of the organization;
2. They cannot allocate the factors of production in accordance with the preferences of the organization's administrators; and

3. They must serve goals not of the organizations own choosing. Control over revenues, productive factors, and agency goals are all vested to an important degree in external entities. (p. 115)

In summing up the value differences, Murray (1998) contrasted the values of the voluntary and the other sectors, as “values that do not change at the whim of political leaders and do not depend on profit” (pp. 1–2).

Voluntary organizations differ from public sector organizations in that they do not face the same management constraints in their choice of methods to carry out the organizational purpose (Leete, 2000). In this regard, the voluntary sector organization behaves more like a private sector organization in which managers have greater autonomy to choose the innovative strategies they feel will produce the best possible outcomes (Zimmerman, 1999).

Another difference is in how managers act to achieve their organization’s goals or fulfill its mission. Whereas managers in private sector organizations are very much concerned about how well a strategy is impacting the bottom line, and managers in the public sector, the top line (Wilson, 1989), managers in the voluntary sector may be less focused, simply because the organization has not established organizational goals and may be lacking in organizational processes as a result of an organizational mission being “so obscure that goal definition and achievement is difficult to establish” (Murray, 1998, p. 2). Furthermore, managers from some types of voluntary organizations may be limited because they do not have clearly established roles.

Because the voluntary sector is such a large and diverse entity, it is important to understand how it is constituted. One way to do this is in terms of the type of goods and

services the sector provides; more specifically, whether the benefits provided are private or public benefits (Murray, 1998). Private benefit organizations “exist primarily to serve the needs of their members” (e.g. members of a business bureau or registrants in a sports organization) whereas “public benefit types are typically ‘charities’ created to provide a service to those other than the persons who run them or volunteer for them” (e.g. Cancer Society) (Murray, p. 5). In the latter scenario, voluntary organizations are more like public sector organizations in their provision of public goods and services. In the former example, however, these organizations are more like organizations in the private sector in serving the private interests of their members (who are analogous to private shareholders). This distinction is supported by Mintzberg (1999).

Another difference between voluntary organizations is in the use of labour. Private and public sector organizations do not rely on voluntary action to perform the tasks of the organization; rather, they use paid staff. While voluntary sector organizations may also use paid staff, the pay rate is often lower than that provided to employees who carry out similar responsibilities in the private and public sectors (Leete, 2000). One explanation for the practice may be related to the fact voluntary organizations face more funding constraints than organizations in the other sectors (Murray, 1998). Another is provided by Hansmann: “nonprofit employers will use wages as a negative screening device by offering salaries below those in the for-profit sector. This should deter those highly motivated by monetary concerns from seeking nonprofit employment and attract those for whom love of their work dominates” (as cited in Leete, p. 424).

Another difference is in the use of volunteers. While there is no agreed upon definition of volunteering in the literature, Wilson (2000) provided the following basic

and useful definition: “volunteering means acting to produce ‘public’ goods...at below market rate” (p. 216). The act of volunteerism, on the other hand, was defined by Ellis (2001) as “anything relevant to volunteers and volunteering” (p. 1) and was considered by Wilson as being “proactive rather than reactive” (p. 216).

At the level of the individual, a number of attributes have a bearing on volunteering; one concerns the subject of motivation. Much controversy exists in the literature as to what motivates someone to become a volunteer. A 1997 U.K. survey by the Institute for Volunteering Research found that “people volunteer for a mix of altruistic and self-interested reasons, with emphasis being placed on skills development...particularly among young people” (p. 2). Other motivations identified in the U.K. study include the “meeting of one’s own needs and those of family and friends, to responding to a need in the community, and learning new skills” (p. 5). However, Wilson (2000) dismissed the view that “there are any identifiable drives, needs or impulses that might inspire volunteerism” (p. 218), although he did admit to some “general influences” on volunteer behaviour, including parental, cultural, and value influences (p. 219).

While many scholars have agreed that volunteers are attracted to work in the voluntary sector because of the cause (see Bozzo, 1999; Clifton & Dahms, 1993; Hall, Knighton, Reed, Brussiere, McRae, & Bowen, 1997; Hall, McKeown, & Roberts, 2001; Murray, 1998; Pearce, 1993), others have tried to provide a more comprehensive definition. For example, Cnaan, Handy & Wadsworth (1996) defined volunteer service along four dimensions: freedom of choice to perform a volunteer service; a service that is donated; variations according to context (e.g., from informal to formal, from internal to

external to the organization), and finally, provision of external benefits. However, Harris (1997) argued that once volunteers become members, they have a tendency to focus their efforts in ways that meet their own needs rather than the needs of the organization.

Moreover, “once individuals or factions have found ways of satisfying their own needs, they can be reluctant to cooperate with any change that might threaten their own interests, however beneficial that change might be in terms of meeting the association’s overall long-term goals” (Harris, p. 6). Control over task achievement, therefore, rests with individuals and how motivated they are to achieve volunteer organizational goals. This characteristic clearly separates voluntary sector organizations from both public and private sector organizations. This division suggests that the definition of volunteer service advanced by Cnaan et al. (1996) should be expanded to include motivation for personal interest or benefit.

Leete (2000) summed up the fundamental differences between the sectors: “their reasons for existence, organizational goals and methods, products produced, and constituencies served” (p. 424). In determining where the voluntary sector fits within this framework, some have imagined that, because it has characteristics of both public and private sectors, it fits somewhere in between these two (Mintzberg, 1999, 2002; Zimmerman, 1999, p. 593). The organizations closest to the private good side will behave more like private organizations, and those closest to the public, like public sector organizations. Those in the middle may be completely unique or share characteristics of both the other sectors.

### *Size of the Voluntary Sector*

In the last ten years, there has been an explosion of research worldwide focused on the voluntary sector as a totality. Chief among the hotbeds of research activity is that of Professor Lester Salamon of the John's Hopkins University, who has focused on international comparisons of the structure and significance of the voluntary sector and the organizations that comprise it. Salamon and his colleagues (Salamon, Anheier, List, Toepler, Sokoloski et al., 1999) undertook a comparative analysis of nonprofits from 22 countries that revealed the following statistics:

- In terms of size, the voluntary sector could be considered as large as the world's eighth largest economy as measured by gross domestic product (GDP). That is, if the voluntary sector were a separate national economy, it would be the eighth largest economy compared to countries with separate national economies. To illustrate, the U.S., with the largest economy, has a GDP of \$7.2 trillion; the U.K., 1.1 trillion; and Canada, .5 trillion. Thus, the voluntary sector economy is smaller than the U.S. economy, about the same as the U.K. economy, and much larger than the Canadian economy (p.9).
- The voluntary sector "is a trillion dollar industry that employs 19 million full time equivalent (FTE) paid workers. Nonprofit expenditures average 4% of the gross domestic product (GDP) and nonprofit employment averages 5% of all nonagricultural employment, 10% of all service employment, and 27% of all public sector employment." (p. 8)
- Volunteer effort boosts the employment average to approximately 30 million FTE (up from the 19 million above). Salamon et al. attributed the increase in FTE to

volunteer effort contributed to nonprofits from “an average of 28 percent of the population in these countries.” (p. 10)

- With respect to employment growth, “employment in nonprofit organizations grew three times faster than overall employment in the early 1990s in the eight countries for which time series data was available.” (p. 13)

The contribution of this empirical work is the incredible size, growth, and significance of the voluntary sector.

### *Canadian Voluntary Sector*

As of 2001, the boundaries of the Canadian voluntary sector were ill defined: no data recorded just how large the sector was. The only existing data gave the number of registered charitable organizations (Dreesen, 2001; Good, 2001). In fact, Dreesen argued that the sector itself could not be defined simply because, “the appropriate definition depends on the purpose of the analysis or on one’s objective in the development of data” (p. 11). At the same time, however, he reported that, while research in the past five years has provided much knowledge with respect to volunteers, volunteering, and charitable giving, little is known about the organizations that actually comprise the third sector.

What was known about the voluntary sector at that time was that the majority of the 175,000 to 180,000 organizations that comprised it were noncharitable, not-for-profit, or voluntary associations (about 100,000) (Dreesen, 2001; Good, 2001; Government of Canada, 2002; Murray, 1998); about 80,000 were registered charities (Good, Government of Canada). Industry Canada (1999) reported the economic significance of the sector to Canada’s GDP: “not-for-profits accounted for more than 1.3 million jobs nationwide,

assets over 100 billion and annual revenues of \$90 billion ...revenues [comparable] to the entire economy of British Columbia” (p. 3).

More recently, the following statistics were reported for Canada’s voluntary sector:

- Its size as measured in 1999 by GDP was 61.8 billion or 6.8% of the Canadian economy (Statistics Canada, 2004c).
- “Volunteer labour contributes an additional 14.1 billion, accounting for nearly 20% of the total extended value of GDP” (Statistics Canada, 2004c, p. 5).
- When combined with volunteer effort, the size of the voluntary sector is 8.6% of the Canadian economy (Statistics Canada, 2004c).
- It employs approximately 2 million full time equivalent (FTE) individuals, of which 1.5 million are paid workers and 500,000 are unpaid volunteers (Hall, Barr, Easwaramoorthy, Sokolowski, & Salamon, 2005).
- The voluntary sector contributes more to the Canadian GDP than the major industries of agriculture, mining, oil and gas, retail, accommodation and food services, and motor vehicle manufacturing industries.<sup>4</sup>
- The “main source of revenue for voluntary sector organizations comes from government grants and reimbursements” (Hall et al., 2005, p. 8).

These statistics suggest:

1. Canada’s voluntary sector is a major contributor to the Canadian economy.
2. The voluntary sector is dependent upon government for revenue.

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<sup>4</sup> It should be noted that Statistics Canada (2004) uses the data as a “reference point” for comparison purposes (p. 6).

Another estimation method for the size of the voluntary sector in Canada involves the rate of volunteering, which can be measured by obtaining the percentage of a population that performs volunteer work. In 2000, Statistics Canada reported a decline in the rate of volunteering, down from 31% of Canadians volunteering in 1997 to 26.7% in 2000. Nevertheless, while the rate of volunteering in Canada has been declining, the amount of hours volunteers contribute has been increasing (Hall et al, 2001).

### *New Governance*

The next section explores the new governance environment in which the voluntary sector operates. The new governance is relevant to the dissertation because it describes the kinds of structures and relationships and importance placed on ICT as a facilitator of changes in governance.

### *New Governance Arrangements*

As the voluntary sector has grown in size and economic importance so has interest in involving voluntary sector organizations as a legitimate partner of government in contemporary governance. Recent trends in contemporary governance have seen governments throughout the world partnering with the voluntary sector as a means of taking advantage of lower labour costs as well as a means of building social capital and cohesion, solving socio-economic problems, and a viable alternative to the market in the provision of public goods and services (Blackenberg, 2000; Brock, 2000; Rifkin, 2003).

This new partnership, has grown out of intense “social, economic and technological changes” (Giddens, 1998, p. vii) and is often referred to as part of a *third way* of doing government business. This latter term “of no particular significance in and

of itself [that] has been used many times before in the history of social democracy...by writers and politicians of quite different political persuasions” (p. vii-viii). Giddens has recently used the term (as cited in Kaspersen, 2000) to describe a more “human-centred” (Rugina, 1998, p. 708) set of political values that include among them “equality and protection of the vulnerable” (Giddens, 1998, p. 66). The third way is characterized by new values and political relationships between the state, the free market, and the social sectors. Giddens, who helped conceptualize this revolution, described the new politics as one that “advocates a mixed economy” approach to governance (p. 99). He contrasts this concept with previous viewpoints as follows:

The new mixed economy looks instead for a synergy between public and private sectors, utilizing the dynamism of markets but with the public interest in mind. It involves a balance between regulation and deregulation, on transnational as well as national and local levels; and a balance between the economic and the noneconomic in the life of the society. The second of these is at least as important as the first, but attained in some part through it. (p. 99–100)

Rugina (1998) described this mixed economy as a “third revolution in political thinking” that should not be considered an “either...or” approach, but rather one that accepts that there is ‘truth on both sides’ of the political spectrum (p. 709). Another feature of third way politics is the change in the relationship between risk and security toward a “society of ‘responsible risk takers’ in the sphere of government, business enterprise and labour markets” (Giddens, 1998, p. 100).

From a theoretical perspective, involvement of the voluntary and private sectors in third way governance could also be thought of as “third-party government” (Salamon,

1995, p. 17), in which government provides the funds under contract (Salamon, as cited in O'Neill, 2002, pp. 47–48) and, in return, “third parties—states, cities, special districts, banks, hospitals, manufacturers, and others—carry out its purposes” (Salamon, p. 19).

For individuals, Giddens (1998) described the third way as involving a psychological shift in thinking toward “responsible” citizens who play an important part in the development of a civil society. Together with this new collaborative individualism comes a shift in thinking about democracy and democratic authority, from passive to active citizen participation. The logic underlying this approach is to create a citizenry that is adaptive and more capable of navigating its own way through complex change including “globalization, transformations in personal life and relationships with nature” (p. 64).

On an institutional level, the third way is also about modernizing political institutions. Giddens (1998) argued that institutions should not be thought of as a way to achieve “more and more modernity” but rather as a process that is “conscious of the problems and limitations of modernizing” (p. 68). At the same time, it “is alive to the need to re-establish continuity and develop social cohesion in a world of erratic transformation, where the intrinsically unpredictable energies of scientific and technological innovation play such an important role” (pp. 67–68).

From a governance perspective, the third way has occurred at a point in time when trust in government by citizens has been declining (Brock, 2002; Rugina, 1998; Norris, 2001; Putnam, 2000). Rugina (1998) proposed that this new form of governance, one that combines liberal and conservative approaches, has emerged as a solution to deal with the problem of a lack of credibility of governments as a result of the recurring

failure of politicians and political regimes to “arrive at reasonable and workable solutions accepted by the majority” (p. 702). He also suggested that evidence of this problem can be found in any “newspaper in any free country, where one can see that whatever a new government promised when it was voted in vanishes toward the end of its tenure into more problems which prepare the way for a new government” (p. 702).

In the U.S., there is support for this trend. In his book, *Bowling Alone*, Robert Putnam (2000) described the problem of a lack of trust in government among U.S. citizens. He cited statistics to show that “three out of four Americans [do not] trust the government to do what is right most of the time” (p. 47). These statistics also revealed that the problem may be generational and indicative of a shift in civic involvement. More specifically, more citizens are choosing to be involved in “individual” pursuits rather than the “cooperative” types of community activities like participation in political parties (pp. 44–45). Moreover, citizens are now more “disengaged” from political activities and are “redirecting energies...into less formal, more voluntary, more effective channels” (p. 47).

Salamon et al. (1999) argue that the voluntary sector is ideally suited to take on this new role. They elaborate,

Because of their unique position outside the market and the state, their generally smaller scale, their connections to citizens, their flexibility, their capacity to tap private initiative in support of public purposes, and their newly rediscovered contributions to building “social capital,” civil society organizations have surfaced as strategically important participants in this search for a “middle way” between sole reliance on the market and sole reliance on the state that now seems to be increasingly underway (p. 5).

According to Giddens (1998), one aspect of the third way is the “partnership between government and civil society where government supports the renewal of community through local initiative, giving an increasing role to the third sector of ‘voluntary’ organizations...” (p. 93 as cited in Powell & Edwards, 2002, p. 3).

In the UK, a partnership between government and civil society exists in the British *Compact* a “memorandum of understanding” that describes the relationship between the UK Government and the Third Sector (Secretary of State of the Home Department, 1998). The Rt. Hon. Tony Blair, describes the nature of the relationship between the sectors,

The Compact between Government and the voluntary and community sector provides a framework which will help guide our relationship at every level. It recognizes that Government and the sector fulfill complementary roles in the development and delivery of public policy and services, and that the Government has a role in promoting voluntary and community activity in all areas of our national life (Government of UK, Home Office, November 1998, p.1).

In review of third way governance arrangements in the UK, Powell & Edwards (2002) argue that they are not really new at all as they “represent some startling continuities of the previous Conservative government especially with its emphasis on community and independence” (p. 2). For example, in an effort to “release resources for individualism and free enterprise”, the Thatcher governments of the 1980s and 90s offloaded government services to families and community service organizations (Biggs & Powell, 2002 as cited in Powell & Edwards, p. 3).

Whereas some governments, like that of the U.K. are beginning to incorporate third way governance into new public management practices, others, such as the Canadian government, have just recently begun to adjust their approach. Brock (2000) pointed to the growing involvement of the Canadian government with the voluntary sector as evidenced by the *Voluntary Sector Accord* (hereafter the Accord), a participatory agreement between the federal government of Canada and the voluntary sector to work together. This new form of participation has even materialized into new governance structures and relationships, including a new government ministry that holds responsibility for the voluntary sector (i.e., the Minister of Canadian Heritage Responsible for the Voluntary Sector). While the relationship between the voluntary sector and government in the UK is far more robust and institutionalized (Brock, 2000), the Accord between the Canadian Government and the voluntary sector is an attempt to institutionalize a similar process.

The trend towards use of new arrangements of governance is evident in other jurisdictions. In a comparative analysis of volunteering in 22 countries, Salamon and Sokolowski (2001) concluded that “volunteering, and more generally civic participation and self-organization of individuals to pursue common interests, are not acts of ‘spontaneous combustion’ or ‘immaculate conception,’ but instruments and outcomes of social policies that are highly dependent on each country’s institutional path of development” (p. 5). For example, Burt and Taylor (2001) reported that citizens in the U.K., who have become increasingly distrustful of government and public service institutions, are turning to the voluntary sector as a primary means of exercising democratic participation outside of the political mainstream. For example, they report

that “citizens most negative about contemporary democratic institutions are the heaviest users of the Internet” (p. 9). Furthermore, citizens are now using new policy instruments in information and communications technology (ICT) like the Internet and related applications to facilitate their involvement (Burt & Taylor). At the same time, voluntary organizations are responding to new member demands through ICT “in ways that are strengthening their democratic role” (Burt & Taylor, p. 1).

### *Challenges Facing the Voluntary Sector*

As much as the voluntary sector has welcomed new governance relationships as evidence by *The Accord* struck with the Federal Government of Canada (PMO, 2001; VSI, 2001), the increased roles and responsibilities and the resulting pressures to take on more tasks and behave in new ways appear to have had negative consequences. Brock (2000) pointed to a current “tension” within the voluntary sector as new relationships with government include new “assurances” that the services the sector provides on behalf of the government will be of a certain quality (p. 8). Tensions are also mounting as governments dictate how the sector should conduct its work. Brock cited ends and means related examples, including government “imposing greater measures of accountability...and methods such as ‘requiring’ voluntary organizations to be more ‘responsive to public opinion’” (Salamon & Anheier, as cited in Brock, p. 8). Moreover, governments are imposing new demands to deliver services according to certain bureaucratic standards and requirements such as “financial management and accounting practices, key program objectives, forms of programme evaluation and policy goals such as equity, environmental protections, and respect for human rights (Salamon, 1995; Canada West Foundation, 1999; Day & Devlin, as cited in Brock, p. 8; Douglas, 1987;

Gidron, Kramer, & Salamon, 1992). Brock (2000) argued that voluntary organizations face enormous challenges as a result of this trend toward what she refers to as “commercialization, professionalization and bureaucratization...” of the sector (p. 10).

Nevertheless, despite such pressures for organizations within the voluntary sector to behave more like organizations within the public (accountability) and private (efficiency) sectors, government has also made organized efforts to encourage and give support to voluntary organizations to “adapt traditional structures and ways of operating” in an effort to improve organizational effectiveness and “strengthen their impact on the policy process” (Bifarello, 2000, p. 1). One policy effort currently underway in Canada is designed to increase the capacity of the voluntary sector through the use of new information and communications technologies (ICT) (Brock, 2002; Phillips, 2000).

#### *Voluntary Sector Use of Information and Communications Technology (ICT)*

In one U.K. study on electronic networks in voluntary organizations, Burt and Taylor (2000) reported that the benefits “extend beyond conventional enhancements of administration and operational efficiency and effectiveness...Embedded within electronic networks is the potential to reshape organizations internally, reconfigure relationships across networks of organizations, and redefine relationships with individual citizens” (p. 131). They further reported that U.K. voluntary organizations are increasingly utilizing ICTs in the form of “Internet-based technologies or forms of advanced telephony... to respond to and to shape, deep shifts within the social, economic, and political regimes in which they operate” (p. 132).

Many people believe that there are numerous benefits to ICT use in the voluntary sector on a number of levels. For example, at the sector level, ICT is thought to improve

the ability of voluntary organizations to build new networks of relationships (Burt & Taylor, 2000). On an organizational level, ICT is thought to enhance organizational efficiency and effectiveness and reduce the costs associated with administration, thereby enabling volunteer organizations to use scarce resources more efficiently. At the level of the volunteer, ICT introduces a new medium to respond to a declining rate in volunteerism (Cravens, 2000; Virtual Volunteering Project, 2001). At the level of the manager, ICT offers a means to respond to a growing problem of recruitment and management of volunteers —what Brudney (1999) refers to as the “crisis in volunteer management” (p. 255).

Given that the normative literature on ICT use in volunteering is generally very enthusiastic and supportive of its benefits and potential, there are numerous examples emerging in the literature of ICT use in volunteering (please refer to [www.serviceleader.org](http://www.serviceleader.org) for examples). Proponents argue that the application of ICT in volunteering is a useful means to facilitate different activities associated with the volunteering process. Whereas in traditional volunteering, each step of the process is carried out through face-to-face interaction with those in the voluntary organization (Brudney, 1999; Cravens, 2000; Virtual Volunteering Project, 2001), now the individual volunteer can use ICT to search for volunteer opportunities, select an organization to volunteer for, and perform specific forms of work at a physical distance from the organization. For the manager of volunteer resources, the process is similar. The virtual volunteer manager may use ICT to perform any or all necessary functions at a physical distance from the volunteer, from identifying the need for volunteers and the nature of the

work required to searching for and locating a potential pool of volunteers (recruitment), making selections, putting them to work, and overseeing their performance,

In this regard, ICT is thought to increase volunteerism by providing volunteers and volunteer program managers with new tools to reach and recruit more volunteers from traditional sources and to contact more and new types of volunteers, such as youth and those at home or who face travel restrictions such as those who suffer from disabilities (Cravens, 2000; Ellis, 1996; Virtual Volunteering Project, 2001). In the area of social justice, Hick & McNutt (2002) argue that ICT provides a new means “for grassroots organizing” (Hick & McNutt, 2002, p. x). They describe:

For example, IGC Internet with PeaceNet, EcoNet, WomensNet, and Anti-RacismNet strategically use the Internet for providing relevant information, action alerts, and specialist Bulletin Boards at which groups with particular interests and concerns interact and discuss all sorts of things. (p. x)

As ICT has evolved in volunteerism, so too have its applications in traditional areas of volunteering, such as the provision of peer counselling support (Harrison, 1996). In fact, a whole body of literature is emerging that shows ICT to be an important tool for increasing social capital by providing new means to enhance traditional face-to-face relationships. For example, time on line has been reported to increase contacts with others and the building of social networks (Hampton, 2003; Pierce & Lovrich, 2003; Shaw, Kwak & Holber, 2001; Wellman, Quan Haase, Witte, & Hampton, 2001).

Yet despite such support in the literature for the benefits of ICT, there are those who suggest that ICT does not belong in human services because it might replace or challenge the practical wisdom of decision-makers (Caputo, 1988). In this scenario,

information sharing re-distributes knowledge and decision-making. For some, the redistribution of knowledge and decision-making is perceived as a threat to their sense of power. As a result, ICT is a de-motivating force because of a perceived reduction in responsibility, autonomy, and control (Gill, 1996). For example in the area of breastfeeding peer-counseling, a mother contacts a community member for advice rather than her doctor. While this form of communication has existed for as long as mothers have had babies, the process has, in some regions of Canada, become institutionalized within the public health care system (e.g. Harrison, 1996).

Some critics argue that once introduced into the organizational environment, ICT cannot be controlled, rendering it “all consuming” and causing “human power” to be lost to it (Tiles & Oberdiek, 1995, p. 13). Putnum (2000) questions whether it belongs in the voluntary sector because it is a “depersonalizing force” that is antithetical to the development of a civil society, which is achieved through personalized face-to-face interactions. Others argue that ICT is damaging to the sector because it provides opportunities for abuse and corruption (Castelfranchi, 2000) and has the potential to facilitate acts of terrorism (Fryar, 2003). Others are concerned with the digital divide and unequal access to ICT (Norris, 2001; Smith, 2002; Staeyart, 2002). Whatever the validity of these criticisms, the literature acknowledges an increasing level of voluntary sector investment in ICT, which suggests that it may be an unstoppable force (Government of Canada, 1999; Parmegiani & Suchdeva, 2000; Phillips, 2000).

One channel of investment in ICT in Canada has occurred through the Accord<sup>5</sup> between the Federal Government of Canada and the voluntary sector under the Voluntary

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<sup>5</sup> The Accord is a formalized “voluntary” relationship between the Federal Government of Canada and the third sector. The purpose of the Accord is to facilitate understanding and co-operation between the sectors.

Sector Initiative (VSI) and Information Management/Information Technology (IM/IT) Joint Table (PMO, 2001, pp. 1–3; VSI, 2001, p. 2; VSI: Joint Tables: Facts, April, 2002; VSI: Joint Tables IM-IT, May 29–30, 2002). Industry Canada’s Voluntary Sector Network Support Program (VolNet) program in which 15 million dollars were allocated to increasing access to ICT in the third sector (Government of Canada, 1999). This funding equipped about 10,000 voluntary organizations with ICT equipment and Internet access within a two-year period that ended on March 31, 2001 (Phillips, 2000). Phillips described the goal of the program as enhancing “connectivity” through the facilitation of horizontal and collaborative partnerships amongst Canadian voluntary organizations through the use of Internet technology.

#### *Summary*

This review of the literature has shown that the voluntary sector is rapidly transforming in all its aspects, from new technology, governance arrangements to investments in ICT change. Yet, other than the few examples of ICT use in different areas of volunteer activity, little is known about the extent to which volunteer organizations have access to ICT and how it is being used to facilitate volunteer work. As in other sectors of the economy, the choice of ICT as an instrument of change is based on the assumption that it has positive value; however, there is little information about its actual value in volunteerism and whether voluntary organizations benefit from its use.

### Chapter Three

#### Literature Review Part II

#### ICT Effectiveness (ICTe) and Volunteerism

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Within the Accord framework, there were joint tables in which the two sectors work together. One of those tables was the joint table on IM-IT.

Besides understanding the new technological and institutional context in which voluntary sector organizations operate, to fully understand the problem of ineffective use of ICT in volunteerism, it is also necessary to understand ICT adoption and the factors that influence effectiveness.

This chapter begins with a review of the expanding literature on ICT use in voluntary sector organizations, particularly on the problem of ineffective ICT use. Subsequently, the nature of ICT change is explored, including the different theoretical perspectives and models of information and communications technology effectiveness (ICTe). Finally, these models are critiqued as to their contribution in explaining ICTe in the voluntary sector context.

#### *ICT Use in Voluntary Sector Organizations*

Even though survey research has indicated that Canada is a leader in terms of funding and voluntary sector access to ICT (Parmagmegiani & Suchdeva, 2000), the leadership, according to several evaluations, stops there (Phillips, 2000; Schneider, 2003). Research reports have indicated that the incidence of voluntary sector ICT transformation projects that have not lived up to expectations is growing. For example, one report (Phillips, 2000) on the VolNet program experience<sup>6</sup> revealed that the program had failed to achieve its original and funded objective. The numerous problems found with the project included “ill-defined mandate, poor communication...overly ambitious targets...and an inability to develop online resources and further partnerships...stressed in its original plan” (Phillips, p. 2).

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<sup>6</sup> This project equipped 10,000 voluntary organizations in Canada with computers, software, and the Internet.

Brock (2002) also cited problems with the VSI's ICT strategies, most specifically, their Internet strategy:

1. The use of the Internet and related applications as a more effective means to manage volunteers and volunteer programs introduces a competitive environment into what has traditionally been a noncompetitive sector (Brock, 2002, p. 7).
2. The strategy is incomplete because it lacks a small picture view. More specifically, it must evolve beyond "network" or infrastructure goals and should include a focus on the finer details of knowledge and skills development as well as expanded "opportunities and resources" and "knowledge about implementation" (p. 7).

Similarly, Schneider (2003) suggested that in the U.S. ICT use in the nonprofit sector has "raised the bar for many kinds of agency administrative activities, making it difficult for agencies lacking resources to compete" (p. 391). As a result, new expectations and structural issues are emerging within the sector, and, in the small minority-based nonprofit organizations she studied, Schneider found that "IT is becoming an additional problem rather than a way to make these NPOs work easier" (p. 395).

A 2001 research study conducted by Volunteersonline and sponsored by the Province of Ontario on Internet usage in third sector organizations echoed concerns similar to those voiced by Phillips (2000) and Brock (2002). This study, *Making IT Work for Volunteers*, examined how connected voluntary organizations were and how much ICT they had access to. The study report concluded that there was "significant progress in the area of connectivity and basic access to the Internet" but, at the same time, "much of

the voluntary sector lacks the tools, training and financial resources necessary to use the Internet strategically and effectively” (Volunteersonline, 2001).

A similar theme was noted in research findings from the U.S., which suggested that the majority of nonprofits of all types and sizes were not laggards in terms of having access to the ICT (e.g. Pitkin & Manzo, 2002a; Princeton Survey Associates, 2001; Public Sector Consultants, 1999). Pitkin and Manzo’s (2002b) study of on ICT use by nonprofit organizations in the Los Angeles region showed that, while these organizations were well equipped with the basic tools, they were not making effective use of them. That they offered no explanation for their finding however, is not surprising given how little is known about what motivates organizations to adopt innovations (Rogers, 2003).

Information is emerging about what inhibits voluntary organizations from adopting ICT innovations. For example, Hall Aitken (2001) undertook a study to inform the UK government and the Office of the E-envoy about ICT policy matters in the voluntary and community sectors. They report that the Internet has improved the delivery of services to clients, and provided organizational benefits in terms of increases in efficiency. However, they claim there are major day to day barriers to ICT use including managerial attitudes that suggest “ICT is not recognized by senior management and/or management committees” and resources in terms of lack of on-going support and training are prevalent (p.5). Another UK study by Ticher, Maison and Aba (2002) argues that “voluntary organizations ignore ICT at their peril” (p. 1). It reveals “the biggest barriers to ICT use are internal” including a lack of managerial “vision” about how to use ICT and “confidence and determination to take ideas forward” as well as a lack of capacity to develop, implement and manage complex ICT projects (p.2).

As of 2003, the central theme emerging from the voluntary sector ICT survey research acknowledges that the digital divide and reduction of barriers continues to be a significant problem in some segments of society like poor and disadvantaged groups, but may be less of a problem for organizations in the sector than it once was (Lenhart, Horrigan, Rainie, Allen, Boyce, & Madden, 2003; Madden & Rainie, 2003; Robinson, Dimaggio, & Hargittai, 2003; Staeyert, 2002). The problem of a digital divide in voluntary sector organizations has expanded from *lack of having physical access* to *ineffective use* of ICT or the lack of motivation to make use of the ICT one has access to (Kirschenbaum & Kunamneni, 2001).

Ineffective use of ICT, while only recently identified in the context of the voluntary sector, is not a new problem. It has been of particular concern to those who study how other organizations adjust to the conditions imposed by the new economy (e.g., McLoughlin & Harris, 1997; Zuboff, 1996). One problem that the new technologies pose is that they replace traditional activities. Part of the effectiveness challenge is whether “tradition” is no longer valid within the new technological context. Tiles and Oberdiek (1995) report that technological enthusiasts dating back to Francis Bacon in the 16<sup>th</sup> century, believed, that technology must be considered a “means to an end” strictly under the control of the organization or user group. Moreover, that “technology provides us with instruments which can be used and further developed by us or not, depending on our purposes” (p. 13). The “purpose” is to use technology to “improve the lot of humankind” (p. 13) rather than a sole means to reduce costs and/or increase profitability.

To be effective users of technologies, organizations must think about how they can be used and implemented to better meet their purpose (Tiles & Oberdiek, 1995). A key outcome of the “thinking or “reengineering” process is to find out what traditional elements are worth keeping and how they should be incorporated into a new technological context. The literature is clear that there is no “one-size fits all” approach and different institutions will have different purposes for technology use, which should be kept in mind when navigating ICT changes (Braganza and Lambert, 2000; OECD, 2001; Fountain, 2001; Gasco, 2003).

To give insight into the nature of the problem, the next section reviews the literature on ICT change, including failed experiments, different theoretical perspectives, and models of information and communications technology effectiveness (ICTe).

#### *Use and Effectiveness of ICT*

As the uses for ICT have increased, so too has the research on its impact. For example, there are several studies on ICT and its impact on organizations and how they do their work. With regards to organizational change and information technology (IT), Thach and Woodman (1994) cited Peters’ comment on the nature of ICT change: “thanks to technology, the world is going bonkers. And it’s going to get more bonkers-bonkers squared in a few years with bonkers cubed on the way” (p. 30). Even the literature is “bonkers” with emerging perspectives that attempt to explain how ICT effects organizations. Moreover, studying ICT use in organizations is difficult because there exists no fewer than “20 different research paradigms on the impact of technology” (Lewis, as cited by Liker, Haddad, & Karlin, 1999, p. 577). Liker et al. described the problem as one of multiple paradigms, each viewing the problem of technology use in

organizations differently so that subsequently each paradigm influences “what constitutes useful data on the problem, and how to analyze that data in fundamentally different ways. Moreover, these multiple paradigms have different value implications for whether the technology is good, bad, or indifferent” (p. 577).

Typically, the effectiveness of ICT has been measured at the level of the organization and by how well ICT impacts organizational performance, including, “how a system contributes to profitability, market share and return on equity” (Garrity & Sanders, 1998, p. 2). At this level, the effectiveness of ICT is measured by the net benefits the technology will deliver (Seddon, 1995). However, other perspectives and measures of effectiveness extend beyond this level of analysis.

Effectiveness can also be measured by how efficiently the organization operates in meeting expectations or in delivering net benefits. For example, “at the process or functional level of analysis, systems success is measured in terms of the efficient use of resources and the reduction of process cycle times” within the organization (Garrity & Sanders, p. 2). In both examples, the focus is on rational use of ICT to bring about organizational benefits and improvements (DeSanctis & Poole, 1994, pp. 122–123).

De Sanctis and Poole (1994) argued for another level of analysis—that of social interaction. From this perspective,

the technology presents an array of social structures for possible use in interpersonal interaction, including rules (e.g. voting procedures) and resources (e.g. stored data, public display screens). As these structures are brought into interaction, they are institutionalized in social life. So, there are structures in technology, on the one hand, and structures in action, on the other. The two are

continually intertwined; there is a recursive relationship between technology and action, each iteratively shaping each other. (p. 125)

This framework examined effectiveness in terms of the changes in the social nature of the work processes rather than organizational outcomes (DeSanctis & Poole, 1994). Thus, the effectiveness of ICT is dependent upon the level of interaction between the new structure and ensuing usage behaviours.

Other researchers view technological effectiveness from the perspective of social institutions. At the institutional level of analysis, the effectiveness of a technology is measured by the structural changes that result from its introduction. From this viewpoint, “technology does not determine behaviour; rather, people generate social constructions of technology using resources, interpretive schemes, and norms embedded in the larger institutional context” (Orlikowski, as cited in DeSanctis & Poole, 1994, p. 124).

Rogers (2003) argues that at the heart of innovation diffusion is social influence; more specifically, “in deciding whether or not to adopt an innovation, individuals depend mainly on the communicated experience of others much like themselves who have already adopted a new idea” (pp. 330–331). Those who belong to a network are subjected to more influence and therefore more change. Rogers claimed that this process is an illustration of Bandura’s general social learning theory:

The basic perspective of social learning theory is that the individual can learn from observation of all people’s activities, so the individual does not necessarily have to experience a verbal exchange of information in order for the individual’s behaviour to be influenced by the model...social learning and innovation diffusion within networks have much in common: both theories seek to explain how

individuals change their overt behaviour as a result of communication (verbal or nonverbal) with other individuals. Both theories stress information exchange as essential to behaviour change and view network links as a main explanation of how individuals alter their behaviour. (p. 342)

Fountain (2001) suggested that there is a lack of understanding of ICT use from the institutional perspective; more specifically, she explained the theoretical shortcomings as follows:

Information technology has yet to be theorized in the institutional perspective or in other central paradigms of political science and sociology with the exception of the communications studies. Although theories of technology adoption and innovation have a long history, particularly in economics, the ways in which information technologies interact with behaviour, ongoing social relations, and organizational structure and process have yet to be adequately conceptualized and remain the province of research programs relatively isolated from the mainstream. (pp. 9–10)

Furthermore, the problem exists because “studies of technology and organization have remained persistently ignored by social and policy scientists except those with an explicit interest in technology” (Fountain, p. 9).

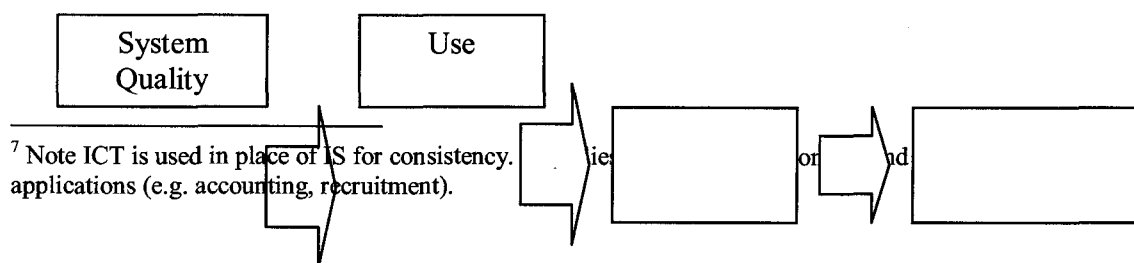
A similar perspective focuses on the individual or end-user level. In this framework, success is measured by the user’s “perception of utility and satisfaction” with the system (Garrity & Sanders, 1998, p. 2) and how well it supports their pursuit of the benefits they anticipate will result from its use (Davis, 1989; Yaverbaum, 1988). From this perspective, attitudes and perceptions drive use (Davis, 1989; Seddon, 1995; Seddon

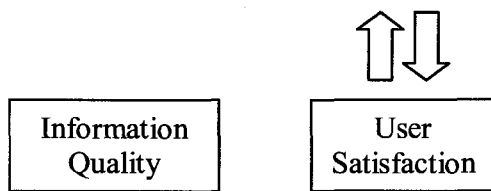
& Kiew, 1994, 1997; Marold, Kosaka, & Larsen, 1996; Robey, 1979; Schmitz, 1991; Smultz & Falk, 1991) and organizational change results from successful experiences with ICT (DeSanctis & Poole, 1994). For example, Robey (1979) found that use of new ICT was more a result of “user psychological reactions and organizational factors” than the quality of ICT (p. 527). Over the years, the individual perspective has gained more attention as more failures were attributed to individual reactions to introducing ICT (Tait & Vessey, 1988).

### *Models of ICTe*

Several models have been cited in the literature to evaluate ICT effectiveness (ICTe).<sup>7</sup> The first causal model was developed by DeLone and McLean in 1992. This scholarly work was important to the field of management of information systems (MIS) because it provided the type of common framework for reporting and comparing research that had not existed up to that point.

DeLone and McLean (2002) based their model on Mason’s (1978) stages of communication and manner of information flow within an organization. This model consists of six constructs that together explain the effectiveness of ICT: system quality, information quality, system use, user satisfaction, individual impacts, and organizational impacts (see Figure 1).





*Figure 1. Model of information system success, adapted from “Information Systems Success: The Quest for the Dependent Variable,” by W. DeLone and E. McLean, 1992, *Information Systems Research*, 3, p. 87)*

On the tenth anniversary of their model, DeLone and McLean argued that the model had withstood empirical tests showing “strong support for the proposed associations among success dimensions that help to confirm the causal structure of the model” (p. 4). Their model has been much applauded and widely used and has become the most often cited and the most often adapted.

There has since been several conceptual adaptations of DeLone and McLean’s model, including those of Ballantine, Bonner, Levy, Martin, Munro, and Powell (1998), Garrity and Sanders, (1998), Seddon, (1995), and Seddon and Kiew (1994). Garrity and Sanders (1998), after critiquing the model, elaborated by identifying four dimensions of IS success that “in concert with system use will have an impact on the individual and ultimately the organization” (p. 15). Three of the four dimensions are based on general systems theory, and include administrative task and decision-making constructs, to which the researchers also added a socio-technical (ST) dimension that incorporates the element of intrinsic motivation of workers.

The socio-technical approach views an IS in terms of its impact on people’s feelings, physical needs and psychological states. A user of a computer system is also a worker and a human being with certain goals or aspirations, desires, and

basic physiological and psychological needs. The implementation of an IS may alter a number of important relationships between users and their physical and social environment. (Garrity & Sanders, p. 20)

In evaluating ICTe, Garrity and Sanders pointed out that a “system may be successful on one or more dimensions and that the dimensions of success are interdependent” (p. 21). Assessing and measuring success will involve developing multiple measures that capture both the organizational systems and sociotechnical perspectives.

Ballantine et al (1998) argued that the DeLone and McLean (1992) model led to confusion because it lacked the following:

1. clear delineation of independent, dependent, and contingent variables of success;
2. specification of levels of analysis;
3. sequencing of IS events;
4. measures to evaluate dimensions; and
5. fails to incorporate the element of organizational learning and an external focus.

Their criticism also focused on the causal nature of the model and, more specifically, the sequencing of the construct dimensions. They argued that the “sequence of dependence from information and system quality to information system success [could] give a misleading impression of how to ensure a successful information system” (p. 50).

Therefore, they proposed extending and refining the model by separating “success into three fundamental dimensions or levels of success for the sole purpose of communicating that IS success is not simple, and to help to conceptualize a broader view” (p. 57). To this

end, they developed a conceptual model that incorporates filters, influencing factors, learning, and three dimensions of impact (p. 55). *Filters* are the factors that influence the degree of use of ICT and include involvement, prior experience, and expectations about ICT. *Influencing factors* are endogenous (within the control of actors) and exogenous variables (beyond actors' control because they emanate from the external environment). While *learning* is not clearly defined, they describe it as occurring "through time and experience" (p. 56). The levels of impact are development (quality of ICT focus), deployment (user focus), and delivery (achievement of objectives) (pp. 55–56).

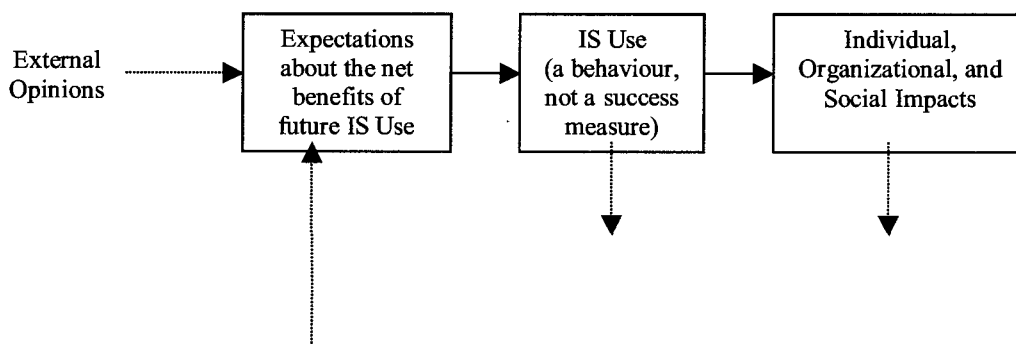
Even though both of these adaptations improve the DeLone and McLean (1992) model by including a sociotechnical dimension, they have yet to be empirically tested. Therefore, it is difficult to determine how great an improvement they provide.

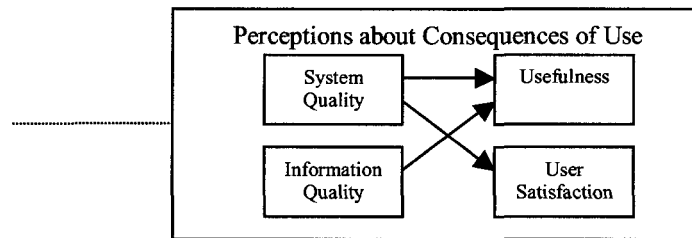
Seddon & Kiew (1994) tested the relationships between the DeLone and McLean's construct dimensions and a new variable—user involvement. Drawing on the work of Barki and Hartwick (1989), they defined user involvement as "a subjective psychological state" of the user rather than active user participation in systems development (Seddon & Kiew, p. 104). Working with a sample of 102 and using factor, reliability, and path analyses, they found substantial support for the dimensions of the DeLone and McLean model. At the same time, they found "three factors: system quality, information quality and a measure of importance of the system to the user"; in addition, "user involvement explained 56% of the variance in usefulness" (p. 99). On the other hand, 72% of the variance for the dimension of user satisfaction was explained by the dimensions of information quality, system quality, and usefulness (p. 105).

Whereas Seddon and Kiew (1994) found empirical support for these dimensions, they criticize DeLone and McLean's (1992) IS Use construct. They found no support for it as a dependent variable in the model (p. 2). Subsequently, Seddon (1995) pointed out that "the critical factor for IS success measurement is not system use, but that net benefits should flow from use" (p. 3). Therefore, he proposed that the DeLone and McLean IS use construct be changed to "benefits from use" (p. 3) because "IS Use is being used to describe a behaviour...[and]...is not being used as a measure of IS Success" (pp. 3–5). In his words,

most of the constructs in the model can only be measured after the system has been in use for some time. In particular, one cannot expect to measure User Satisfaction, Individual Impact, or Organizational Impact until an information system has actually been used...within this view, use is not being treated as a measure of IS Success; it is the User Satisfaction, Individual Impact, and Organizational Impacts (if any), the consequences of Use, that need to be measured to measure IS Success. (p. 5)

For these reasons, Seddon (1995) respecified the model into what he termed the IS use framework, which he believed improves upon the original model while at the same time retaining a majority of its features (see Figure 2).





*Figure 2.* Seddon's IS use framework, adapted from "A Re-specification of the DeLone and McLean Model of IS Success," by P. Seddon, 1995, unpublished manuscript, p. 16.

On the tenth anniversary of the publication of their model, DeLone and McLean (2002) took the opportunity to comment on the adaptations of their model, including Seddon's (1995) criticisms. They disagreed with him on the removal of IS use as a construct dimension, arguing that "system usage is an appropriate measure of success in many cases" (p. 5). Rather, they described the problem with the system use dimension as follows:

[It is] too simplistic a definition of this complex variable. Simply saying that more use will yield more benefits without considering the nature of this use is clearly insufficient. Researchers must also consider the extent, nature, quality, and appropriateness of system use. Is the full functionality of a system being used for the intended purposes? Is it being used to the fullest extent? Simply measuring the amount of time a system is used does not properly capture the relationship between usage and the realization of expected results. On the other hand, it can be argued that declining usage may be an important indication that the anticipated benefits are not being realized. (p. 5)

To make their case, DeLone and McLean reviewed their model in relation to all the empirical research done in the ISS field (e.g., Etezadi-Amoli & Farhoomand, 1996;

Goodhue & Thompson, 1995; Guimaraes & Igarria, 1997; Igarria & Tan, 1997; Igarria, Zinatelli, Cragg, & Cavaye, 1997; Seddon & Kiew, 1994; Taylor & Todd, 1995; Teng & Calhoun, 1996; Teo & Wong, 1998; Torkezadeh & Doll, 1999; Yoon, Guimaraes, & Clevenson, 1998; Yuthas & Young, 1998), citing particularly those empirical studies that lent support for including IS Use as a construct dimension in their model (Goodhue & Thompson, 1995; Guimaraes & Igarria, 1997; Jurison, 1996). They respecified their earlier model by adding another new dimension and changing construct names. For example, IS use now became *intention to use* and individual and organizational impacts became *net benefits* (p. 9). They also added the dimension of *service quality* based on feedback and empirical testing of their model (see Figure 3).

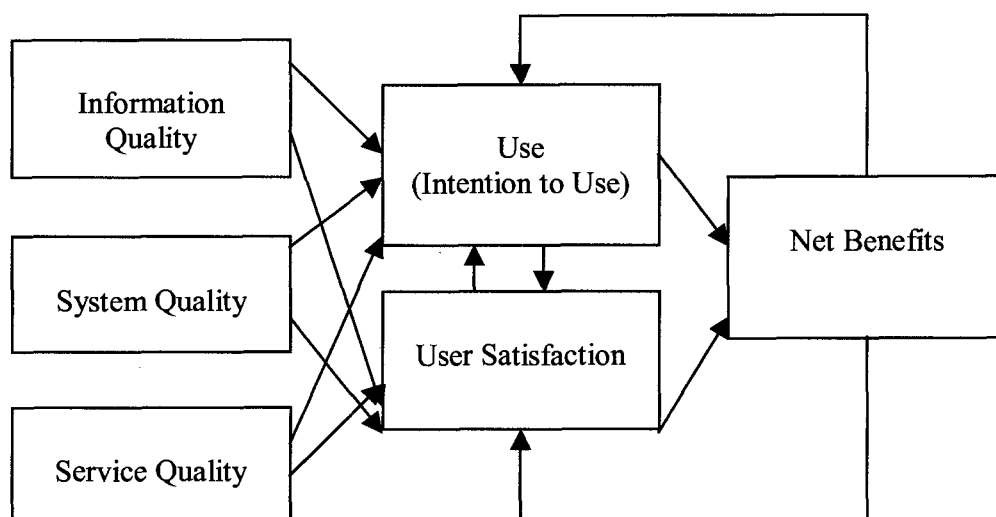


Figure 3. Respecified model of IS success adapted from “Information Systems Success Revisited,” by W. DeLone and E. McLean, 2002, *Proceedings of the 35th Hawaii International Conference on System Sciences*, p. 9)

Whereas all the ISS models attempt to explain ICT effectiveness, some models, like those of DeLone and McLean (1992; 2002) and Seddon (1995), have more empirical support than others. At the same time, the management of information systems (MIS) research community continues to call for further testing (DeLone & McLean, 2002) and model development in different usage contexts (Seddon, Staples, Patnayakuni, & Bowtell, 1999).

#### *Model of ICTe in the Context of the Voluntary Sector*

Several lessons can be drawn from this review of the literature on ICTe models in anticipation of specifying a model for the voluntary sector ICT context. First, since DeLone and McLean's initial work does not incorporate the socio-technical (ST) perspective, it might not be relevant to explaining effectiveness in the voluntary sector. Incorporating the ST perspective is important because of its linkages to employee motivation, organizational change, and performance (Sankar, 1994). In the context of ICT job changes, the ST perspective affects the relationship between the individual and the use of ICT. The rationale for this assumption is that the work being transformed loses less of its intrinsic value and therefore remains more satisfying and meaningful to those who perform it in new ways. Sankar (1994) discussed the importance of the ST perspective during times of technological changes in work and, more specifically, how job designs that fail to incorporate it (e.g., those that use the classical scientific management job design) may achieve organizational benefits in the form of increases in productivity but do so at "considerable human cost" including lower levels of job satisfaction, higher employee turnover, absenteeism, conflict, excessive reliance on rules and regulations, and work rigidity (p. 244).

Seddon's (1995; 1997) respecified model offers more promise for specifying a model of ICTe in the voluntary sector for several reasons. First, it incorporates an ST dimension by building elements of expectancy theory into the model in the form of an "expectations of the end-user about the net benefits of future IS use" dimension (p. 10).

Seddon drew on Fraser and Salter (1995) when adding this dimension:

First, each potential IS user or manager has a range of needs that he/she is always seeking to satisfy. Second, at some stage, one such person may recognize that use of IT may help to satisfy some of those needs. Third, based on expectations about need satisfaction, that person may decide to use the system or instruct his/her employees to use the system. Hence, Expectations is viewed as the motivating force that causes IS use. (p. 11)

Other empirical findings cited by Seddon (1995) as theoretical support for inclusion of this dimension include the work of Davis (1989, 1993), Adams et al. (1992), Segars and Grover (1993), Thompson et al. (1991; 1994), and Moore and Benbasat (1991). A review of the literature also reveals empirical support for it from Robey (1979), DeSanctis (1983), and Orlikowski and Gash (1994). Orlikowski and Gash, for example, proposed that "different groups, users, managers, and technologists, may have different views on the expectations of technology's use" and what they think the technology can do "may have a profound effect on their use and eventual satisfaction with the technology" (as cited in Neilson, 1997, p. 26).

With regard to predicting ICTe, Seddon (1995) integrated all ideas within his respecified model by suggesting motivation to adopt ICT is governed by attitudes. Specifically, those who believe there are positive benefits associated with ICT will be

motivated to make use of ICT. Likewise, those who do not perceive benefits will not (Seddon, 1995). Seddon elaborated further:

expectations acts as a proxy for the benefits from use...the critical success factor for IS success measurement is not system use, but that net benefits should flow from use...system failures result...because they provided no benefits. A successful system will provide benefits such as helping the user do more or better work in the same time, or to take less time to achieve as much work of the same quality as was done in the past. (pp. 3–4)

Even though Seddon (1995) did not acknowledge it, expectancy theory appears to be at the heart of this relationship. Mitchell (1974) explained that expectancy theory can be used to predict many employee decisions, including “choice of occupation, remaining on the job, and effort” (p. 1054). It has also featured largely in the social psychology literature on employee motivation in the area of job design and the way that “changes in job design can be expected to produce better employee performance” (Lawler, 1969, p. 160). Lawler outlined the following dynamics of employee motivation:

An employee’s motivation to perform effectively is determined by two variables. The first of these is contained in the concept of effort-reward probability. This is the individual’s subjective probability that directing a given amount of effort towards performing effectively will result in his obtaining a given reward or positively valued outcome. This effort-reward probability is determined by two subsidiary subjective probabilities: probability that effort will result in performance and the probability that performance will result in reward. Vroom

refers to the first of these subjective probabilities as “expectancy” and to the second as an instrumentality. (pp. 160–161)

Moreover, according to Lawler (1969),

if changes in job design are going to affect an individual’s motivation they must either change the value of the outcomes that are seen to depend upon effort or positively affect the individual’s beliefs about the probability that certain outcomes are dependent upon them. (p. 162)

While expectancy theory has been used in the context of job changes to explain propensity to leave (Hertzberg, 1957; Porter & Steers, 1973; Vroom, 1964), it has also been used to explain “human behaviour within the context of an information system” (DeSanctis, 1983, p. 247). Many researchers incorporate expectancy theory when conceptualizing IS development by focusing on strategies to meet the needs of individual end users and their expectations of benefits from ICT use. Strategies that incorporate ST aspects into ICT job design changes include involvement and participation of the end user at the front end in ICT systems and job design (Choe, 1998; Garrity & Sanders, 1995; Noyes, Starr, & Frankish, 1996; Tait & Vessey, 1988). The argument is that participation in ICT job design changes will positively influence the beliefs users have about the value of ICT, which in turn will influence how they think about ICT and the benefits it has to offer. Conversely, lack of participation could result in a negative impression of ICT job changes or worse, threats to control that could result in withdrawal from ICT use.

Another consideration involves the experienced grassroots members accustomed to choosing their own means to conduct work and who derive satisfaction from the

intrinsic nature of rewards. It could be inferred that introducing ICT as a more effective technology might be seen as a threat to independence, meaning some may react by choosing not to use the new ICT or, in an extreme case, might relinquish their involvement with the organization altogether. Harris (1997) elaborated further on this possibility:

In general, associations cannot “force” members to do anything. Nor do members give up their desire to fulfill their individual needs at the point of entry into an association. On the contrary, they expect their wishes and needs to be met by the association. If they do not receive the material, social or psychological benefits they expect or if they are discomforted in some way by their associational participation, they are likely to pursue the “exit” option (Oropesa, 1995); they are there, after all, on a voluntary basis. (p. 5)

Because of the intrinsically motivated individual who is drawn to work in the voluntary sector, it is recommended that any model of ICT use in the voluntary sector include an expectancy theoretical dimension.

*Expectations of Benefits.* More attention has been focused in the nonprofit technology literature on the role that attitudes and expectations play in ICT effectiveness. In addition to this research, a 2003 study of technology projects in nonprofit organizations by McInerney (2004) reported a linkage between the attitude that technology enhances nonprofit work and the impacts associated with technology projects. In a general study of Web authoring tools, perceived usefulness of Web tools was found to be “a more influential predictor than real competence” (Noh, 1998, p. 8). Based on this finding, Noh (1998) suggested that “better accessibility does not provide a good predictor

for Web authoring implementation” (p. 8). These findings are consistent with the technology acceptance literature showing a positive relationship between the perceptions that ICT is useful and/or offers benefits and the adoption of ICT (Davis, 1989; Marold, Kosaka, & Larsen, 1996; Robey, 1979; Fulk & Schmitz, 1997; Seddon, 1997; Seddon & Kiew, 1994).

In the organizational behaviour literature, intrinsic motivation is thought to be influenced by a number of factors including the level of control, arousal and achievement a person experiences (Tait and Vessey, 1988). In applying motivation theory to the IS challenge of uncertainty, the user’s perceptions are an important motivational factor in ICT use (Garrity & Sanders; Tait & Vessey, 1998). For example, if a user perceives a loss of control because of ICT, they will not be intrinsically motivated to use ICT.

One type of behavioural prediction that could be derived from this logic would be an individual who perceives that there will be no benefits from ICT will not adopt the change or will demonstrate low levels of usage. Furthermore, this individual may behave in ways that negatively influence the change and how others perceive ICT. This behaviour is a threat to ICT change and the successful implementation of ICT. This is a social psychological problem that has received little empirical attention in the IS success literature. For these reasons, an *expectation of benefits and/or value* construct is incorporated into a voluntary sector model.

In addition to revealing the influence that attitudes and expectations have on adoption, most of the nonprofit research has suggested that ineffective use of ICT is impacted by the presence of multiple barriers at different levels of analysis, many of which are internal to the user organization (for the U.K., see Hall Aitken, 2001; Saxton &

Game, 2001; Ticher, Maison, & Jones, 2002; for the U.S., see Blau, 2001; Kirschenbaum & Kunamneni, 2001; Saidal & Cours, 2003; Schneider, 2003; Steyaert, 2000; for Canada, see Kerr, 2002). For example, there is evidence of barriers at *individual* (e.g., demographic characteristics), *organizational* (e.g. type and size), *work* (e.g. occupation), *social group* (e.g., involvement), *psychological* (e.g., new job demands and stress), and *technical system* (e.g., ease of use and quality and capacity of systems) levels.

Along with expectations of benefits, there are a number of institutional variables that have been associated with ICT adoption, including user involvement, ICT system quality, prior experience with ICT, environmental factors, ICT access, and personal background characteristics that predispose the individual to ICT adoption. The variables that follow are presented as separate constructs with no connections or interdependency noted between them. Nevertheless, together, they may help to answer the question of what in turn shapes the expectations users have of ICT.

*User Involvement.* One institutional variable identified as an influence on the acceptance of ICT is user involvement (Davis, 1989; Doll & Torkzadeh, 1988; Seddon & Kiew, 1994). Seddon (1995) tested the dimension of *User Involvement* within his revised model measuring subjective perceptions of involvement of the end-user including measures of the value they placed on ICT (e.g. importance, interesting, etc) and feelings of ownership over ICT use decisions. His findings reveal that he was able to explain much of the variance (56%) associated with perceived usefulness of ICT as a result of this dimension. He cites strong theoretical support from the work of Davis (1989) (user acceptance), Doll and Torkzadeh (1988) (end-user computing satisfaction).

Whereas empirical support does exist for user involvement's influence on ICTe, findings on its influence in the area of technology acceptance have been mixed. On the one hand, Tan and Teo (2000) did not find it to be a significant influence in the acceptance of electronic banking systems, and Tait and Vessey (1988) could find no support for its influence on user attitudes and impacts. In contrast, a second stream of literature has shown a relationship between participation and ICT acceptance and use (e.g., Garrity & Sanders, 1998; Tait & Vessey, 1998; Webb, 1996). Webb described the outcome of involvement in the design and development of ICT as the development of "usability goals ... which seek to provide a quantitative measure of usability including ease of learning, proficiency of use and subjective satisfaction" (p. 77). Therefore, an involvement construct consisting of active participation in ICT systems development and training as well as involvement in ICT related organizational decisions is included in a voluntary sector model.

*System Quality.* Information system quality is recognized in the literature as a significant determinant of ICTe (DeLone & McLean, 2002; Grover, Purvis, & Coffey, 2003; Seddon, 1995). In fact, some scholars have argued that because the system quality dimension contains the "key ingredients" in developing competitive advantage, it should not be overlooked when assessing ICT effectiveness (Grover, Purvis, & Coffey, p. 1). Variables within the system quality dimension as originally identified by DeLone and McLean (1992) and tested by Seddon and Kiew (1994) include "whether or not there are bugs in the system, the consistency of the user interface, ease of use, response rates in interactive systems, and documentation" (Seddon & Kiew, p. 101). An IS that is of high system quality is more likely to be used (Davis, 1989; Foot, 2002).

Another related variable is information quality, which refers to the quality of the information processed by ICT, including how accurate the information is and whether the information is provided in a timely fashion (Seddon & Kiew, 1994, p. 101). An ICT that is of high information quality is thought to improve the flow of information and knowledge. An ICT that improves information flow and knowledge transfer is thought to reduce the level of uncertainty in the organization while at the same time increasing the perceived usefulness of the new ICT and reducing the need and reliance on traditional forms of information processing that are of lower quality (Daft, 1989).

Assessing system quality is important in a voluntary sector model because the work of voluntary organizations, by its very nature, involves richer forms of information processing (e.g., face to face). As in other models of technology acceptance (e.g., Davis, 1986) and ISS (DeLone & McLean, 1992, 2002; Seddon, 1997), perceptions that ICT is easy to use will directly influence the acceptance of ICT. Research into the use of ICT in nonprofit organizations in the U.K. has suggested that perceived ease of use of ICT applications is a predictor of ICT adoption (Evans & Saxton, 2004). Therefore, a system quality construct is included in a voluntary sector model.

*Prior Experience.* As important as the constructs of involvement and system quality are in a voluntary sector model of ICT effectiveness, the review of the literature reveals other motivating influences on the acceptance of ICT. One such factor is the end-user's personal experience with existing technologies. Todd and Taylor (1995) reported that "empirical tests of technology acceptance models (Davis, 1989) have generally focused on either systems that were already in use by the study participants, or systems that the participants were familiar with, such as word processing packages and

spreadsheets” (p. 561). They believed existing models to be unclear about the role that experience plays in technology acceptance. More specifically, they questioned whether these models could adequately explain usage for the inexperienced first-time user (p. 561).

Todd and Taylor (1995) also reviewed the literature that identifies prior experience as a determinant of ICT use behaviour (Ajzen & Fishbein, 1975, 1980; Bagozzi, 1981; Bently & Speckart, 1979; Triandis, as cited in Todd and Taylor, 1995, p. 561). They described the influence of prior experience as epistemological because “prior knowledge gained from past behaviour will help shape intention” (p. 561). For experienced ICT users, they reported a “link between behavioural intention and behaviour,” which they claimed is “consistent with the notion that experienced users employ the knowledge gained from their prior experiences to form intentions” (p. 566). The intentions of the inexperienced user to accept new technology, on the other hand, are less than clear. Todd and Taylor (1995), in a discussion of how ICT use is influenced by information provided to these first-time end-users, suggested that “communicating information to inexperienced users can have a strong effect on intentions” (p. 566). Moreover, they proposed adapting existing technology acceptance models to include an experience dimension therefore prior experience is incorporated into a voluntary sector model.

*Environmental Factors.* Even though prior experience is an important dimension for assessment in a voluntary model of ICT effectiveness, so too are environmental factors. Rogers (2003) suggested that organizational size is a factor in the adoption of new innovations, even though the exact nature of its role is not understood. However, a

review of the literature points to many other environmental factors that influence ICT use including “organization size, environmental change, and interdependence between departments” (Daft, 1989, p. 310).

Because of the need for an ST dimension, Lewin (1935) and Vroom’s (1965) work makes a good case for the inclusion of an environmental construct within the voluntary sector model; specifically, one that measures the relationship between the forces that drive change and the individual’s reaction to them (valence, either positive or negative) in terms of the perception that ICT is beneficial. Lewin (1935), in his early seminal study, pointed to both the need to distinguish which forces produce what corresponding valence and the need to differentiate between “*driving* forces, which correspond to positive or negative valences, and *restraining* forces, which correspond to barriers” (p. 81). Mitchell (1974), commenting on Vroom’s (1964) work on employee motivation, also emphasized the importance of “force” in predicting human behaviour (p. 1054).

Inclusion of an environmental dimension in the model is a change from Seddon’s (1995) respecification in which he added an *external opinions* dimension. In reinterpreting this dimension, environmental factors are considered the source of the forces and contextual factors that drive and influence individual reactions to ICT change. They can be internal or external to the environment or both, and may include hard and soft factors such as the amount of financial capital, leadership, coworker, and technical support. Restraining forces are the perceived barriers to ICT use.

Because motivation to adopt ICT has also been linked to quality of work life, the environmental construct dimension should incorporate a psychological component that

takes into account individual reactions to ICT in the form of perceptions of job stress. Garrity and Sanders (1998) explained that the introduction of an IS can result in stress such as the perception that ICT could “cause psychological harm or an impairment of the intrinsic maintenance needs of workers (i.e. physiological and cognitive or higher order needs)” (p. 20).

Job stress has been identified in the nonprofit literature as a barrier to ICT use (Saidal & Cour, 2003). In a study of ICT impacts on nonprofit work, Saidal and Cour found a negative association between ICT use and the perception that work had resulted in increased job demands. Zuboff (1996) pointed out that while industrial or machine technologies have been viewed in a positive light because they tend to reduce the task complexity for workers, the introduction of ICT into the workplace may have the opposite effect.

As a result, job stress is included in the environment construct as a psychological influence that can negatively impact ICT use. For managers feeling the pressure of new job demands, another method of completing a task may seem overwhelming so that they may consequently perceive it as not useful. This assumption lends support for inclusion of the environmental construct in a voluntary sector model.

*ICT Access.* Yet another type of influence that should be incorporated into a voluntary sector model is ICT access. Even though DeLone and McLean’s (2002) respecification provides for an intention to use construct, it fails to provide for an ICT access dimension. In defining ICT access, Warschauer (2003) recommended that it be thought of in a broad perspective in terms of access to specific devices (hardware and software), conduits (network infrastructure), and literacy (mastery over the processes and

skills required to use ICT in a social context). From this perspective, adoption is influenced by factors that go beyond the physical to include knowledge and skills:

Ownership of a computing device is clearly part of ICT access; however, device ownership does not in itself constitute complete access because full ICT access in current times also requires connection to the Internet as well as the skills and understanding to use the computer and the Internet in socially valued ways.

Warschauer, p. 31)

Whereas most models of ICTe do not suggest that greater access translates into greater effectiveness, there is some suggestion of a relationship. For example, Fountain (2001) proposed a positive relationship between access and levels of use, while Warschauer (2003) pointed out that such access should be measured in “gradations rather than in bipolar opposition” (p. 46), a recommendation supported by DeSanctis (1983). Assessing levels of access is important because it is thought to provide for a measure of task transformation (Fountain). Therefore, an ICT access dimension incorporating physical access and the skills to make use of ICT are incorporated into an ICT access dimension in the voluntary sector model.

*Demographic Determinants.* Another type of influence to be included in the voluntary sector model concerns the demographic characteristics of the end user. The literature is clear that certain users—because of their age, gender, level of education or income—may be predisposed to develop the attitudes and perceptions that lead to ICT adoption and effectiveness. Statistics Canada (2000) reported that Internet use was highest for users with a university degree (79%), for youth between the ages of 15 and 24 (84.5%) and for males (56%, as compared to 49.6 % of females) (p. 9). It later reported in

2003 that little had changed, with “households with high income, member’s active in the labour force...and people with higher levels of education...at the forefront of Internet adoption” (Statistics Canada, 2003, p. 1). Statistics Canada (1999) had earlier provided the following insight into the nature of the relationship between educational characteristics and ICT adoption:

The relationship between education and Internet use reflects the relationship between education and income. Households in which the head did not complete high school represent a little more than a quarter of all households but nearly a half of all households in the bottom income quartile. Conversely, households where the head has a university degree accounts for one-fifth of all households but less than a tenth of households in the bottom income quartile. (p. 10)

These figures suggest that access may be explained more by access to financial resources than, as has been suggested in the literature, the fact that educated individuals are more innovative (Rogers, 2003). With regard to gender, Cooper and Weaver (2003) proposed that the greater propensity for men to adopt ICT can be explained by preferences for and exposure to childhood toys and gadgets that predisposes men to have positive attitudes about ICT.

Whereas the literature is fairly consistent in identifying the characteristics of those who are likely to adopt ICT, it is less clear as to whether these same characteristics are associated with greater use of ICT, particularly in the area of human services. With the exception of education, the OECD (1997) found that women used computers more frequently than men, including “higher usages rates than men in service occupations, technical and humanistic work and to a lesser extent, industrial work” (p. 4). Similarly,

the OECD reported that computer usage in these areas was highest for workers between the ages of 30 and 45 years. The findings of the OECD mirror the report by Statistics Canada (1999) that Internet use from home, work, and public libraries was highest in households with children in which the head of the family was in the 35–54 age group (p. 11). This rate of uptake by Canadian families offers an important insight; namely, that use is explained by the presence of children. In families whose head is within this age group, ICT uptake may be mediated by the perceived benefits for children.

Many believe that there are positive benefits associated with ICT use in volunteerism, particularly for women and those who may have become disconnected from society (e.g., who are out of the workforce because of disability, domestic responsibilities, travel restrictions, or retirement). For the isolated, ICT is a tool to help them reconnect with society (Cravens, 2000; Statistics Canada, 1999; Tyler, 2002; Virtual Volunteering Project, 2001). Indeed, whereas Staeyart (2002) reported that ICT access follows patterns of social stratification (e.g., access is greater for the rich than for the poor, for men than for women, and for the more educated than for the less educated), a review of this literature shows that ICT use in volunteerism follows patterns of need that pre-dispose the user to ICT adoption.

*ICT Use.* A controversy exists in the ICTe literature as to whether, as DeLone and McLean (1992, 2002) have claimed, use of ICT applications is a measure of effectiveness (DeLone & McLean; Franz & Robey, 1986). Because a previous review of the literature provided evidence that use is a measure of ICT effectiveness, it is included in a voluntary sector model. In thinking about the dependent dimensions of ICT success, a good strategy is to assess *ICT access and use* as dichotomous variables (e.g., yes or no) and as

gradients or *levels of use*. Dichotomous measures will be helpful in identifying which of the independent variable influences might be motivating access and use of ICT applications in volunteerism. However, once such influences are determined, levels of use will prove more helpful in determining the effectiveness of ICT (e.g., higher levels of task transformation [Fountain, 2001]).

*ICT Effectiveness.* The perception that an ICT application or system has resulted in net benefits to the organization such as time savings, reduced costs, or increasing effectiveness is considered a key measure of ICT application effectiveness (DeLone & McLean, 2002; Seddon, 1997). Like other ICTe models, a voluntary model should include assessments of impact at multiple levels of analysis: for example, at the individual level, how ICT is impacting the individual who derives satisfaction from volunteering; at the level of the volunteer program, what impact ICT is having on volunteer resources; at the organizational level, how ICT instruments impact volunteer program efficiency and effectiveness, as well as costs, and the quality of services produced and/or delivered; and, finally, at the social level, what impact ICT has on social interaction.

*Learning Dimension.* Warschauer (2003), like others in the ICTe literature (e.g., Ballentine et al., 1998; Garrity & Sanders, 1998; Seddon, 1995, 1997), pointed out that effectiveness is fuelled by feedback and continual learning in a feedback process that is a “virtual circle [in which] ... each resource is a result of effective use of ICT” (p. 48). The inclusion of a feedback loop in a voluntary model will show that the nature of ICT effectiveness is cyclical and successful cycles breed the conditions necessary for successful interactions with ICT.

Figure 4 shows the proposed voluntary sector model that incorporates independent (x) and mediating (expectations) (z) construct dimensions that influence the dependent constructs (y) for *access* to and *use* of ICT directly and the *effectiveness* of indirectly. In the model, the relationship between the independent and dependent variables is mediated through the expectations individuals have about future benefits and perceptions of ICT usefulness.

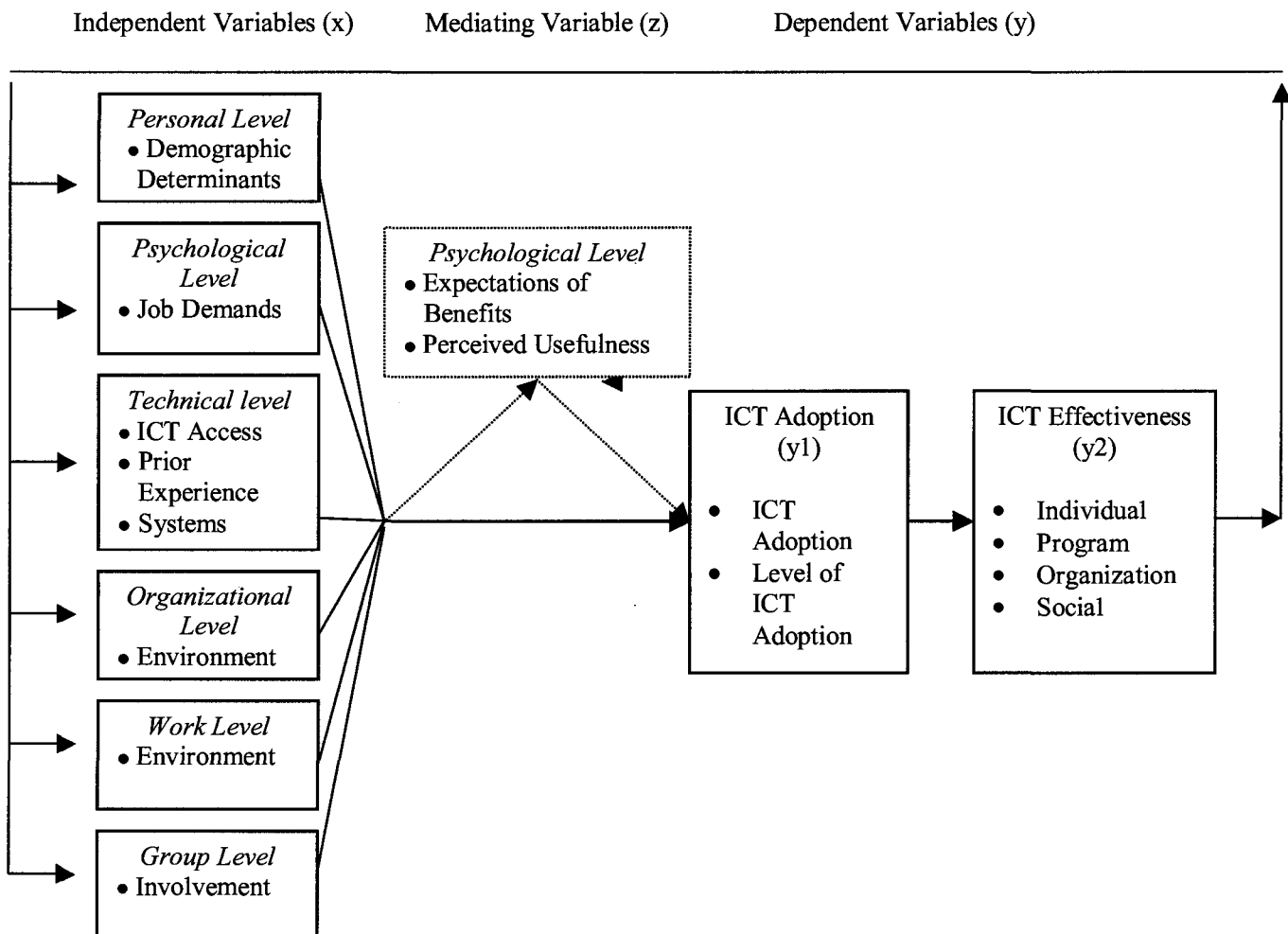


Figure 4. Theoretical framework.

Table 1 provides a description of the different levels of analyses, corresponding constructs and variables as they relate to the theoretical framework in figure 4 above. The table also presents corresponding bivariate hypotheses between the independent (x) and dependent variable construct for ICT adoption (y) (access to and use of ICT variables).<sup>8</sup>

Table 1

*Levels of Analysis, Constructs, Variables and Bivariate Hypotheses*

Level of Analysis	Construct	Variable	Bivariate Hypotheses
Personal Level	<ul style="list-style-type: none"> <li>Demographic Influences</li> </ul>	<ul style="list-style-type: none"> <li>Gender, age, education, employment status, personal motivations that pre-dispose a user adopt ICT.</li> </ul>	<ul style="list-style-type: none"> <li><i>The greater the level of education, the greater the level of ICT adoption.</i></li> <li><i>Males will be more predisposed to ICT adoption than females.</i></li> <li><i>Individuals in the workforce will be more predisposed to ICT adoption than individuals out of the workforce.</i></li> <li><i>The greater the motivation and need for ICT, the greater the adoption.</i></li> </ul>

<sup>8</sup> Note: the mediating variable will be treated as an independent variable in the table. Later on in the dissertation a set of multivariate hypotheses are introduced to test the relationships in the theoretical model. Please refer to section 4 of the "Results and Discussion" chapter (5).

Table 1 (continued).

Technical Level	<ul style="list-style-type: none"> <li>• ICT Access</li> <li>• System Quality</li> <li>• Prior Experience</li> </ul>	<ul style="list-style-type: none"> <li>• Perceptions of technical capability (computer and ICT skills) and physical access;</li> <li>• Quality and capacity of ICT systems; Perceptions that ICT is easy to learn and use</li> <li>• Experience with ICT.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>The greater the level of ICT access (physical access and capability to make use of ICT), the greater the level of ICT adoption.</i></li> <li>• <i>The greater the perception that ICT is easy to use, the greater the adoption of ICT.</i></li> <li>• <i>The greater the satisfaction with ICT, the greater the adoption.</i></li> <li>• <i>The greater the experience with ICT, the greater the likelihood that ICT will be adopted.</i></li> </ul>
Organizational Level	<ul style="list-style-type: none"> <li>• Voluntary organization environment</li> </ul>	<p>Characteristics of the organizational environment. From the perspective of the manager, organizational variables include hard and soft factors such as budget size and job autonomy.</p> <p>From the perspective of the volunteer, variables include preferences for volunteering in a specific organization or location.</p>	<ul style="list-style-type: none"> <li>• <i>The greater the resources and support, the greater the adoption of ICT.</i></li> <li>• <i>The greater the perceived benefits of ICT in terms of increases in efficiency and effectiveness, the greater the adoption of ICT.</i></li> </ul>

Table 1 (continued)

Work Level	Volunteer Program Environment	Characteristics of volunteer work environment including the volunteer program or position. Includes size of the volunteer program, types of volunteer work performed. Volunteer preferences for work and positions.	<ul style="list-style-type: none"> <li>• <i>The greater the demand for volunteers (size of program, types of work, volunteers), the greater the level of ICT adoption in the volunteer program.</i></li> </ul>
Group Level	Involvement	Characteristics related to participation in training and access to ICT support, involvement in ICT and organizational decisions.	<ul style="list-style-type: none"> <li>• <i>The greater the level of participation and/or involvement in ICT, the greater the likelihood that ICT will be adopted.</i></li> </ul>
Psychological Level	Demands Expectations of Benefits/ Perceived Usefulness	Characteristics of the psychological environment include perceptions that ICT has resulted in new work demands. Includes feelings of job satisfaction and stress, attitudes about the perceived usefulness, impact of and barriers to ICT adoption.	<ul style="list-style-type: none"> <li>• <i>The more restraining forces in terms of perceived barriers to ICT adoption, the less likely ICT will be adopted.</i></li> <li>• <i>The more negative the reaction to ICT (e.g., the more demanding the job), the less likely ICT will be adopted.</i></li> <li>• <i>The greater the expectations of benefits or perceived value associated with ICT, the greater the adoption.</i></li> </ul>

## Chapter Four

### Research Methodology

The research design for this study consisted of a survey utilizing several sample groups and survey instruments. The research took place in two phases over a two-year period beginning in the summer of 2001 and concluding in the spring of 2003. The purpose of the first research phase was to answer descriptive research questions on how much access managers of volunteer resources and volunteers had to information and communications technology (ICT), the extent to which they were making use of ICT in their work, and what factors influenced use. The second phase of the research evolved from the first and sought to explain why some managers and volunteers were motivated to use ICT in their work when others were not. In the first phase, the research was primarily inductive and exploratory; in the second, it was more deductive and confirmatory.

This chapter reviews the research design for each phase. Within each phase, a description of the research design, population and sampling, and instrumentation is presented followed by a discussion of methodological concerns.

## *Phase One*

### *Research Design*

*Pilot Study.* The pilot study involved unstructured interviews with two volunteers and three local managers of volunteer resources (MVRs) representing different types and sizes of volunteer programs in the Victoria region.<sup>9</sup> The purpose of the pilot study was to explore the subject of ICT use in volunteer programs in order to develop an understanding of the phenomenon so that a self-designed survey questionnaire could be developed.<sup>10 11</sup> While there were many advantages associated with the pilot study, there were also disadvantages. For example, findings were subjective and judgmental in nature and could not be generalized (Zikmund, 1984, p. 125).

*Survey design.* Following the qualitative interviews, the first phase of the research utilized a quantitative survey design. While it is not possible to generalize the research findings from this study to the population, which is unknown, the purpose of the survey was to communicate with sample individuals from the population in order to “identify sample group characteristics, attitudes and to describe behavioural patterns” (Zikmund, 1984, p. 203) that relate to ICTe in the volunteer program context.

The survey design was adopted for several reasons. First, it provided a convenient and inexpensive way to gather descriptive information on a phenomenon about which little is known (Fowler, 1988; Zikmund, 1984; Cresswell, 1994). Second, it allowed the phenomenon to be examined in multiple geographical and work settings (management

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<sup>9</sup> Victoria is a middle-sized city in western Canada.

<sup>10</sup> No other survey questionnaire concerning the use of ICT by volunteers and managers of volunteer resources in Canada was available.

<sup>11</sup> Following the initial pilot study interviews, a set of survey questions was drafted and then reviewed and validated by the pilot study participants in a follow-up interview.

and volunteer) simultaneously (Zikmond, 1984). Finally, the survey design allowed for the collection of data on a large number of variables.

*Population and sample.* The study population was volunteer programs in Canada. However, the size of the volunteer program population could not be determined because no listing is available of volunteer programs in Canada, nor is there a listing of the volunteer organizations associated with them. Rather, the available data were limited to the number of registered charitable organizations in Canada. However, these data were not representative of the volunteer sector as a whole because they exclude the tens of thousands of volunteer programs from the smaller nonprofit societies and voluntary associations that make up the majority of organizations in the sector (Good, 2000; Phillips, 2000).

To access the volunteer program population, the following three groups were selected as respondents for the study:

1. Managers of volunteer programs;
2. Prospective volunteers looking for volunteer work; and
3. Onsite volunteers from volunteer programs

Managers of volunteer programs were selected as primary respondents because they have responsibility for all aspects of volunteerism, including recruiting and selecting volunteers, designing appropriate volunteer roles to conduct the work of the volunteer program, and communicating with and finding ways to retain volunteers. Prospective volunteers are those looking to be recruited into volunteer positions, while onsite volunteers have been recruited, may be performing volunteer work, and have been retained by the organization for some period of time.

To access the study population, several nonprobability sampling procedures were employed that included sampling by convenience and through self-selection and snowballing. Two samples of convenience were used to access the volunteer manager population. The “national group” sample consisted of managers of volunteer programs who were registered users of Volunteer Canada’s online recruitment and referral system,<sup>12</sup> the Volunteer Opportunities Exchange. This electronic sample was considered internal as it was generated from an Internet mailing list of managers who had registered online with the VOE (Bradley, 1999).

The “regional group” consisted of managers of volunteer programs who were members of Volunteer Victoria, a volunteer support and referral organization covering the Capital Regional District of Victoria, B.C. The regional group was accessed in a single-stage sampling procedure in which Volunteer Victoria provided the researcher with a listing of volunteer organizations with volunteer program manager contact information.

A self-selection sampling procedure was used for prospective volunteers who had visited or surfed the Web sites of Volunteer Victoria (the “VICTA group”) and Volunteer Canada’s Volunteer Opportunities Exchange (the “VOE group”) looking for volunteer work. Bradley (1999) described self-selection via the Internet as an “internal” type of sampling frame because the Internet medium is used to find respondents rather than being used as an “external” source to store survey data (p. 390). The source for the “follow-up group” was respondents from the VICTA and VOE groups who had agreed to be contacted four months following the initial survey. The “follow-up” group, which was

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<sup>12</sup> Volunteer Canada is a national association promoting and supporting volunteerism on behalf of volunteer centers across the country.

also self-selected, was an internal type of purposive<sup>13</sup> sample whose contact list was generated from the responses of Web-hosted surveys (Bradley, 1999). The sample of volunteers from the Victoria region was taken from a list provided to the researcher by the “regional group” of managers. This type of nonprobability sampling, whereby a contact provides a list of names, is called snowballing (Bradley, 1999). Even though the traditional volunteers were accessed through manager contacts, the sample was stratified to ensure that it represented a variety of different types and sizes of volunteer programs.

*Instrumentation.* Another feature of the survey design was the use of survey instruments. For each sample group, a specially designed survey instrument was developed following a review of the literature and qualitative pilot studies. Questions were organized into sections representing different levels of analysis, including personal, technological, work, organizational, group, and psychological levels. Organizing questions into this type of structure was thought to have a positive impact on response rates (i.e., ease of completion) and data analysis (i.e., measures were organized into sections).

Once drafted, survey instruments were reviewed and validated for content by managers involved in the pilot study, as well as by experts in the fields of volunteerism and research methods.<sup>14</sup> Next, managers of volunteer resources and volunteers involved in the pilot study pretested questionnaires to test survey completion time estimates and to identify instrument errors such as leading questions. Following pretesting, survey

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<sup>13</sup> A purposive sample is described by Walizer and Wienir (1978) as a “sample procedure, which cannot easily result in a probabilistic sample” (p. 437).

<sup>14</sup> Professor Vic Murray, James MacGregor, and James McDavid from the University of Victoria’s School of Public Administration were consulted during the survey development phase. They also reviewed survey instruments and provided expert advice on content, organization, and development of measures.

questionnaires were programmed in English with the exception of the national manager and VOE prospective volunteer surveys, which were translated and programmed into French and English.

Table 2 shows the different types of survey instruments used to reach the respondent groups.

Table 2

*Instrumentation*

Respondent group	Instrument type		
	Electronic mail	Web-hosted	Paper-based
Managers	“National Group”		“Regional Group”
Prospective volunteers	“Follow-Up Group”	“VOE Group” “VICTA Group”	
Traditional volunteers			“Traditional Group”

The type of electronic questionnaire used to survey the “national group” was the “email URL embedded questionnaire” that allows respondent access, through a hypertext link, to the Web site URL and server hosting the survey that is embedded in the email message (Bradley, 1999, p. 390). Even though the survey was programmed for Internet submission, respondents could print and fax or mail their survey to the researcher. The survey period was 30 days, and an email reminder with the hypertext link to the survey was sent at the mid- and endpoints of the survey (15th and 29th day).

Web-hosted surveys were another type of survey instrument used to access prospective volunteers surfing the Internet for volunteer opportunities. One survey targeted prospective volunteers searching for opportunities on the VOE system, while

another targeted those searching for volunteer opportunities on the VICTA system, a volunteer opportunity service operated by Volunteer Victoria. Bradley (1999) described this type of survey method as an “open-web questionnaire” because no restrictions are placed on who can access and submit the survey (p. 391).

In order to increase the response rate and avoid the problem of nonrespondent error, the following best practice strategies were employed for electronic and Web-hosted surveys:

- Emails contained embedded “hotlinks” to the survey within the email text;
- Vivid colours and logos were used to attract respondents into completing the online survey;
- The survey was programmed in large font for easy readability;
- Email reminders were delivered on the 14th and 29th day of the survey period;
- Prompt and personal follow-up was conducted for online submission questions and difficulties;
- Recognition was provided through a programmed thank-you page; and
- Contest prizes were offered for survey submission.<sup>15</sup>

The third type of instrument was the traditional paper-based mail-out survey, two of which were used to communicate with managers and volunteers from the Victoria region associated with Volunteer Victoria member agencies. Zikmund (1984) described the traditional survey as “a self-administered” type of survey questionnaire (p. 244). The paper-based mail-out questionnaires allowed completion by the respondent within a 25–30 minute timeframe. Respondents had 60 days to complete and return their postage-paid

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<sup>15</sup> Also applies for submission of paper-based surveys.

survey to the researcher. Respondents from the “regional group” were reminded to complete and return the survey by telephone at the midway point (the 30th day). The purpose of the reminder was to increase the survey response rate, as well as to mitigate any problems associated with nonresponse bias.<sup>16</sup> Included in the cover letters for each of the sample surveys was information on the requisite ethical considerations of the research.

Tables 3 and 4 shows the different levels of analysis and variables included in the paper-based, electronic mail and/or Web-hosted survey instruments used to survey managers of volunteer resources (MVRs) and volunteer respondent groups during the first phase of the research (Please refer to Appendix A to view survey instruments).

Table 3

*Phase One Surveys: Managers of Volunteer Resources (MVRs)*

Level of Analysis	Paper Survey of “ <i>Regional Group</i> ” MVRs	Electronic Survey of “ <i>National Group</i> ” MVRs
Personal level	Individual level ➤ Gender, age, education, computer skill and experience, years experience	Individual level ➤ Gender, education, computer experience and skills
Work level	➤ Hours worked, volunteer management tasks performed, other tasks and % of time devoted to them	➤ Position, experience, FTE status, task types

<sup>16</sup> I should be noted that telephone contact information for the “traditional group” of volunteers from the Victoria area was not provided; therefore, reminders were not conducted.

Table 3 (continued)

Level of Analysis	Paper Survey of “ <i>Regional Group</i> ” MVRs	Electronic Survey of “ <i>National Group</i> ” MVRs
Work level	<ul style="list-style-type: none"> <li>➤ Years in existence, Volunteers (number), Volunteer positions (type)</li> <li>➤ Recruitment method types and ranking, volunteers recruited (type and #)</li> <li>➤ Use of online recruitment system type, use (submission, enquiries, placements), perception of usefulness</li> <li>➤ Impact of ICT on program</li> <li>➤ Use of virtual volunteers, recruitment of, tasks performed, satisfaction, perceived usefulness</li> </ul>	<ul style="list-style-type: none"> <li>➤ Size volunteer program, position openings, placements, kinds of work performed, type of volunteer position,</li> <li>➤ Virtual work including virtual openings, enquiries, and placements; quality and dependability of virtual work, Methods to recruit virtual volunteers, Virtual types of work, attitude about virtual volunteering</li> <li>➤ Recruitment methods; use of VOE online recruitment system, volunteers in contact with, postings, enquiries in response, placements, contact initiation of placement, satisfaction with VOE</li> <li>➤ Perceived impact of ICT on volunteer program</li> </ul>

Table 3 (continued)

Level of Analysis	Paper Survey of “ <i>Regional Group</i> ” MVRs	Electronic Survey of “ <i>National Group</i> ” MVRs
Technological level	<ul style="list-style-type: none"> <li>➤ Technology use type and age, support (yes/no), features and type of applications</li> <li>➤ Access (yes/no, points); type of access and usage (Internet and email, Web site); satisfaction and perceptions of usefulness</li> </ul>	<ul style="list-style-type: none"> <li>➤ ICT access type, functions</li> <li>➤ Use of Internet and search success</li> <li>➤ Use of organization website</li> <li>➤ Use of email-purposes, advantages, disadvantages, perceived usefulness of ICT.</li> <li>➤ Satisfaction with ICT use, barriers to use and change</li> </ul>
Organizational level	<ul style="list-style-type: none"> <li>➤ Type, size, program size and years in existence, culture, structure, ICT rules (yes/no), ICT resources allocated as % of program budget</li> <li>➤ Barriers</li> </ul>	<ul style="list-style-type: none"> <li>➤ Type (mission), size, size of annual budget, volunteer program and allocation to ICT, ICT use rules</li> </ul>

Table 4

*Phase One Surveys: Volunteer Respondent Groups*

Paper-Based <i>“Traditional Group”</i>	Electronic Mail <i>“Follow-Up Group”</i>	Web-Hosted <i>“VOE Group”</i>	Web-Hosted <i>“VICTA Group”</i>
Personal Level			
➤ Gender, motivation, age, education, employment (FTE), motivation for volunteering	➤ Questionnaire source (VOE or VICTA), Education status (student), contact information	➤ Language, gender, motivation, age, education, employment, motivation for volunteering	➤ Gender, age, education, employment, motivation for volunteering
Work Level			
➤ Recruitment source, and experience (experience) ➤ Task type (virtual/on-site), VV tasks	➤ Primary information source for work ➤ Work type ➤ Position type (virtual/on-site), virtual work type	➤ Volunteer work uptake, match of preferences ➤ Position type ➤ Work type ➤ Volunteer status, hours, preferences	➤ Volunteer status, hours and preferences
Organizational Level			
	➤ Organization contact, reason for no contact, contacts resulted in work ➤ Contract type work completion	➤ Contact, outcome of contact	

Table 4 (continued)

Paper-Based <i>“Traditional Group”</i>	Electronic Mail <i>“Follow-Up Group”</i>	Web-Hosted <i>“VOE Group”</i>	Web-Hosted <i>“VICTA Group”</i>
<b>Organizational Level</b>			
	➤	➤	
<b>Technological Level</b>			
<ul style="list-style-type: none"> <li>➤ ICT access (email, Internet), skills, use, use of online recruitment type, frequency, satisfaction</li> <li>➤ Satisfaction with ICT,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Technology, satisfaction with service (likelihood of using service again), reason (if unlikely to use)</li> </ul>	<ul style="list-style-type: none"> <li>➤ VOE registration category, user type, contacts made, direction of initiation</li> <li>➤ VOE features (information needs met, match preferences, satisfaction, use again)</li> </ul>	<ul style="list-style-type: none"> <li>➤ VICTA features (information needs met, match preferences, satisfaction (likelihood of return use))</li> </ul>
<b>Psychological Level</b>			
<ul style="list-style-type: none"> <li>Psychological level</li> <li>➤ perceptions of ICT usefulness</li> <li>➤ perceived barriers to use</li> </ul>			

### *Sampling Procedures*

As described in the previous section, data collection for the research was carried out using several survey questionnaires related to ICT use tailored appropriately to the sample groups. These surveys, all conducted between 2001 and 2002, collected the responses of three sample groups: prospective volunteers, actual volunteers, and managers of volunteer resources.<sup>17</sup> One sample consisted of 226 prospective volunteers using a regional online volunteer opportunity service operated by the Victoria (British Columbia) Volunteer Center (referred to hereafter as the VICTA sample because this is the name of the recruitment application it used). This group was also contacted four months later to assess what they had actually done in the way of volunteer work and whether they had made use of ICT to find and perform volunteer work. Fifty-two participants responded to this follow-up survey (hereafter the follow-up sample). Another sample consisted of 1,745 prospective volunteers, who were similar to the VICTA sample in that they used an online recruitment service, the national Volunteer Opportunity Exchange (VOE) operated by Volunteer Canada (hereafter the VOE sample). The 282 participants from this group that responded to a follow-up survey four months later were also included in the follow-up sample. Finally, 196 people who volunteered on site in Victoria (hereafter known as the traditional sample) responded to a mail questionnaire asking about their volunteer experiences and use of ICT.

For the management sample, two groups of managers of volunteer resources (MVRs) in Canadian nonprofit organizations were surveyed about their work, the extent to which they used ICT in their programs, and its perceived impact. One group consisted

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<sup>17</sup> Because the questions were not the same for each sample, the results draw on different combinations of survey data based on commonality of questions.

of 129 managers in Victoria, B.C. (hereafter the regional sample) and the other of 365 managers from across Canada (the national sample) that were on the Internet mailing list of Volunteer Canada's<sup>18</sup> Volunteer Opportunities Exchange (VOE).

*Response rates.* Response rates were determined by calculating the percentage of responses of the total number of respondents reached. Response rates were not calculated for volunteers who completed their survey online as it was impossible to determine how many hits occurred for the prospective volunteer groups. Of the 500 questionnaires that were distributed to traditional volunteers, 196 were returned, for a response rate of 39%. For the 2001–2002 survey of regional managers, 250 questionnaires were mailed out and 129 returned, for a response rate of 53%. For the 2001–2002 survey of national managers, 1,100 surveys were electronically delivered and 365 submitted, for an overall response rate of 37%.

#### *Methodological Concerns*

Table 5 shows the methodological concerns associated with the research for each of the sample groups. One concern common to all sample groups involves sampling; more specifically, the fact that because the samples are not representative of the population, the results are not generalizable. Nevertheless, even though the study results are not generalizable, they remain important in building knowledge of the behaviour of volunteer programs in the new economy.

The second concern relates to self-selection bias. In the case of the prospective volunteers looking for volunteer opportunities online, the data collected may not be representative of all volunteers who use the Internet to look for volunteer opportunities

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<sup>18</sup> Volunteer Canada, the national umbrella association of local volunteer centers (LVCs), promotes and supports volunteerism on a national level on behalf of LVCs.

(Georgia Institute of Technology, as cited in Johnson, 1999, p. 9). In addition to the sample not being representative, Zikmund (1997) suggested that data may be prone to “extreme positions being over-represented while those who are indifferent are underrepresented” (p. 205). Whereas these are legitimate methodological concerns, the design did allow for prospective volunteer respondents to be contacted four months following the initial survey to ascertain whether their search efforts had resulted in volunteer work. Moreover, the data from this sample could be compared to the data from the “traditional group” of volunteers from the Victoria region, who were believed to be more typical of volunteers within the sector.

A similar concern was noted with regard to the data collected electronically from the “national group” of managers, who were registered members of Volunteer Canada’s VOE system. The concern here is less one of self-selection than respondent bias whereby the electronic survey method imposed a bias in favour of managers who had already adopted ICT. To address this problem, managers from the “national sample” were compared with managers from the Victoria “regional sample” who were surveyed using paper-based methods. Like their volunteer counterparts, these managers were thought to be more typical of managers of volunteer programs in the volunteer sector.

Finally, there was a concern over differences in the sample size of the regional and national samples. The problem as described by Fowler (1988) amounts to “unequal rates of selection” (p. 39). Ideally, a stratified sample of volunteer programs in Canada would have been used, but as this information was not available, the next best approach would have been to obtain samples of the population through local volunteer centers

(LVCs) across the country. However, due to time constraints, excessive cost, and lack of access to a central listing of all LVCs, this sampling option was not viable.

Table 5

*Phase One Methodological Concerns*

Respondent group	Sample (total <i>N</i> )	Methodological concern
Managers of volunteer programs	Regional sample, ( <i>n</i> =250)	Not representative
	National sample, ( <i>n</i> =1100)	Not representative; technology bias
Prospective volunteers	VOE sample (national, <i>n</i> = unknown) and VICTA sample (regional, <i>n</i> = unknown)	Not representative of Internet users; technology bias
On-site volunteers	Stratified sample of volunteers accessed from managers of regional volunteer programs ( <i>n</i> = 500)	Not representative of on-site volunteers

*Phase Two*

The second phase of the research evolved out of the first once further funding was obtained to explore the impact of ICT on volunteering in greater depth. Whereas the first phase focused on describing ICT access and usage patterns, the second focused explicitly on exploring the reasons for the adoption and use of new online recruitment applications in volunteer management. The purpose of the second phase was to test the model of ICT effectiveness so that inferences could be made about what variables motivate managers to make use of ICT in their volunteer recruitment work. The time period for the second phase of the research was from July 10, 2002 to July 09, 2003. The research design for the second phase was similar to the first and consisted of personal interviews, a qualitative pilot study, and quantitative survey design.

### *Research Design*

*Personal interviews.* Personal interviews were held with the executive directors for Volunteer Victoria, Volunteer Ottawa, and Volunteer Canada. Their purpose of the personal interviews was to explore issues surrounding volunteerism and recruitment of volunteers and the range of ICTs used to recruit volunteers into volunteer programs.

*Pilot study.* The qualitative pilot study consisted of two structured focus group interviews with a sample of 15 managers of volunteer programs that were members of the local volunteer centre, Volunteer Victoria. Each of the managers represented different types and sizes of volunteer programs from the Victoria area. The purpose of the pilot study was to explore the construct dimensions within the model to aid in the development of a survey questionnaire.

*Survey design.* Like the first phase of the research, the second phase consisted of a quantitative survey design, which is a useful methodology for several reasons. First, it allows for testing of the fit of the model to the data and the hypothesized relationships between model constructs using structural equation modeling and path analysis. It also allowed for convenient access to the manager sample population through an updated VOE listing of national programs in Canada.<sup>19</sup>

Moreover, because the research involved testing the model and relationships between the model variables, a survey was necessary to ensure an adequate sample size for conducting empirical tests. When questionnaire items are to be combined into rating

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<sup>19</sup> A possible criticism of using another VOE sample is that the sample may be biased in favour of ICT users. This concern is not of great importance for several reasons. First, previous findings from the first phase of the research that compared access to ICT in volunteer programs using traditional mail-out and ICT sampling means found no significant differences in use between those who responded to mailed and those answering on-line questionnaires. It was also found in both groups that access to Internet and email was very high. Finally, it must be noted that because the second phase of the research focused explicitly on the use and perceived effectiveness of ICT, it was imperative that the sample be ICT or “e-enabled.”

scales (e.g., items within a construct dimension will be combined to give an overall score or rating), ample sizes in excess of  $n = 125$  are necessary for such statistical tests as factor and reliability analysis (Hinkin, 1993). For the purposes of structural equation modeling, a larger sample size is also necessary “to maintain the accuracy of estimates and to ensure representativeness” (Schumaker, 1996, p. 20). Schumaker cited the work of experts in the field who had revealed a minimum range for SEM would be a sample size between 100 and 150 (Ding, Velicer, & Harlow, as cited in Schumacker & Lomax, 1996, p. 20). The general rule of thumb is the “greater the sample size, the better especially when cross-validating a model” (Schumacker & Lomax, p. 20).

Finally, the survey design allows for the collection of information in a standardized way to ensure some degree of cross-data validation. For example, while the survey findings are not generalizable, modification of the instrument to incorporate measures used in other research allows the findings to be interpreted in light of the extent to which they compare with results of published research in the field of ICTe and technology acceptance.

*Population and sample.* The study population is confined to volunteer programs in Canada. Managers of volunteer resources (MVRs) or those with responsibility for coordinating volunteers and management of volunteer programs were selected as respondents. As in the first phase, the size of the volunteer program population cannot be determined because of a lack of data. Currently, there is no list available describing the number and type of volunteer programs in Canada.

Two nonprobability samples of convenience were used to access MVRs. The “2003 national group” consisted of managers who were registered members of Volunteer

Canada's Volunteer Opportunities Exchange (VOE) or were registered members of a Local Volunteer Centre (LVC) in Canada. In the first sampling method, respondents were sent an email with a URL link to the survey embedded in the email text. The email was distributed directly to the manager by the researcher through the updated VOE listing. Privacy was protected during email distribution through a blind carbon copy distribution method (which keeps each respondent's identity private). In the second sampling method, managers were distributed the same email and URL link to the survey by their LVC. In both samples, the information distributed also contained important information on the requisite ethical considerations of the research project, as well as any contest rules and regulations (identical to those presented in the phase one questionnaires);

*Instrumentation.* The survey design called for a modified instrument that incorporated a number of measures from existing instruments cited in the ICTe, technology acceptance, and/or organizational behaviour literatures, including Barki and Hartwick's (1989) user involvement scale, as well as several items from the Job Content Questionnaire (Karasek, Brisson, Kawakami, Houtman, Bongers, & Amick, 1998) among others. All the items incorporated into the instrument had previously been tested and found to be reliable measurement indicators (please refer to Appendix C for a listing of measures and reliability indicators).

Whereas the first research phase used three types of survey methods for a total of six questionnaires, the second phase utilized one email survey. As with the electronic surveys in the previous phase, the survey instrument was programmed to collect data using an Excel database. The survey was also programmed to allow online submissions 24 hours a day, seven days a week. The data collected was warehoused on a server that

was password accessible by the researcher. Table 6 depicts the electronic mail survey during the second phase of the research (please refer to Appendix B to view the 2003 MVR electronic survey).

Table 6

*Phase Two Survey of Managers of Volunteer Resources (MVRs)*

Level of Analysis/Variable Name	
Individual level	Technological level
<ul style="list-style-type: none"> <li>➤ Gender, age, education, training, position, job experience in organization, experience in position, hours work, time using ICT work and personal</li> </ul>	<ul style="list-style-type: none"> <li>➤ ICT Components: hardware, software, network, Use of organization website e.g. features, Use of email-purposes.</li> <li>➤ Perception of ICT skills</li> <li>➤ Quality and capacity of available ICT systems</li> <li>➤ Use of VOE online recruitment system, perceptions of usefulness, efficiency, effectiveness, satisfaction.</li> <li>➤ Satisfaction with ICT use</li> </ul>
Work level	Organizational Level
<ul style="list-style-type: none"> <li>➤ Perception of job demands</li> <li>➤ Size volunteer program, perceptions of recruitment method effectiveness, volunteer position openings, enquiries, placements, percentage placed in response to enquiries, percentage retained</li> <li>➤ Impact of ICT on volunteer program</li> </ul>	<ul style="list-style-type: none"> <li>➤ Organization mission, size of annual budget, volunteer program and allocation to ICT, presence of ICT support</li> <li>➤ Perceptions regarding organizational change, decision-making, acceptance, ICT changes, ownership, support of change, innovation</li> <li>➤ Co-worker and leader support, job autonomy</li> </ul>
Group level	Psychological level
<ul style="list-style-type: none"> <li>➤ Types of ICT training</li> <li>➤ Participation in organizational and ICT decisions</li> <li>➤ Involvement in the VOE (design, development, training)</li> <li>➤ Involvement of others in VOE</li> </ul>	<ul style="list-style-type: none"> <li>➤ Perceived value of ICT</li> <li>➤ Perceived usefulness of the VOE</li> <li>➤ Job satisfaction</li> <li>changes in job demands and job stress</li> <li>➤ Barriers to use and change</li> </ul>

In terms of preference for the electronic mail survey in 2003, the primary purpose was outreach capacity. The online survey was also useful in that it allowed for the collection of a large number of items (representing the various construct dimensions within the model) without appearing to be lengthy. Email surveys are also less expensive to distribute and can be programmed to ensure that respondents answer more questions. As in the first phase, the survey was designed using best practice guidelines for electronic surveys. In addition to these strategies, electronic links to reports of the results of the first phase of the research were included in the email along with the ethical considerations associated with the survey research.

#### *Sampling Procedure*

The 2003 data for the national sample comes from two subsamples of the MVR respondent group which is identified as the 2003 national sample. The first subsample consisted of managers on an updated VOE Internet mailing list, the second of managers from across Canada who were on the electronic mailing lists of a number of local volunteer centers (LVCs).<sup>20</sup> In total 462 managers responded to the survey.

*Response rates.* For the VOE subsample, response rates were calculated by averaging the number of emails receipted (516) by the number of VOE surveys completed (325). According to this calculation, the VOE group survey response rate was very high, at 70%. A response rate for the LVC group could not be determined because there was no way of determining how many organizations the LVCs were able to reach. In total 462 managers responded to the survey. The total response rate, however, does represent an acceptable response level for this kind of survey research.

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<sup>20</sup> LVCs promote and support volunteerism on behalf of volunteer organizations within their regions in Canada.

### *Methodological Concerns*

The primary methodological concerns for the second phase were again representative sampling and respondent bias. Because convenience sampling was used, the sample was not representative of all volunteer programs in the sector and the subsequent results not generalizable. Nevertheless, like the results from the first phase, while not generalizable, they are very important to understanding the motivational process—specifically, why some volunteer programs make use of new ICT in their work while others do not.

In addition, there is a concern that the sample is biased in favour of ICT users because the survey was delivered to managers electronically. However, because the purpose of the research calls for a sample of managers who are also ICT users (VOE system), a sample bias in favour of ICT use is not a factor.

### *Summary*

This chapter provided an overview of the research methodology in the order in which it evolved and unfolded. Table 7, which incorporates study questions, sample groups, survey instruments, and data analytic techniques, shows the integration of the methodology into the overall structure of the research. While the research methodology could not ensure the samples were representative of all volunteers and volunteer programs in Canada, the design did include a variety and choice of survey methods, to ensure the samples contained as broad a representation of respondents as possible.

Table 7

*Integration of the Methodology into the Structure of the Research*

Research question	Research design/phase	Sample group(s)	Instrument	Data analytique technique
1. To what extent do managers and volunteers in Canada have access to ICT?	Survey design; phases 1 & 2	Regional sample ( $n = 129$ ); national manager samples (2001–2002, $n = 365$ ; 2003, $n = 462$ ); traditional volunteers ( $n = 196$ )	2001–2002 regional and national groups; 2003 national group; 2001–2002 traditional sample	Descriptive statistics including, chi-square, Fisher's exact test, t-test
2. To what extent do managers and volunteers make use of the ICT they have access to?	Survey design; phases 1 & 2	Regional sample ( $n = 129$ ); national manager samples (2001–2002, $n = 365$ ; 2003, $n = 462$ ); traditional volunteers ( $n = 196$ ); VICTA ( $n = 226$ ); VOE ( $n = 1745$ ); VICTA/VOE follow-up group ( $n = 334$ )	2001–2002 regional group; 2001–2002 national group; 2003 national group; 2001–2002 traditional group; VOE group; VICTA group; follow-up group	Fisher's exact test; chi-square; t-test
3. What types of factors are associated with different patterns of ICT use by volunteers and manager?	Survey design; phases 1 & 2	Regional sample ( $n = 129$ ); national manager samples (2001–2002, $n = 365$ ; 2003, $n = 462$ ); traditional volunteers ( $n = 196$ ); VICTA/VOE follow-up ( $n = 334$ )	2001–2002 regional group; 2001–2002 national group; 2003 national group; 2001–2002 traditional group; follow-up group	Correlation; chi-square; Fisher's exact test; t-test
4. Why do some individuals adopt ICT methods into their work while others do not?	Survey design; phases 1 & 2	2003 national managers sample (VOE users, $n = 127$ ); traditional volunteer sample ( $n = 150$ )	2003 national group; 2001–2002 traditional volunteer group	Structural equation modeling (SEM); path analysis

## CHAPTER 5

### Results and Discussion

Whereas scholarly attention is being paid to understanding the digital effectiveness divide (DED), very few studies have focused on its incidence in volunteerism. This chapter summarizes the results of the first series of Canadian research studies on the adoption and use of information and communications technology (ICT) in volunteering and the management of volunteer programs. More specifically, it looks at the following:

1. The extent to which volunteers and managers of volunteer resources in Canada have access to ICT;
2. The extent to which volunteers and managers are making use of the ICT they have access to in their work;
3. The factors associated with access to and use of ICT by volunteers and managers; and
4. Explaining how the factors in question 3 work together to explain the adoption and perceived effectiveness of ICT in volunteerism.

The chapter presents the results for the two phases of research. The chapter begins with volunteer and manager respondent characteristics followed by four sections of results where each section relates to a corresponding research question (e.g. section #1 is research question #1). Within each section, the results are discussed in relation to the literature.

## *Results*

### *Volunteer Respondent Characteristics*

As shown in Table 8, the majority of the respondents from the VOE prospective volunteer sample came from Ontario (48%) followed by British Columbia (19%), while the rest were quite evenly distributed across the country with the exception of the territories. The geographic profile of the VOE group of prospective volunteers mirrors that of both the 2001–2002 and 2003 national manager samples. This finding is not surprising given that the VOE survey was posted on Volunteer Canada’s Web site and both manager samples were drawn from an electronic mailing list generated by Volunteer Canada in conjunction with the VOE. Interestingly, the geographic profile of prospective volunteers—that is, those looking to find volunteer work through online sites—is almost the reverse of the profile of actual volunteers established in 2000 by the National Survey of Giving and Volunteering (Hall et. al, 2001).

Table 8

*Geographic Characteristics of VOE Group Volunteers*

Province	VOE 2001–2002			NSGV 2000	
	Number ( <i>n</i> )	%	Rank	%	Rank
Alberta	157	9	4	39	1.5
British Columbia	335	19	2	26	4
Newfoundland and Maritime					
Provinces	93	5	6	33	3
Ontario	846	48	1	25	5
Prairie Provinces	150	9	4	39	1.5
Quebec	162	9	4	19	6
Territories	2	<1%	7	*	
Missing					
Total	1745	100			

\*No statistic reported for the Northern Territories in NSGV

In the NSGV profile, Ontario and British Columbia had some of the lowest volunteer participation rates in all Canada (ranking 5th and 4th respectively out of the geographic areas profiled). The finding that these areas have higher supply rates—as evidenced by the number of prospective volunteers using online recruitment sites to look for volunteer work in Canada—may be welcome news to those who have been charged with finding a solution to a reported decline in volunteering in Canada (McClintock, 2004).

*Demographic Profile.* The basic demographic profile of volunteers from the VICTA, VOE, and traditional volunteer groups outlined in Table 9 reveals the gender, age, educational level, and employment breakdown of the participants, as well as volunteer experience and time spent volunteering. Most results were unsurprising as they

mirror national trends. More women than men were volunteers (VICTA, 76%; VOE groups, 68%; traditional groups, 74%), reflecting the overall greater participation (54%) of women nationally (2000 National Survey of Giving and Volunteer Participation, as cited in McClintock, 2004, p. 7). The higher percentage of female participation across the Victoria regional groups (VICTA and traditional volunteers) is also consistent with the percentage of women who volunteer in British Columbia (see Canadian Centre for Philanthropy, 2003).

The volunteers from the Victoria region (the VICTA and traditional groups) were older than the national VOE group, with 43% under the age of 25 compared to only 10% of VICTA and 7% of traditional volunteers. This figure also mirrors 2001–2003 population statistics: 33% under the age of 25 nationally and 12%, regionally (*Statistics Canada, 2003*).

Table 9

*Demographic Characteristics of Volunteers*

	VICTA ( <i>N</i> = 226)	VOE ( <i>N</i> = 1745)	Traditional ( <i>N</i> = 195)
Characteristics	% ( <i>n</i> )	% ( <i>n</i> )	% ( <i>n</i> )
<b>Gender</b>			
Male	24 (53)	33 (567)	26 (50)
Female	76 (170)	68 (1178)	74 (143)
<b>Age</b>			
Under 25	10 (22)	43 (755)	7 (14)
Over 25	90 (201)	57 (990)	93 (179)
(Mode)	(aged 26-30) 33 (74)	(aged 20-25) 27 (468)	(over 65) 49 (95)
<b>Education</b>			
No university	27 (61)	41 (705)	38 (73)
University	73 (162)	59 (997)	62 (118)
<b>Employment</b>			
In workforce	58 (131)	57 (991)	45 (81)
Out of workforce	42 (92)	43 (754)	55 (99)
<b>Volunteering</b>			
Yes	36 (80)	33 (501)	100 (191)
No	64 (146)	67 (1244)	
<b>Volunteer hours</b>			
More than 5	24 (19)	34 (169)	26 (50)
Less than 5	76 (56)	66 (332)	74 (142)
<b>Volunteer hours (ICT contact)</b>			
			n.a.
More than 5	73 (55) <sup>a</sup>	61 (49)	
Less than 5	27 (20)	39 (31)	

<sup>a</sup> indicates likelihood of contact rather than actual contact.

The majority of volunteers had a university-level education—VICTA, 73%; VOE, 59%; traditional group, 62%, all figures considerably higher than the 54% identified as typical of Canadian volunteers in the NSGVP 2000 (as cited in McClintock, 2004, p. 4). Additionally, the Victoria volunteer groups (the VICTA and traditional groups) had a higher educational attainment level than the VOE group, which may be explained by their being younger and having had less time to reach the same educational levels as the older group.

Also in line with the typical profile of volunteers in Canada, more volunteers were in the workforce than out of the workforce. However, the e-enabled prospective volunteers from the VOE and VICTA groups were more likely than the traditional group to be in the workforce (VICTA, 58%; VOE, 57%, traditional group, 45%). Workforce findings make sense given that traditional volunteers from the Victoria region were older (over 65).

As regards to volunteer experience, the VICTA and VOE online recruitment user groups were more likely to be newer to volunteering (VICTA, 36%; VOE 32%) than the traditional volunteers who were all associated with a volunteer agency in the Victoria region. This finding is also supported by the fact that 81% of VOE users reported being first-time visitors to Volunteer Canada's Web site. Of the prospective volunteers who were volunteers, the majority were volunteering less than 5 hours per week (VICTA 76%; VOE 66%) a finding that is similar to the traditional group (74% volunteered less than 5 hours). Interestingly, of the prospective volunteers that found work through their ICT generated contacts, the reverse was true. These volunteers volunteered more than 5 hours per week time (VICTA 73%; VOE 61%) a finding that is consistent with a 2003

US report of users of the VolunteerMatch online recruitment system (O'Rourke, Hart & Baldwin, 2004, p. 20). Based on this 5 hour weekly commitment, the minimum amount of time these the VOE and VICTA sample of prospective volunteers spent volunteering in one year was much higher than that for the typical volunteer in Canada (260 hours versus 162) (McClintock, 2004, p. 3) suggesting that volunteers who used ICT and found work were highly motivated.

*Motivations for Volunteering.* Table 10 shows motivations for volunteering reported by the sample groups, and their frequency of occurrence. Not only does Table 10 indicate a similar motivational pattern across volunteer sample groups, but this pattern is consistent with the NSVG 2000<sup>21</sup> volunteer motivation assessments (as cited in Lasby, 2004), suggesting that the volunteer sample groups are fairly typical of Canadian volunteers.

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<sup>21</sup> Whereas this present study assessed 12 motivations, the NSVG assessed only 8. However, some of the categories assessed here could be collapsed into categories similar to those identified by the NSVG, and when these are compared, the NSVG rankings are similar to those in this study.

Table 10

*Motivations for Volunteering*

Motivation	Group						Overall rank	NSGV <sup>a</sup> rank
	VICTA		VOE		Traditional			
	% (n)	Rank	% (n)	Rank	% (n)	Rank		
Help a cause I personally believe in	94 (221)	1	95 (1443)	1	72 (138)	1	1	1
Use my skills and experiences	94 (211)	2	91 (1393)	2	58 (111)	2	2	2
Explore own strengths	92 (206)	3	89 (1348)	3	35 (68)	3	3	4
Learn new skills	90 (202)	4	86 (1316)	4	43 (82)	4	4	*
Gain work experience	75 (169)	5	70 (1070)	5	29 (55)	5	5	*
Personally affected by organization's cause	64 (143)	8	63 (957)	6	23 (44)	7	7	3
Improve my job prospects	69 (154)	6	61 (931)	7	22 (43)	8	7	7
Try out a career path	65 (145)	7	57 (862)	8	27 (51)	6	7	*
Asked to help <sup>b</sup>	26 (58)	9	32 (494)	9	15 (28)	9	9	8
Fulfill religious obligations/ beliefs	11 (25)	11	20 (298)	10	12 (22)	10	10	6
My friends volunteer	13 (30)	10	13 (191)	11	3 (6)	12	11	5
None of these	3 (6)	12	4 (59)	12	4 (8)	11	12	*

<sup>a</sup>NSGV 2000; <sup>b</sup>On the NSGV 2000, this measure was "required to volunteer."

\*Not included as motivation in NSGV 2000.

*Manager Respondent Characteristics*

As Table 11 shows, the majority of the national sample respondents came from Ontario (46% in 2001–2002; 45% in 2003), while the rest were quite evenly distributed across the country in the West (British Columbia, Alberta) and the Prairie Provinces

(Manitoba, Saskatchewan) with the exception of Quebec, the Maritimes, and the territories.

Table 11

*Geographic Characteristics of Responding Organizations\**

Province	2001–2002		2003	
	Number ( <i>n</i> )	%	Number ( <i>n</i> )	%
Alberta	45	12	72	16
British Columbia	55	15	86	19
Maritime Provinces	20	6	26	6
Ontario	167	46	209	45
Prairie Provinces	34	9	53	11
Quebec	21	6	11	2
Territories	0	0	5	1
Missing	23	7	0	0
Total	365	100	462	100

\*Tabulations are based on national totals.

With respect to the organizational characteristics outlined in Table 12, the dominant mission type represented was the health and social service fields. Nonetheless, a good sample of the remainder of the voluntary sector world was also represented.

Table 12

*Characteristics of Responding Organizations*

Characteristic	2001–2002		2003			
	Regional Sample		National Sample		National Sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Organizational (Budget) size</b>						
< \$50,000	18	15	51	14	45	10
\$50,000-250,000	34	28	82	22	93	20
250,000-500,000	15	13	42	12	66	14
\$500,000-1,000,000	16	13	69	19	67	14
> \$1,000,000	37	31	121	33	191	41
Missing	9		0		0	
Total	120	100	365	100	462	100
<b>Organizational type</b>						
Social services	49	40	119	33	154	33
Health	38	30	105	29	126	27
Other	15	12	43	12	56	12
Environment	3	1	44	12	18	4
Arts and culture	8	6	18	5	30	8
Education	11	10	7	2	48	10
Sports/recreation	3	1	15	4	20	4
International Aid	0	0	9	2	9	2
Religious	0	0	5	1	1	<1
Total	127	100	365	100	462	100
<b>Program size<sup>a</sup></b>						
< 10	9	7	22	6	23	5
11-25	22	18	40	11	49	11
26-50	22	18	43	12	53	11
51-75	10	8	24	7	46	10
76-100	18	14	44	12	50	11
> 100	43	35	192	52	241	52
Total	124	100	365	100	462	100

<sup>a</sup>Based on number of volunteers.

A similar pattern of reasonably sized representations—from the very large to quite small—was found for organizational (budget) size. The size of the volunteer programs themselves was also quite diverse with a larger representation of those organizations with volunteer programs of over 100 volunteers. Organizations from the national samples had the largest volunteer programs (35% regionally in 2001–2002; 52% nationally in 2001–2002 and in 2003).

*Research question #1: Volunteer Access to ICT*

The first research question asked to what extent volunteers and managers of volunteer resources in Canada have access to ICT. Analysis of the survey responses suggests that overall access to basic ICT components such as personal computers and the Internet was high for the volunteer groups sampled. As was anticipated, the traditional group, with 86% ( $n = 161$ ) reporting access to PCs, 85% ( $n = 156$ ) to the Internet and 84% ( $n = 153$ ) to email, had significantly less access to ICT than the e-enabled groups, 100% of whom had access to all three media ( $p < .001$ ). Of the traditional group that did not have access to ICT components, 4% ( $n = 7$ ) reported that access to ICT within two years was “fairly likely” and 11% ( $n = 20$ ) that access was “highly likely.” Only 2% believed that access was “not likely” within the next two years. This finding suggests that while a digital divide does exist in terms of the amount of physical access to basic ICT components between e-enabled and traditional volunteer groups, the problem, at least in the volunteer population sampled, will probably correct itself in the coming years.

*Manager Access to ICT*

Table 13 shows the different types of ICT components that managers from each of the different sample groups reported having access to in their volunteer programs

during the fall and winter of 2001–2002 and the spring of 2003. Access was assessed for basic ICT components including personal computers, fax machines, the Internet, email, and Web sites, as well as for specialized ICTs such as cellular phones, personal digital devices (handheld computers), and specialized volunteer management software.

Table 13

*Use of ICT in Volunteer Programs in fall winter 2001–2002; spring 2003*

ICT Component Type	2001–2002		2003
	Regional <i>N</i> = 129 % ( <i>n</i> )	National <i>N</i> = 365 % ( <i>n</i> )	National <i>N</i> = 462 % ( <i>n</i> )
Personal computer	97 (121)	89 (323)	99 (459)
Off-the-shelf software	100 (125)	61 (222)	96 (443)
Specialized software	15 (19)	29 (105)	31 (145)
Internet	90 (113)	100 (365)	100 (462)
Email account	73 (91)	96 (349)	100 (462)
Web site	78 (98)	90 (330)	90 (415)
Fax machine	86 (108)	87 (319)	92 (427)
Cellular phone	15 (19)	35 (126)	37 (173)
Handheld computer	1 (1)	6 (21)	10 (45)

Like the volunteer groups sampled, managers from both national and regional samples appeared to be well equipped with the basic ICT components. The vast majority had access to personal computers<sup>22</sup> (89% to 99%), fax machines (87% - 92%), the Internet (90%-100%), and almost as many had access to e-mail (73%-100%), off-the-shelf software<sup>23</sup> (61% -100%) and Websites (62%- 90%). While managers were

<sup>22</sup> The value reported represents the percentage of managers that use personal computers to conduct the work of the volunteer program rather than the percentage that have access to personal computers.

<sup>23</sup> It must be noted that the differences between the sample groups in software utilization can be explained by the different questions assessing software usage. The 2001–2002 national sample represents the most realistic picture of the breakdown between the use of off-the shelf and specialized software in the

generally unlikely to use specialized ICT components like handheld computers (1%-10%), cellular phones (15%-37%), or specialized volunteer management software (15%-31%), access to them increased over the sampling period.

A comparison of the amount of access the different samples of managers had to ICT components (see Table 13) reveals that the regional group had significantly less than the national group in access to all ICT component types with the exception of handheld computers and fax machines. As shown in Table 14, managers from the regional group ( $M = 4.5$ ,  $SD = 1.1$ ) had significantly less access than the 2001-2002 national sample group in terms of total access to ICT components ( $M = 5.0$ ,  $SD = 1.2$ ),  $t(481) = 3.97$ ,  $p = .000$ ,  $d = .49$ . Access was separated into “basic components” (PCs, fax, Internet, email, and Web site access) and “specialty components” (cellular phones, handheld computers, and specialized volunteer management software). A comparison between the two revealed no significant differences in access to basic ICT components (2001–2002 regional ( $M = 4.2$ ,  $SD = 1.1$ ) and national group ( $M = 4.3$ ,  $SD = 1.2$ ),  $t(170) = 1.3$ ,  $p = .20$ ,  $d = .12$ ). However, significant differences were observed in access to specialty components within the same time period, with the regional group ( $M = .32$ ,  $SD = .6$ ) falling significantly behind the national group ( $M = .69$ ;  $SD = .8$ ),  $t(285) = 5.8$ ,  $p = .000$ ,  $d = .37$ . These findings indicate that while there were no significant differences in access to basic components, the national e-enabled group had significantly more access to specialty ICT than the regional group. This suggests a digital divide exists between these groups with respect to access to specialty or ICT components that are relatively new to the management context.

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management of volunteers because the national sample, allowed for only one response. Whereas, the regional survey, allowed managers to choose multiple answers.

A similar comparison between national groups over the 2001–2003 sampling period revealed significant increases in total access to ICT for the national group in 2003 group ( $M = 5.6$ ,  $SD = 1.0$ ) than in 2001–2002 ( $M = 5.0$ ,  $SD = 1.2$ ),  $t(825) = 7.68$ ,  $p = .04$ ,  $d = .58$  and access to basic ICT components (national 2003 ( $M = 4.8$ ,  $SD = .4$ ) compared to national 2001–2002 ( $M = 4.3$ ,  $SD = 1.2$ ),  $t(542) = 10.83$ ,  $p = .000$ ,  $d = .48$ ). However, no such significant increases between the national groups occurred in access to specialty ICTs over the sampling period (national 2001–2002 ( $M = .69$ ,  $SD = .8$ ) compared to national 2003 ( $M = .79$ ,  $SD = .8$ ),  $t(824) = 1.76$ ,  $p = .08$ ,  $d = .10$ ). This finding suggests that the rate of ICT adoption varies depending upon whether it is of a basic or specialty type.

Table 14

*Scores for Access to ICT Components in Volunteer Programs\**

	2001–2002				2003	
	Regional		National		National	
	$N = 129$		$N = 365$		$N = 462$	
	Mean <sup>†</sup>	$SD$	Mean <sup>†</sup>	$SD$	Mean <sup>†</sup>	$SD$
Access to the 5 basic ICT components (PC, fax, Int, Web site, email)	4.2	1.1	4.3	1.2	4.8	.4
Access to the 3 specialty ICT components (cell, hh, spec. volunteer management software)	.32	.6	.69	.8	.79	.8
Total ICT access score to the 8 components <sup>a</sup>	4.5	1.1	5.0	1.2	5.6	1.0

\*During fall and winter 2001–2002; spring 2003.

<sup>†</sup>Mean access that the sample group had to ICT components.

<sup>a</sup>Off-the-shelf-software was excluded from the computation because of measurement differences between the surveys.

*Research question #2: Volunteer and Managerial Use of ICT*

The second research question asked to what extent volunteers and managers of volunteer resources in Canada make use of the ICT they do have access to in their work.

Survey responses to this question were analyzed in three ways:

1. Use of ICT in volunteer recruitment;
  - a. Use of ICT by prospective and active volunteers in finding volunteer work.
  - b. Use of ICT by managers to fill available volunteer opportunities.
2. Use of ICT to perform volunteer work;
  - a. Use of ICT by volunteers to perform volunteer work at a physical distance from the organization (known as virtual volunteering).
  - b. Extent to which managers of volunteer resources had volunteer positions where work could be performed virtually at a distance from the volunteer program.
  - c. Types of virtual volunteer work/positions.
3. Types of volunteers and managers who use ICT methods.

*Use of ICT by volunteers in recruitment.* Table 15 shows the different ways in which volunteers from the sample groups used ICT to search for volunteer positions, make contact with an agency about a position, and secure a position during the fall of 2001 and the spring of 2002.

Table 15

*Volunteer Group ICT Usage Patterns During Fall 2001 and Spring 2002*

ICT Application	2001–2002		VICTA follow-up		2002		Traditional (N = 194)
	VOE (N = 1745)	Sig.	(N = 52)	Sig.	VOE follow-up (N = 282)	Sig.	
	% (n)		% (n)		% (n)		% (n)
Used ICT to search for work	100 (1745)	n.s.	100 (52)	n.s.	100 (282)	$p < .001$	29 (48)
Contact with organization through application	5 (89)	$p < .001$	50 (26)	n.s.	44 (123)	N/A	N/A
Found work through Internet	2 (28) [32 (28)] <sup>a</sup>	n.s.	27 (14)	n.s.	29 (82)	$p < .001$	8 (15)

*Note.* <sup>a</sup> Figures for respondents who found work through VOE-generated contacts. Significance rating pertains to percentage of volunteers who found work after contact with organization was made, not the percentage of the total sample.

Analysis of the survey responses suggests that while the number of prospective volunteers who made use of ICT to find a volunteer position in 2001–2002 was very high (e.g., VOE 100%,  $n = 1745$ ), the actual success in placing volunteers into available positions was very low—2% ( $n = 28$ ) for the VOE group and 8% ( $n = 15$ ) for traditional volunteers who were associated with a volunteer agency in the Victoria region. While the success of ICT in terms of placements was low for some groups, the percentage of volunteers using ICT to contact a volunteer agency about a position was significantly higher—VICTA follow-up group, 50% ( $n = 26$ ); VOE follow-up group, 44% ( $n = 123$ )—than the number of contacts reported in the initial survey (5% of VOE,  $p < .001$  (Fishers

exact test). As the percentage of contacts increased significantly upon follow-up, so too did the success rate in finding a position through ICT methods (32% of VOE, 27% of VICTA, and 29% of the VOE follow-up group volunteers found a position through the Internet compared to only 8% of the traditional group,  $p < .001$  (Fishers exact test). These findings suggest that the effectiveness of ICT applications in the placement of volunteers who use ICT applications to find volunteer positions increases with time.

Compared to findings for other jurisdictions, the number of e-enabled volunteers (VOE and VICTA follow-up groups) finding a position is significantly higher than those in a 2001 U.S. report in which 14% of volunteers used the Internet to find a volunteer position (Brudney, 2004). However, the traditional group data is not significantly different from those in the 1999 U.S. reports in which 4% of volunteers used the Internet to find a position. This finding may suggest that, at the time of the survey, the traditional group who lagged behind the e-enabled prospective volunteer groups did so because they had less need to use ICT to find a position because of a prior agency association.

*Use of ICT by managers in recruitment.* Like the volunteer position seekers, managers (see Table 16) were making use of ICT applications to fill volunteer program openings. As of 2001–2002, significantly more managers from the national group (64% or  $n = 235$ ) than the regional group (47% or  $n = 60$ ,  $p < .05$  (Fishers exact test) were using the Internet to recruit volunteers. In addition, significantly more respondents from the national sample had used Volunteer Canada's VOE online recruitment system (34%) than regional managers (8% or 10,  $p < .001$  (Fishers exact test,  $N = 489$ ).

Correspondingly, regional managers were more likely to have used the Volunteer Victoria's VICTA system (47%) than the national VOE (8%) system. This finding

indicates that managerial adoption of recruitment systems may follow a pattern of Volunteer Center or network association—managers who are associated with Volunteer Victoria adopting their VICTA system and Volunteer Canada, the VOE. While there were few cases of virtual volunteers, managers from the 2001–2002 regional sample (33%) were more likely than national managers (15%,  $p < .01$  (Fisher's exact test,  $N = 404$ ), to have reported using the Internet to recruit them.

Table 16

*Manager Use of ICT Applications to Fill Volunteer Openings*

	Regional	National	
	2001–2002	2003	
	$N = 129$	$N = 365$	$N = 462$
ICT Applications	$n$ (%)	$n$ (%)	$n$ (%)
	(VICTA)	(VOE)	
Use of Internet to find volunteers	47 (60)	64 (235)	N/A
Use of VOE system (made contact with volunteer)	8 (10)	34 (124)	28 (128)
Had virtual volunteer position openings	33 (42)	34 (124)	N/A
Used the Internet to recruit virtual volunteers	33 (13)	15 (53)	N/A

By 2003, use of the VOE online system had changed little: about a quarter of national managers surveyed (27%,  $n = 128$ ) reported having used the VOE system to recruit volunteers into their volunteer programs compared to a third in 2001–2002 (34%,  $n = 124$ ). While usage of the VOE system was lower in 2003, the difference was not

statistically significant. The recent closure of the VOE in March 2005 suggests that the decline in usage was most likely the start of a trend.

*Use of ICT by volunteers to perform work (virtual volunteering).* Of the volunteer positions reported by the traditional group of volunteers, less than a quarter (16%,  $n = 28$ ) were of the type in which ICT was used to perform work at a distance from the organization. Of the positions reported by VICTA/VOE follow-up group of volunteers, only 7% ( $n = 21$ ) were of this type. Therefore, at the time of the survey, no significant differences existed between these two groups with respect to the use of ICT to perform volunteer work. Moreover, the rate of uptake of virtual volunteer assignments—even though low among the Canadian follow-up volunteer groups using online recruitment methods to search for work—was not significantly different from a U.S. report indicating that among those who had Internet access and used it to find volunteer work, only a small percentage (4%) went on to perform work virtually using ICT methods (“Independent Sector,” 2000).

In contrast, significant differences were noted between prospective volunteers from the VOE group and actual volunteers from the traditional group with respect to virtual volunteer experience. The majority of prospective volunteers reported that they had, at some time in the past, performed work virtually using ICT at a distance from the organization (72%,  $n = 67$ ). However, the vast majority of this work was performed in conjunction with onsite work (partially virtual 65%,  $n = 58$ ). Considerably fewer (10%,  $n = 9$ ) reported that the work performed was wholly virtual. Less than a third of traditional volunteers (30%,  $n = 52$ ) reported that they had, at some time in the past, used their ICT

access to perform their work.<sup>24</sup> These findings suggest that, while prospective volunteers who use ICT to search for volunteer work (VOE group) are significantly more likely to have more experience using ICT in volunteering than the traditional group,  $p < .001$  (Fishers exact test), the vast majority of this work is generated through onsite positions. That is, the incidence of volunteer work being performed in complete isolation using ICT was very low.

*Manager reports of virtual volunteer work.* The reports of managers may be more informative about the demands for virtual volunteer (VV) work. In terms of the availability of VV positions, no difference emerged between the samples with respect to these types of positions. About a third of managers from the 2001–2002 national (34%,  $n = 124$ ) and regional (33%,  $n = 42$ ) samples reported volunteer positions in which work could be performed virtually, suggesting that the actual demand for virtual volunteers in volunteer programs is significantly higher than the reports from traditional (18%  $n = 34$ ) and follow-up (8%  $n = 26$ ) volunteer groups suggest. To meet this demand, volunteer findings from volunteers indicate that good sources of prospective VVs include existing volunteer programs and online recruitment sites like the VOE.

*Types of work performed by virtual volunteers.* Aside from the few reports on the rate of uptake of virtual volunteer positions, there is little empirical data on the kinds of work virtual volunteers are performing (see Cravens, 2000 for a US report). Most information about the types of volunteer work performed virtually comes in the form of anecdotal reports (e.g., Tyler, 2003) and recommendations of possible volunteer tasks from known experts on volunteering. Chief among the latter is Service Leader (2004),

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<sup>24</sup> An exact breakdown of how this work (in whole or in part) was performed was not asked and therefore could not be compared to the VOE group of prospective volunteers.

located in the Lyndon B. Johnson School of Public Affairs at the University of Texas, Austin, that publishes information on virtual volunteering through its Web site. Among the suggested tasks amenable to virtual volunteering are desktop publishing, writing/editing/publishing, research, Web site production and maintenance, database work, and graphic design.

As shown in Table 17, the top five virtual volunteer assignments reported by volunteers from the follow-up and traditional sample groups were those that by definition depend on the use of ICT, including communications (follow-up 31%; traditional 43%), desktop publishing (follow-up 27%; traditional 43%,  $p < .05$  (Fishers exact test), Web site (follow-up 39%; traditional 32%), research (follow-up 42%; traditional 21%,  $p < .01$  (Fishers exact test) and fundraising (follow-up 31%; traditional 29%) tasks. With the exception of fundraising, the majority of tasks were not unlike those identified by Service Leader (2004). The finding that fundraising was among the top tasks is unsurprising given the growth in online fundraisings, and electronic gift giving or, as it is now known, *e-philanthropy*.

A comparison among the volunteer groups of differences in the virtual volunteer work they performed indicated that volunteers from the traditional group were significantly more likely to have performed desktop publishing (at  $p < .05$  (Fishers exact test,  $N = 195$ )) and office tasks (at  $p < .01$  (Fishers exact test,  $N = 195$ )), whereas the follow-up group was more likely to have performed virtual research (at  $p < .01$  (Fishers exact test,  $N = 195$ )). Given the finding that virtual volunteers from the traditional group were also significantly more likely to volunteer more hours (44% of VVs contribute more than 5 hours per week compared to only 22% of on-site volunteers,  $\chi^2 (1, N=191) = 6.26$ ,

$p = .01$ ), it is likely that volunteers from the traditional group use ICT to complete volunteer work that may have originated onsite (e.g., at their home or workplace).

Alternatively, it could be that the follow-up group is more typical of virtual volunteers who perform work requiring only online methods, although this question would need to be addressed in future research.

Table 17

*Virtual Volunteer Tasks Reported by Volunteers in 2001-2002*

	VOE/VICTA		Significance level	Traditional	
	( $N = 334$ )			( $N = 195$ )	
	% ( $n$ )	Rank		% ( $n$ )	Rank
Percentage that performed virtual volunteer work	8 (26)		n.s.	16 (28)	
Type of work					
Communications	31 (8)	3	n.s.	43 (12)	1
Desktop publishing	27 (7)	4	$p < .05$	43 (12)	1
Website work	39 (10)	2	n.s.	32 (9)	2
Research	42(11)	1	$p < .01$	21 (6)	4
Office	19 (5)	6	$p < .01$	43 (12)	1
Fundraising	31 (8)	3	n.s.	29 (8)	3
Perform leadership role	23 (6)	5	n.s.	29 (8)	3
Direct service delivery	23 (6)	5	*	11 (3)	5
Other	27 (7)	4	*	4 (1)	6
Management consulting	2 (4)	7	*	4(1)	6
Assist with business	<1 (1)	8	*	11 (3)	5
Assist maintenance repairs	<1 (1)	8	*	4 (1)	6
Distance education	<1 (1)	8	*	4 (1)	6

*Note.*\* Not enough cases to calculate significance level.

As shown in Table 18, the top five types of virtual volunteer assignments reported for 2001–2002 by managers from the national and regional samples were not unlike the tasks reported by volunteers and suggested by Service Leader (2004); that is, desktop publishing (national 41%; regional 39%), Web site (national 36%; regional 51%), research (national 36; regional 37%) and fundraising tasks (national 23%; regional 24%) and direct service delivery (national 20%; regional 20%).

Table 18

*Virtual Volunteer Tasks Reported by Managers during 2001–2002*

	National Managers		Regional Managers	
	<i>(N = 365)</i>		<i>(N = 194)</i>	
	<i>n (%)</i>		<i>n (%)</i>	
Number of virtual volunteer openings	34 (124)		33 (42)	
Type of position		Rank		Rank
Desktop publishing	41 (51)	1	39 (16)	2
Research	36 (45)	2	37 (15)	3
Developing Web sites	36 (44) <sup>a</sup>	3	51 (21) <sup>a</sup>	1
Fundraising	23 (28)	4	24 (10)	4
Direct service	20 (24)	5	20 (8)	5
Developing manuals	19 (23)	6	17 (7)	6
Developing policy	11 (14)	7	7 (3)	7
Training	6 (7)	8	6 (2)	8

Note. <sup>a</sup> Significant at the 95% confidence ( $p < .05$ ) level.

The top four tasks are those involving the use of ICT, which provides empirical support for assumptions about which position types are appropriate for virtual volunteer work. However direct service delivery work also showed up which may not be surprising given that some virtual volunteering has its roots in telecommunications and, more

specifically, telementoring (UN Volunteers, 2005). In fact, direct service delivery, as a way to volunteer in the online environment, is featured on the Web site of TimeBank (2004), a British volunteer promotion site. These findings suggest that, in addition to those tasks that require ICT use, it may also be possible to re-engineer volunteer work to include tasks that have typically been thought of as traditional or requiring face to face interaction.

*Extent of adoption of virtual methods in work.* To assess the extent to which volunteers and managers had adopted ICT, the study examined two aspects of ICT usage:

1. Use of ICT in recruitment.
  - a. How volunteers made use of ICT to find volunteer work.
  - b. How managers made use of ICT to fill volunteer opportunities.
2. Use of ICT to perform work.
  - a. How volunteers made use of ICT in carrying out volunteer work virtually at a distance.
  - b. How managers enabled positions so volunteer work could be performed virtually from a distance.

These two dimensions created four possible types of volunteers and volunteer managers (see also Table 19):

Type 1: The volunteer or volunteer manager who uses traditional methods to *find* work or to *fill* volunteer positions and performs it or has it *performed* traditionally (TfTp);

- Type 2: The volunteer or volunteer manager who uses virtual methods to *find* work or to *fill* volunteer positions but performs it or has it *performed* traditionally (VfTp);
- Type 3: The volunteer or volunteer manager who uses traditional methods to *find* work or *fill* volunteer positions but *performs* it or has it *performed* virtually using ICT (TfVp); and
- Type 4: The volunteer or volunteer manager who uses virtual methods (ICT) to *find* work or *fill* volunteer position *and* has a position in which work can be *performed* virtually in whole or in part (VfVp).

Table 19

*Types of Volunteers and Managers*

Ways to find/fill positions	Ways to perform work or have work performed	
	Traditional Methods (Tp)	Virtual Methods (Vp)
Traditional methods (Tf)	TfTp (type 1)	TfVp (type 3)
Virtual methods (Vf)	VfTp (type 2)	VfVp (type 4)

Table 20 shows the extent to which volunteers found and performed volunteer work virtually. The numbers of true virtual volunteers—those who used ICT as a means to find and perform volunteer work—was very low (8% follow-up; 4% traditional). Slightly (though not significantly) more volunteers used traditional methods to find volunteer work while performing such work virtually (TfVp = 6% follow-up and 11% traditional). Whereas there were few differences between volunteer groups for types 3 and 4 usage, there were noticeable differences between types 1 and 2. Volunteers from the follow-up groups were significantly more likely to have used ICT to find their work

than traditional volunteers (52% versus 25%,  $p < .001$  (Fishers exact test,  $N = 271$ ).

Conversely, traditional volunteers were significantly more likely to be nonadopters of ICT, meaning they did not use ICT in either finding or performing their volunteer work (60% of the traditional versus only 34% of the follow-up group,  $p < .001$  (Fishers exact test,  $N = 271$ ).

Table 20

*Degree of ICT Use in Volunteering by Volunteer Groups*

	VOE/VICTA <sup>a</sup>		Sig.	Traditional % (N)
	follow-up % (N)			
Volunteer type	$n = 105^a$			$n = 166$
Type 1: TfTp	34 (36)		$p < .001$	60 (100)
Type 2: VfTp	52 (55)		$p < .001$	25 (41)
Type 3: TfVp	6 (6)		n.s.	11 (19)
Type 4: VfVp	8 (8)		n.s.	4 (6)

*Note.* <sup>a</sup>Refers to the subgroup of those who found a position since initial contact

Overall, the findings suggest that volunteers are in an early stage of ICT adoption, with the majority of traditional volunteers having adopted no ICT at all and the follow-up volunteers finding work in virtual ways even though performing it traditionally.

Using the same typology, Table 21 shows the survey responses from managers about the extent to which they used ICT methods to fill volunteer openings and have volunteer work performed. On the whole, managers were more e-enabled than the volunteer groups: 29% of national and 26% of regional managers were at stage 4 (VfVp) compared to only 8% and 4% of volunteer groups. Whereas managers were at a higher

level of adoption, the majority of them, like the follow-up group of volunteers, were type 2 adopters (TfVp) in which volunteers were being found using ICT methods but work was being performed traditionally (44% nationally and 49% regionally). Very few managers (5% and 7% respectively) filled volunteer opportunities traditionally and provided an opportunity for work to be performed virtually (TfVp). Less than a quarter (22% and 18%) used no ICT whatsoever (TfTp) in their volunteer resource management work. These findings suggest that, whereas ICT appears to be accepted as a means for finding volunteers, its value as a means to perform volunteer work is less established.

Table 21

*Degree of ICT Use in Volunteer Management by Manager Groups*

Manager type	National group		Regional group	
	% (N)	Sig.	% (N)	
	<i>n</i> = 365		<i>n</i> = 124	
Type 1: TfTp	22 (80)	n.s.	18 (22)	
Type 2: TfVp	44 (160)	n.s.	49 (61)	
Type 3: VfTp	5 (19)	n.s.	7 (9)	
Type 4: VfVp	29 (105)	n.s.	26 (32)	

*Question #3: Factors Related to Access to and Use of ICT in Volunteerism*

Whereas the first and second questions established variations in access to ICT components and use of them in volunteering and volunteer management, the third research question asked what factors might account for such variations. This question examined the relationship that various independent variables<sup>25</sup> had on the dependent

<sup>25</sup> Some factors are common to all sample groups, whereas others are dependent on the sample group's survey questionnaire. For example, the prospective volunteer group (VOE and VICTA) surveys were not as extensive as the follow-up surveys for these groups. Additionally, some factors were measured

variables of access and use of ICT in volunteerism. Given the large number of independent variables, only significant findings ( $p \leq .05$ ) will be presented and discussed.

Findings are reported at the following six levels of analysis:<sup>26</sup>

1. Personal Level

- Includes demographic characteristics of the individual such as gender, age, education, employment status that might pre-dispose a manager or volunteer to ICT adoption.

2. Technical Level

- Characteristics at the technical level are those that pertain to ICT systems (e.g. ICT access, ICT system quality and capacity, perceptions that ICT is easy to learn and use), perceptions of technical capability and prior experience with ICT.

3. Organizational Level

- Includes characteristics pertaining to the voluntary organization. From the perspective of the manager, organizational variables include hard and soft factors such as budget size and job autonomy. From the perspective of the volunteer, variables include preferences for volunteering in a specific organization or location.

4. Work Level

- Includes characteristics pertaining to the volunteer program or position. For example, the size of the volunteer program as measured by the number of

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at only one point in time. Whereas use of one-point-in-time data does not permit statements about causality, it does allow identification of variables that might be related to the amount of access and use of ICT by volunteer and manager user groups.

<sup>26</sup> Surveys vary as to the levels of analysis and variables represented.

volunteers and types of volunteer work performed. Volunteer preferences for specific types of work or for positions such as those that offer flexible work arrangements are included at this level.

#### 5. Group Level

- Characteristics at the group level include participation in training and access to ICT support, organizational use of ICT and involvement in ICT and organizational decisions.

#### 6. Psychological Level

- Characteristics of the psychological environment include perceived barriers to ICT use, perceptions that ICT has resulted in new work demands and feelings of job satisfaction and stress and attitudes about the impact and perceived usefulness of ICT.

#### *Factors related to volunteer access to ICT*

Factors that were related to volunteer access to ICT components were examined at the personal, organizational, work, and technical levels of analysis using the traditional sample group of volunteers from the Victoria region. Analysis of survey responses for the traditional group of volunteers was appropriate because they had less access to ICT than the prospective volunteer groups that were e-enabled (VOE and VICTA). Moreover, the traditional volunteer survey was more comprehensive in that it included more independent variables than either of the prospective volunteer web-based surveys. Table 22 shows significant relationships between independent variables and dependent variable access for the traditional group.

Table 22

*Factors Related to Volunteer Access to ICT as Reported by Traditional Volunteers*

Independent Variable (x)	ICT Access (y)			
	PC	Fax	Internet	Email
<i>Traditional Volunteers (N=196)</i>				
Personal level				
Cause				X*
Motivation				
Workforce (in the work force)	X**			X**
Status				
Organizational level				
Organization preference (for work in specific location)	X		X	X*
Work level				
Position type (leadership)	X*		X*	X*
Technical level				
Perception of technical capability (computer skills)	X*		X**	X**

Empty cell indicates non-significant association.

X\* = significant at the  $p \leq .05$ , X\*\* =  $p \leq .01$ , X\*\*\* =  $p \leq .001$ , X = borderline association

*Personal level.* Analysis of the survey responses at the personal characteristic level revealed that only a few factors were significantly related to traditional volunteers' access to personal computers (PCs), the Internet, and email. While gender, education, and age were not strongly related to the amount of access, motivation to volunteer and employment status were. With regard to motivation to volunteer, those who volunteered for a cause they believed in were significantly more likely to have access to email,  $\chi^2 [1, N = 188] = 4.07, p = .044$ , than those who were not motivated in this way. Volunteers

who reported they were out of the workforce (unemployed, homemaker, student, or retired) were significantly less likely than those in the workforce to have access to personal computers,  $\chi^2 [1, N = 179] = 8.78, p = .003$ , and email,  $\chi^2 [1, N = 176] = 9.97, p = .002$ . The finding that gender and education were not associated with adoption of ICT by volunteers conforms to recent research indicating that demographic factors are less influential now than they were at the start of the digital revolution (National Telecommunications Information Administration [NTIA], 2002; van Dijk & Hacker, 2003). The finding that workforce status has a significant influence on ICT access may be more reflective of differences in experience using ICT in work situations than economic factors such as “not enough money.” The findings showed money was not a significant barrier to volunteer access to ICT. As well, volunteers who had access to ICT who were in the workforce were significantly more likely than volunteers with access to ICT who were not in the workforce to have used ICT for business purposes (PC,  $\chi^2 [1, N = 150] = 33.52, p = .000$ ; Internet,  $\chi^2 [1, N = 150] = 29.22, p = .000$ ; email,  $\chi^2 [1, N = 150] = 25.58, p = .000$ ). This finding suggests that differences in access may be related to differences in ICT literacy developed through prior experience with or occupational uses of ICT. Occupational use of ICT has been found to be positively associated with ICT access (OECD, 1997).

*Technical level.* Finally, at the technical level, traditional volunteers who perceived themselves to have strong computer skills were significantly more likely to have access to basic ICT components than volunteers who reported weaker skills (access to PCs,  $p = .047$  [Fisher’s exact test,  $N = 174$ ]; Internet,  $\chi^2 [1, N = 170] = 6.54, p = .011$ ; email,  $\chi^2 [1, N = 172] = 6.79, p = .009$ ). This finding is consistent with other studies that

have shown lack of confidence using ICT to be a barrier to ICT adoption (Jones & O'Shea, 1982; McMahon, Gardner, Gray & Mulhern, 1999, p. 308). This finding also lends support for the ICT literacy construct and the relationship with ICT access. Volunteers who perceived they were highly capable in using computers had the most access to ICT.

*Organizational level.* At the organizational level, traditional volunteers with a preference for volunteer work in a specific location had significantly less access to email,  $\chi^2 [1, N = 182] = 4.91, p = .027$ , than volunteers without location preferences. The same direction of association, albeit with borderline significance, was found for personal computers,  $p = .05$  (Fisher's exact test,  $N = 189$ ), and the Internet,  $p = .055$  (Fisher's exact test,  $N = 182$ ).

*Work level.* On the work level, traditional volunteers in leadership positions were significantly more likely than volunteers not in leadership positions to have access to PCs,  $p = .05$  (Fisher's exact test,  $N = 188$ ), the Internet,  $p = .03$  (Fisher's exact test,  $N = 181$ ), and email,  $p = .03$  (Fisher's exact test,  $N = 185$ ). This finding was anticipated given that ICT use is generally higher in nonprofit management and administrative positions (Saidal & Cour, 2003).

#### *Factors related to the use of ICT in volunteering*

Analysis of survey responses for the use of ICT by volunteers to find and perform volunteer work were reported at the personal, work, organizational, and technical levels

of analysis using prospective and active volunteers from the VOE, follow-up<sup>27</sup>, and traditional volunteer groups.

*Personal level.* Volunteers from the VOE group were significantly more likely to be younger (under 25) (VOE,  $\chi^2 [1, N = 1745] = 6.42, p = .01$ ) and female (VOE,  $\chi^2 [1, N = 1745] = 4.50, p = .03$ ) than VOE users who were not actively volunteering at the time of survey. This finding is consistent with a 2003 US study of the VolunteerMatch online recruitment system, that found the majority of users were females and under the age of 30 (O'Rourke, Hart & Baldwin, 2004).

*Work level.* Traditional volunteers who were motivated to volunteer to gain work experience,  $\chi^2 [1, N = 192] = 6.25, p = .012$ , or to try out a new career path,  $\chi^2 [1, N = 191] = 11.16, p = .001$ , were more likely to have used ICT to find a position than volunteers who were motivated for other reasons. The VolunteerMatch study reports a similar relationship between motivation to volunteer and use (O'Rourke et. al, 2004).

*Technical level.* At the technical level, volunteers from the traditional group who reported stronger computer skills were significantly more likely to have volunteered virtually than volunteers who reported weaker skills,  $\chi^2 [1, N = 169] = 6.13, p = .013$ . This finding lends additional support for the ICT literacy as a construct in ICT use behaviour. Traditional volunteers that used ICT to volunteer ( $M = 2.82, SD = .62$ ) had significantly more access to ICT components than volunteers that did not use ICT to volunteer ( $M = 2.46, SD = 1.0$ ),  $t(179) = 2.0, p = .05, d = .36$ . This finding is not surprising given that virtual volunteering requires access to ICT components.

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<sup>27</sup> Findings for follow-up sample are presented for the group as a whole, because there was no significant difference found within the sample (VICTA and VOE prospective volunteers) with regard to use of ICT to find and perform work.

*Organizational level.* The use of ICT to perform work was associated with volunteer engagement. Follow-up volunteers who performed their work using ICT were significantly more likely to have had more contacts with a volunteer organization about a position,  $\chi^2 [1, N = 334] = 81.67, p = .000$  and to be actively volunteering at the time of survey,  $\chi^2 [1, N = 334] = 37.25, p = .000$ , than volunteers who did not use ICT to perform their work. Similarly, traditional volunteers who used ICT to volunteer were significantly more likely to have volunteered more of their time,  $\chi^2 [1, N = 191] = 6.26, p = .012$ —than those who did not use ICT in volunteering.

This finding helps to clarify a question with regard to the contention by Putnam (2000) that ICT might be associated with a decline in civic engagement because ICT use reduces time spent in face-to-face interactions. Even Carly Fiorina, former chief executive officer of Hewlett-Packard, raised a similar question: “What does it do to our concept of community if the places where people traditionally come together...can best be experienced individually” (Totally Digital, *The Economist*, 2004, p. 111). While the findings of this present study lend support for various aspects of this argument about ICT as a means—for example, increased self-centeredness as ICT enables volunteers to become more efficient and focused in their volunteer efforts—they further suggest that ICT as an end is not an isolating force. Rather, civic engagement among the e-enabled and traditional volunteers in this sample increased. This finding is in keeping with other research findings that ICT can enhance social capital through increased contacts, the building of social networks (Hampton, 2003; Pierce & Lovrich, 2003; Shah Schmierbach, Hawkins, Espino, & Donovan, 2002; Shaw, Kwak, & Holbert, 2001; Wellman et al.,

2001), and increases in “attendance at public gatherings and civic volunteerism” (Shah et al., 2002, p. 964).

*Work level.* Traditional volunteers who were newer to volunteering (less than 5 years),  $\chi^2 [1, N = 190] = 4.27, p = .039$ , used significantly more ICT to help them find volunteer work than traditional volunteers who were in the job longer than 5 years.

Prospective volunteers from the follow-up group who performed their work using ICT were significantly more likely than those that used other methods to have been placed into a volunteer position that was open ended rather than fixed,  $\chi^2 [1, N = 334] = 5.10, p = .024$ .

Work level findings suggest ICT may offer inexperienced volunteers a way to find flexible work arrangements. This profile is consistent with findings of the US VolunteerMatch study that shows the majority of recruitment system users are young adults as well as the emerging literature on the episodic volunteer who is a) looking for shorter-term work commitments and b) types of positions that meet personal needs for volunteering (McDuff, 2005).

*Psychological level.* Traditional volunteers who had positive perceptions of the usefulness of ICT as a means of volunteering were significantly more likely to have performed volunteer work virtually than volunteers with negative attitudes toward ICT use in volunteering,  $\chi^2 [1, N = 171] = 10.67, p = .001$ . Similarly, volunteers with positive attitudes about the usefulness of email as a relationship builder,  $\chi^2 [1, N = 129] = 5.05, p = .025$ , management tool,  $\chi^2 [1, N = 129] = 5.05, p = .025$ , and tool for sharing information with others,  $\chi^2 [1, N = 78] = 8.88, p = .003$ , were significantly more likely to have performed volunteer work virtually than those with negative attitudes towards email. All

of these findings conform to a wide body of research over the last 25 years that has indicated a positive relationship between end-user attitudes toward ICT and the use and effectiveness of ICT applications (e.g., Davis, 1989; DeLone & McLean, 1992, 2002; DeSanctis, 1982; Garrity & Sanders, 1998; Seddon, 1995, 1997; Seddon & Kiew, 1994; Seddon, Graeser, & Willcocks, 2002; Seddon, Staples, Patnayakuni, & Bowtell, 1999), including Web-based (Noh, 1998) and nonprofit technology project outcomes (McInerney, 2004). It must be noted that the direction of causality in the relationship between these variables could go either way.

With regard to barriers to use, traditional volunteers who perceived “lack of ICT use by their volunteer organization” as a barrier to their own use of ICT used less ICT in volunteering than volunteers who did not perceive this barrier,  $\chi^2 [1, N = 104] = 6.43, p = .011$ . The finding is consistent with the organization behaviour literature which shows vicarious experiences or modeling of new behaviours within the social environment is a positive influence on human motivation (Bandura, 1986) and the diffusion of innovations more specifically (Rogers, 2003). Interestingly, virtual volunteers were significantly more likely than onsite volunteers to identify money as a barrier,  $\chi^2 [1, N = 104] = 5.75, p = .017$  to ICT use. This finding is also consistent with the motivational theoretical assumption that those who are motivated to engage in new behaviours are also motivated to want to engage in them again, so they tend to want to secure more resources for them in the process (Bandura, 1986).

In sum, three primary patterns emerged from the data with regard to access and use of ICT in volunteering. First, several independent variables found to be significantly related to ICT use by volunteers to find work, were not significantly related to ICT

component access. This finding is consistent with other research suggesting that independent variable influences change over time as ICT innovations become more accepted (van Dijk & Hasker, 2003; Rogers, 2003). That is, personal background or demographic factors like age, gender, and education, while they may be influential during the innovation stage (e.g., when the use of ICT in volunteering was new), begin to fade away or become less significant once an innovation has become more widely accepted. This observation would explain why certain factors were significantly related to use but not access. At the same time, the findings suggest that factors beyond the personal level are related to ICT adoption, including characteristics related to use of ICT in work and by organizations. Secondly, the findings clarified that ICT use by volunteers offered them specific benefits (e.g. providing opportunities to support a cause, gain work experience or to try out a new career path), and had positive impacts on civic engagement. Finally, the results indicate that attitudes and expectations were related to both access to and use of ICT. These findings lend support for the mediating role expectations play in the motivation to engage in new ICT behaviours. These findings lend further support for the model presented on page 68 showing the relationships between the mediating, dependent and impact constructs.

#### *Factors related to manager access to ICT*

Factors that were associated with manager access to ICT components were examined at different levels of analysis using the 2001-2002 regional and national, and 2003 national manager sample groups<sup>28</sup>. An alpha level at or beyond the .05 level was used for all statistical tests. Only findings of significance or interest are reported. Table

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<sup>28</sup> The 2003 survey of managers contained independent variables at all six levels of analysis whereas, the 2001-2002 surveys only contained individual, organizational and programs levels.

23 shows significant bivariate relationships between independent variables and dependent variables for total access, access to basic and specialty ICT components for MVR groups.

Table 23

*Factors Related to MVR Access to ICT*

<u>Level/Variable</u>	<i>2001-2002</i>			<i>2001-2002</i>			<i>2003</i>		
	<i>Regional</i>			<i>National</i>			<i>National</i>		
	<i>(N=129)</i>			<i>(N=365)</i>			<i>(N=462)</i>		
	Basic	Spec.	Total	Basic	Spec.	Total	Basic	Spec.	Total
<i>Personal level</i>									
Gender									
Male					X**			X**	X*
Female									
<i>Technical Level</i>									
Experience			X*+			X*+			X*+
Capability	X****+		X****+	X*+				X*+	X*+
Age (ICT)	X****-		X****-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Organizational Level</i>									
Org. Budget					X*+	X*+	X****+	X**+	X****+
Vol. Budget				X****+	X****+	X****+			

Table 23 (continued)

Level/Variable	2001-2002 <i>Regional</i> (N=129)			2001-2002 <i>National</i> (N=365)			2003 <i>National</i> (N=462)		
	Basic	Spec.	Total	Basic	Spec.	Total	Basic	Spec.	Total
ICT Budget								X****+	
Acceptance	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.			X*+
Change									
Autonomy	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.			X*+
<i>Work level</i>									
Number of			X***+	X**+	X****+	X****+	X**+	X****+	X****+
Volunteers									
Volunteer		X*+		n.a.	n.a.	n.a.	X****+	X****+	X****+
Enquiries									
Volunteer				X****+	X**+	X****+	X****+	X**+	X****+
Openings									
<i>Group Level</i>									
Org.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	X**+	X****+
Training									
ICT		X*+			X*+	X*+	X**+		X***+
Support									
<i>Psychological</i>									
<i>Level</i>									
Perceived	X*+		X*+	X*+	X*+	X***+	X*+	X**+	X****+
Usefulness									
(ICT)									
Perception	X***+	X*+	X****+	X****+		X****+	X****+	X*+	X****+
ICT impact									

“+” Indicates positive association; “-” indicates negative association

“X” indicates significant association; \* significant association at  $p \leq .05$ ; \*\* at  $p \leq .01$ , \*\*\* at  $p \leq .001$

n.a. indicates variable does not apply to sample

Blank cell indicates insignificant association.

*Personal level.* At the personal characteristics level, analysis of survey responses showed gender was related to the amount of access managers had to ICT components. In the 2001-2002 national sample, male managers had significantly more access to handheld computers  $\chi^2 [1, N=365] = 11.51, p = .001$  and cellular phones  $\chi^2 [1, N=365] = 6.31, p = .01$ . Not surprising, volunteer programs with male managers ( $M = .91, SD = .88$ ) were significantly more likely than volunteer programs with female managers ( $M = .63, SD = .71$ ) to have more access to specialty ICT components (cellphones, handheld computers, and specialized volunteer management software),  $t(363) = 2.85, p = .005, d = .27$ .

Whereas males managers were more likely to have access to specialty ICTs in 2001-2002, female managers were more likely to have access to older technology such as fax machines,  $\chi^2 [1, N=365] = 7.23, p = .007$ . Overall, there were no significant differences between male ( $M = 5.2, SD = 1.4$ ) and female managers ( $M = 5.0, SD = 1.1$ ) of national volunteer programs in total ICT access (all 8 components) and access to basic ICT components (access to PCs, Internet, email, and website). These findings suggest that there may be some truth to sayings like, “boys and their toys” and “all the bells and whistles”. In fact, the digital divide literature confirms the finding of a gender divide with males more likely than females to be early adopters of ICT (Cooper & Weaver, 2003).

In 2003, male managers continued to have significant more access to handheld computers,  $\chi^2 [1, N=462] = 8.56, p = .003$ , cellular phones,  $\chi^2 [1, N=462] = 9.16, p = .002$ , and online volunteer management software,  $\chi^2 [1, N=462] = 12.46, p = .000$  than programs with female managers. While there were no differences in access to fax machines in 2003, volunteer programs with male managers had significantly more access

to computer hardware,  $t(460) = 3.46, p = .001, d = .31$ , specialty ICT components,  $t(460) = 2.0, p = .05, d = .2$ , and overall access to ICT (all 8 components)  $t(460) = 2.13, p = .03, d = .27$  suggesting a widening of the “gender divide” with respect to physical access.

*Technical level.* Unsurprising, the age of the computer was negatively related to the amount of physical access regional programs had to ICT. The older the computer, the less likely regional program managers had access to ICT components in their volunteer programs,  $r = -.25, p = .000, N = 118$ , including, email,  $r = -.24, p = .000, N = 118$  and the Internet,  $r = -.35, p = .000, N = 118$ . These findings indicate that technical systems play a role in motivation to adopt ICT. Volunteer programs with older computers are the most likely to be on the wrong side of the digital divide. Age of computer was not assessed in the national samples.

Analysis of survey responses showed managers who were the most positive about their technical capability in using computers had the most access to ICT. In 2001-2002, the more positive managers of volunteer resources from national (basic access,  $r = .13, p = .02, N = 365$ ) and regional programs (basic:  $r = .4, p = .000, N = 120$ ; total access:  $r = .31, p = .001, N = 117$ ) were about their technical capability to use ICT, the more access they had ICT compared to managers who were less positive. In the 2003 national sample, perceptions of technical capability were also positively associated with ICT access (total access,  $r = .10, p = .04, N = 461$  as well as access to specialty components,  $r = .12, p = .013, N = 461$ ).

Another related variable at the technical level was prior experience with ICT. In 2001-2002 access to ICT for regional and national manager groups was positively associated with ICT experience as measured by the number of years using computers

(2001-2002 groups). The more ICT experience the manager had, the more access the volunteer program had to ICT components (total access: national,  $r = .11$ ,  $p = .03$ ,  $N = 365$ ; regional,  $r = .20$ ,  $p = .04$ ,  $N = 117$ ).

Unfortunately, the 2003 national survey did not include the same computer experience measure to allow for a comparison. However, time using ICT for personal and work purposes was measured—two variables that have been reported as significant experience variables in the digital divide literature (Cooper & Weaver, 2003). Using the 2003 national sample, analysis of survey responses showed computer experience as measured by time using ICT at work was positively associated with the amount of access managers had to ICT (total access,  $r = .10$ ,  $p = .03$ ,  $N = 462$ ).

Upon further exploration, analysis of survey responses showed there was a positive association between computer experience and perceptions of technical ability. The 2001-2002 national and regional samples computer experience was positively associated with technical capability. However, this finding was significant for female managers only.

Figures 5 and 6 illustrate the nature of this relationship within the regional and national groups. In both illustrations, the more experience female managers had with ICT, the more positive their perceptions of capability (regional,  $r = .47$ ,  $p = .000$ ,  $N = 104$ ; national,  $r = .31$ ,  $p = .000$ ,  $N = 289$ ). While sampling error could explain why male managers from the national group were the most confident when they had the least experience (less than 5 years), unlike female managers, males suffered a decline in confidence (11-15 years) at a time when female managers experienced confidence gains.

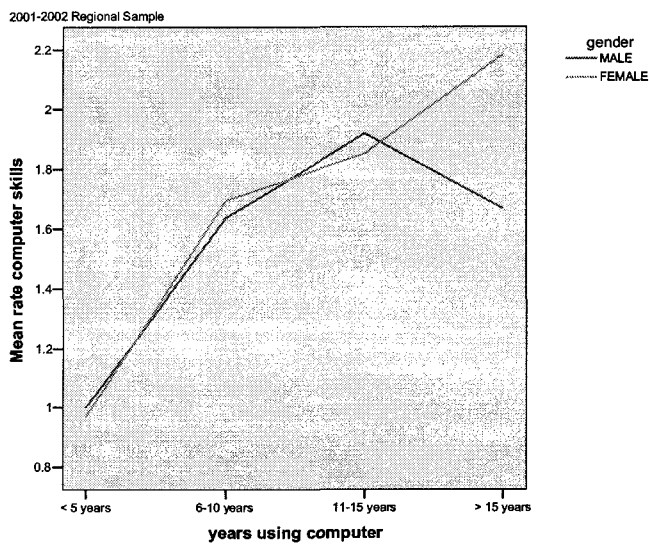


Figure 5. Relationship between ICT experience and perceived technical capability (Regional MVR Group ( $N = 129$ ))

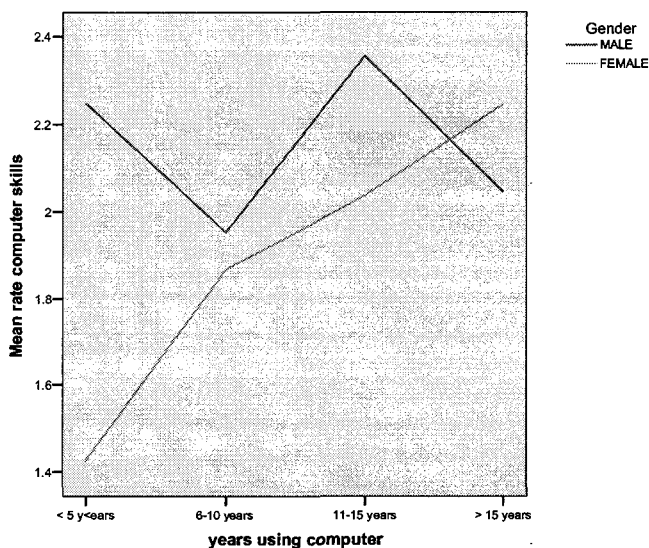


Figure 6. Relationship between ICT experience and perceived technical capability by Gender (2001-2002 National MVR Group ( $N = 365$ )).

In 2003, ICT experience (as measured by percentage of personal and professional time ICT is used) using ICT was positively associated with manager perceptions of technical capability (as measured by capability to use software, develop and use databases, make use of general ICT, and understand user documentation) (personal time,

$r = .31, p = .000, N = 461$ ; professional time,  $r = .26, p = .000, N = 461$ ). When gender was controlled, the association between capability and experience was significant for female managers (personal,  $r = .27, p = .000, N = 391$ ; professional experience,  $r = .29, p = .000, N = 391$ ). For male managers, the association was significant for personal time,  $r = .33, p = .006, N = 70$ . The more experience male managers had using ICT in their personal life, the more confident they were in their capability to make use of it. Prior research supports this finding. Cooper & Weaver (2003) found men were more positive and tended to be less anxious about ICT because they devoted more personal time to it.

When statistically examining the significance of the relationship between experience and capability for male and female managers in the 2001-2002 samples, managers from the e-enabled national sample were significantly more positive in their assessments of their technical capability than regional managers (national males ( $M = 2.14, SD = .68$ ), regional males ( $M = 1.69, SD = .66$ ),  $t(98) = 2.94, p = .005, d = .46$ ; national female ( $M = 1.94, SD = .74$ ), regional females ( $M = 1.73, SD = .74$ ),  $t(391) = 2.53, p = .012, d = .21$ ). In 2003 a similar difference was found. Male managers were significantly more positive in rating their technical capability ( $M = 3.85, SD = .72$ ) when compared to female managers ( $M = 3.47, SD = .77$ ),  $t(459) = 3.84, p = .000, d = .38$ .

In sum, technical level findings lend support for a holistic definition of access in terms of perceived technical capability. They further support prior experience as a construct and possible determinant of ICT adoption. The findings go further in that they suggest a “confidence divide” may have existed between and within the samples favouring:

1. Managers of national volunteer programs (electronic sample) over regional programs (paper-based sample);
2. Male managers over female managers.
3. Female managers with ICT experience over inexperienced managers.

*Organizational level.* Organizational size was positively associated with the amount of access managers in the 2001-2002 national sample had to ICT (total access,  $r = .11, p = .04, N = 365$ ; specialty,  $r = .11, p = .04, N = 365$ ). Organizational size was positively associated national volunteer program access to networks,  $r = .44, p = .000, N = 365$ ; fax machines,  $r = .14, p = .007, N = 365$ ; specialty software,  $r = .16, p = .002, N = 365$ ; and websites,  $r = .13, p = .015, N = 365$ . Whereas, volunteer program size was positively associated with access (total,  $r = .27, p = .000, N = 365$  basic,  $r = .17, p = .001, N = 365$  and specialty ICT components,  $r = .24, p = .000, N = 365$ ; individual ICT components: handheld computers,  $r = .20, p = .000, N = 365$ ; cellular phones,  $r = .18, p = .001, N = 365$ ; fax,  $r = .14, p = .009, N = 365$ ; standard,  $r = .20, p = .000, N = 365$ ; and specialty software,  $r = .14, p = .007, N = 365$ ). Interestingly, none of the size variables were significant influences on managers' access to ICT in the regional sample.

In 2003, organization size, as measured by the size of the annual budget was the strongest correlate of managerial access to ICT (total access,  $r = .18, p = .000, N = 462$ ; basic,  $r = .18, p = .000, N = 462$ ; specialty,  $r = .12, p = .000, N = 462$ ; access to individual ICT components (networks,  $r = .38, p = .000, N = 462$ ; fax,  $r = .13, p = .004, N = 462$ ; specialty computer-based software,  $r = .26, p = .000, N = 462$ ; and website,  $r = .15, p = .002, N = 462$ ). Volunteer program size, while positively related to access to some ICT components (e.g. cellular phones  $r = .16, p = .014, N = 462$  and custom design online

volunteer management software,  $r = .19$ ,  $p = .000$ ,  $N = 462$ ) was not significantly associated with overall access measures (e.g. total, basic and specialty ICTs) as it was in 2001-2002.

The opposite finding was true for the relationship with ICT size, the percentage of volunteer program resources (portion of the budget) dedicated to ICT. While not a significant correlate in 2001-2002, ICT size emerged as a significant positive correlate in 2003. The more volunteer programs allocated to ICT out of the budget, the more likely they had access to specialized online volunteer management software,  $r = .22$ ,  $p = .000$ ,  $N = 462$ . The finding that ICT size emerged as a significant factor may suggest that volunteer programs may have started to think about ICT strategically by allocating more resources to ICT in their 2003 budget planning processes than in 2001-2002.

While size was significantly related to the amount of access national managers had to ICT, an obvious question is to what extent or at what point does organization size matter? The findings showed that for national sample organizations, there was evidence of what Meyer (1997) refers to as a “wholesale divide” where larger sized organizations with budgets, on the revenue side, in excess of \$250,000 had significantly more access to ICT than organizations with revenues under \$250,000. For example, managers in the 2001-2002 national sample from larger organizations had significantly more access to networks,  $\chi^2 [1, N=365] = 59.74$ ,  $p = .000$ , hardware including personal computers,  $\chi^2 (1, N=365) = 7.01$ ,  $p = .008$ , handheld computers,  $\chi^2 [1, N=365] = 6.04$ ,  $p = .014$ , and fax machines,  $\chi^2 [1, N=365] = 8.20$ ,  $p = .003$ , as well as access to standard,  $\chi^2 [1, N=365] = 4.58$ ,  $p = .032$ , and specialty volunteer management software,  $\chi^2 [1, N=365] = 7.98$ ,  $p = .005$  than managers from volunteer programs with budgets under \$250,000.

A similar pattern was found with regard to volunteer program size. In the 2001-2002 national sample, large volunteer programs with budgets in excess of 10% of their organizations' annual budget had significantly more access to ICT components including fax machines,  $\chi^2 [1, N=365] = 7.38, p = .007$ , cellular phones,  $\chi^2 [1, N=365] = 13.85, p = .000$  and standard software,  $\chi^2 [1, N=365] = 12.59, p = .000$ . Interestingly, for managers from the regional sample, this pattern was not substantiated. The only significant relationships were negative ones. Regional managers from organizations with budgets under \$250,000 had significantly more access to websites than organizations with budgets in excess of \$250,000,  $\chi^2 [1, N=125] = 3.78, p = .05$ . A similar relationship was found for volunteer program size. Volunteer programs with less than 10% of their budgets allocated to ICT has significantly more Internet software,  $\chi^2 [1, N=365] = 4.48, p = .035$  than larger sized programs. Regional findings may be more typical of voluntary organizations in the sector that have turned to the Internet and other web-based applications as a more cost-effective alternative to conduct the work of the volunteer program than computer-based applications alone can provide (Cooper, 2004).

In summary, the findings show that a "size" divide existed within the national sample of organizations and between the national and regional samples. While size has been discussed as a factor in innovation diffusion (Rogers, 2003) and nonprofit ICT literature (Blau, 2001; Corder, 2001; Meyer, 1997; Watcharasriroj & Tang, 2004), there is a lack of consensus on the nature of its influence. Rogers (2003) acknowledges that organization size and economic factors have been found to have a positive impact on the rate of uptake of innovations in organizations. At the same time, he acknowledges there is a lack of understanding and research on the factors that motivate adoption (p. 408). In

the context of social service organizations, Corder (2001) found size, as measured by the total organization revenue, was not a significant influence on the amount of access social service organizations had to ICT. However, dedicated resources to ICT by funders were. Watcharasriroj & Tang (2004) found the opposite to be true in health care organizations. For these organizations, size (revenue) was a significant factor in the amount of access they had to ICT.

The findings revealed that in the national sample groups, which were considered e-enabled, organization size did matter. However, size was not a significant factor for the regional group that was not e-enabled. What accounts for the variation between these groups? There are several possible explanations for this finding. One is that managers from the national sample who took the time to join Volunteer Canada's VOE recruitment system are more innovative than the regional managers sampled, and that these managers are from large sized organizations. The literature supports this type of association (Rogers, 2003). Using the 2003 data, a positive association was found between managerial perceptions of how accepting of change individuals within the organization are and the level of ICT component access ( $r = .09, p = .05, N = 462$ ). However, the relationship between budget size and acceptance of change was not significant which suggests that managers in the national sample may not have been more innovative.

Another explanation for the differences between the samples is that large sized organizations in the national sample accessed more resources for ICT that were available to voluntary organizations in Canada. At the time of the initial survey, Industry Canada had just completed a two-year mandate equipping 11,152<sup>29</sup> voluntary sector organizations

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<sup>29</sup> VolNet program staff contacted 70,000 (Industry Canada, 2002) of the estimated 175,000 voluntary organizations in Canada. It must be noted that about 45% or 78,000 of organizations consist of registered

in Canada with computer hardware, software (standard and online), Internet access and training support (Industry Canada, 2002). In a review of the Voluntary Network Support Program (VolNet)<sup>30</sup> one of the organization eligibility requirements was annual revenue below \$500,000. While the final report provides a breakdown of participants and type of mission, it does not provide a breakdown of participating organizations and budget size. It may be the case that a higher percentage of the VolNet participants were the larger, known<sup>31</sup> charitable organizations in Canada<sup>32</sup>. If the large organizations in the national samples surveyed were also VolNet recipients, then dedicated resources to ICT by an external funder, not organization size would explain the differences in ICT component access within the national and between the national and regional samples. The implication of this finding, if substantiated, is that the mission of the VolNet program, “to enable voluntary organizations to access and use Internet technologies to further their own missions” (Industry Canada, 2002, p. 2), may have ended up helping large more than smaller organizations. Another implication is that the VolNet program may have created a digital divide between large and small organizations within the sector. However, further research is necessary to substantiate this claim.

Using the 2003 sample, organizational structure variables were also examined for their relationship with ICT access. Consistent with the innovation literature, both

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charities that are larger size organizations (Phillips, 2002). Note Industry Canada’s final report does not show the breakdown of participants by charitable status or by organization size. It would be interesting to know what types of organizations VolNet participants were representative of.

<sup>30</sup> Phillips (2002) reports on the governance aspects of the VolNet program and how the program evolved from a recommendation made by the 1995 Voluntary Sector Roundtable (VSR) to increase the capacity of voluntary sector organizations through ICT.

<sup>31</sup> Canada Customs and Revenue Agency (CCRA) keep a record of all registered charitable organizations in Canada.

<sup>32</sup> Phillips (2002) reports how the VolNet program determined the ICT needs for the sector by reviewing the results of 1997 survey called the Internet Readiness Study. She notes that the survey was not representative of voluntary sector organizations because it included only CCRA registered charities (p.3).

organizational complexity and formalization were associated with the amount of access volunteer programs had to ICT components. The higher the degree of complexity, as measured by the level of specialized training the manager of volunteer resources had (total,  $r = .13$ ,  $p = .007$ ,  $N = 462$ ; basic,  $r = .14$ ,  $p = .003$ ,  $N = 462$ ), or the presence of specialized ICT support (total,  $r = .14$ ,  $p = .003$ ,  $N = 462$ ; basic,  $r = .14$ ,  $p = .004$ ,  $N = 462$ ), the more ICT components the volunteer program had access to. In terms of the level of formalization, the lower the formalization as measured by the level of autonomy the manager perceived in making decisions on the job, the more access the volunteer program had to ICT components (total ICT access,  $r = .09$ ,  $p = .05$ ,  $N = 462$ ). Interestingly, many other organizational structure variables that are commonly associated with innovative organizations (e.g. being part of a network, having loose structures in terms of centralization) were either not significant influences or were found to be contrary to popular belief. These findings are not inconsistent with the innovation diffusion literature as Rogers (2003) reports organizational structure variables can change direction over time depending on the stage of innovation (p. 414).

It may be that another structural variable that has been linked to the level of innovation within an organization – organizational slack – accounts for differences in access within and between the samples. Organizational slack as defined by Rogers (2003) is the amount of resources available to the organization for innovation. Large organizations are thought to be more innovative because they have more slack in their budgets to support the innovation process (Rogers, 2003). In the voluntary sector, it may be that organizational slack can explain the earlier finding that large voluntary organizations have more access to ICT. While there is no way to test this hypothesis, it

seems reasonable to suggest that large voluntary organizations have more access to ICT because they have more slack either from excess resources in their budgets or from accessing government resources (e.g. VolNet). In summary, organizational level findings lend support for the influence organization level variables have on the dependent variable, access in the model.

*Work level.* At the work level, demand for volunteer work was significantly related to volunteer program access to ICT components. In both national sample groups, ICT access was positively associated with demand for volunteer work including the number of volunteers in the volunteer program, the number of volunteer position openings, and the number of enquiries from volunteers in response to available openings. There was a significant positive association between demand for volunteer work as measured by the number of volunteers and enquiries from prospective volunteers about available positions. Simply put, the more volunteers in the volunteer program, the more access national volunteer program managers had to ICT (total access, national 2001-2002,  $r = .21$ ,  $p = .000$ ,  $N = 365$ ; national 2003,  $r = .24$ ,  $p = .000$ ,  $N = 462$ ; specialty access, national 2001-2002,  $r = .23$ ,  $p = .000$ ,  $N = 365$ ; national 2003,  $r = .17$ ,  $p = .000$ ,  $N = 462$ ; basic components, national 2001-2002,  $r = .10$ ,  $p = .005$ ,  $N = 365$ ; national 2003,  $r = .23$ ,  $p = .000$ ,  $N = 462$ ). Similarly, the more enquiries<sup>33</sup> from prospective volunteers (National 2003: total,  $r = .14$ ,  $p = .004$ ,  $N = 461$ ; basic,  $r = .19$ ,  $p = .000$ ,  $N = 461$ ) or number of volunteer position openings, the more access the manager had to ICT components (National 2001-2002: total  $r = .19$ ,  $p = .000$ ,  $N = 362$ ; basic,  $r = .14$ ,  $p = .008$ ,  $N = 362$ ; specialty,  $r = .17$ ,  $p = .001$ ,  $N = 362$ ).

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<sup>33</sup> Enquiries from prospective volunteers to available positions not assessed in the 2001-2002 national group however, volunteer openings was.

In the 2001-2002 regional programs, access to ICT components was associated with demand for volunteer work, but to a lesser extent. The greater the size of the volunteer program as measured by the number of volunteers, the greater the access the regional volunteer program had to ICT components (total,  $r = .24$ ,  $p = .008$ ,  $N = 118$ ). Similarly, the more enquiries from prospective volunteers about available positions, the more access the volunteer program had to specialty ICT components,  $r = .24$ ,  $p = .02$ ,  $N = 99$ , as well as spreadsheet,  $r = .43$ ,  $p = .000$ ,  $N = 102$ , and specialized volunteer management software,  $r = .24$ ,  $p = .017$ ,  $N = 100$ .

Similar to the question raised at the organizational level, survey responses were analyzed to determine to what extent demand for volunteer work was related to the amount of ICT components managers had access to in their volunteer programs. The findings showed there was a positive association between demand for volunteer work and ICT component access. More specific findings reveal similarities between the samples. In 2001-2002 managers from regional volunteer programs with more than 75 volunteers had significantly more access to the Internet than managers from programs with less than 75 volunteers,  $p = .05$  (Fisher's Exact Test,  $N = 121$ ) and specialty volunteer management software,  $\chi^2 [1, N=118] = 4.69$ ,  $p = .030$ . For the 2001-2002 national program a similar relationship was found with managers from volunteer programs with more than 50 volunteers having significantly more access to networks,  $\chi^2 [1, N=365] = 32.125$ ,  $p = .000$ , and specialized volunteer management software,  $\chi^2 [1, N=365] = 20.45$ ,  $p = .000$ . National managers from volunteer programs with more than 75 volunteers were significantly more likely than volunteer programs with less than 75 volunteers to have access to a website for use in the volunteer program,  $\chi^2 (1, N=365) = 7.03$ ,  $p = .008$ .

Volunteer programs with more than 100 volunteers were the most likely to have access to Internet-based software  $\chi^2 (1, N=365) = 6.71, p = .01$ .

In 2003, a similar pattern emerged. National managers from volunteer programs with more than 50 volunteers had significantly more access to ICT components including more hardware,  $\chi^2 (3, N=462) = 11.62, p = .009$ , network,  $\chi^2 (1, N=462) = 8.22, p = .016$ , custom software,  $\chi^2 (1, N=462) = 19.83, p = .000$  and website access,  $\chi^2 (1, N=462) = 16.66, p = .000$ . These findings suggest that as the demand increases for volunteer work, so too does access to ICT components. The findings indicate that volunteer programs in excess of 50 volunteers have the most demand for ICT components and programs in excess of 75 for specialized volunteer management software.

*Group level.* At the group level, involvement in training provided by the voluntary organization had a significant positive relationship with access in the 2003 national sample. Of all the types of training assessed (vendor, volunteer centre, college, etc), the more managers participated in ICT organizational training, the more access the volunteer program had to ICT (total,  $r = .14, p = .000, N = 461$ ; specialty,  $r = .13, p = .005, N = 461$ ). While active involvement in training was not included in the 2001-2002 sample surveys, training as a barrier to ICT use was. The perception that national and regional managers lacked access to training was not significantly associated with access to ICT suggesting that lack of ICT training was not perceived as a barrier to ICT access.

A positive association was found between participation in ICT decisions and ICT access. The more managers from the 2003 national group participated in ICT organizational decisions and felt a sense of ownership for them, the more access they had to specialty types of ICT components,  $r = .12, p = .013, N = 462$ .

There was a similar association with ICT support. The 2001-2002 regional and national sample findings suggest a relationship between access and ICT support. In the regional group, while technology support was not significantly associated with total access to ICT components, regional managers with more tech support had significantly more access to specialized ICT components,  $r = .21$ ,  $p = .03$ ,  $N = 118$  and volunteer management software more specifically,  $\chi^2 [1, N=115] = 5.24$ ,  $p = .022$ . In the 2001-2002 national group, managers with access to ICT support, also had significantly more access to ICT,  $r = .14$ ,  $p = .008$ ,  $N = 364$  as well as specialty ICT,  $r = .12$ ,  $p = .02$ ,  $N = 364$ . Other ICT components national managers with ICT support had access to, over those without support, included more specialized volunteer management software,  $\chi^2 [1, N=364] = 13.83$ ,  $p = .000$ , network access,  $\chi^2 [1, N=364] = 44.40$ ,  $p = .000$  and website for use in the volunteer program,  $\chi^2 [1, N=364] = 3.79$ ,  $p = .05$ .

Similarly, managers from the 2003 sample who had access to ICT support had significantly more access to ICT components including, network  $\chi^2 [1, N=462] = 58.53$ ,  $p = .000$ , and computer-based volunteer management software,  $\chi^2 [1, N=462] = 9.95$ ,  $p = .002$ , than managers without ICT support. These findings suggest that technology support is positively related to the amount of access managers had to ICT. The finding lends support for the ICT access construct and the role social support plays in motivation to adopt ICT (Warschauer, 2003). The more access volunteer programs have to social support, in the form of access to technical support personnel, the more likely the volunteer program would be early adopters of ICT.

*Psychological level.* In 2001-2002, regional managers with positive expectations surrounding the usefulness of ICT in volunteering were significantly more likely to have

more access to ICT components than managers with negative expectations (total access  $r = .20$ ,  $p = .02$ ,  $N = 95$ ; basic access,  $r = .21$ ,  $p = .04$ ,  $N = 97$ ). In the 2001-2002 national sample, perceptions of ICT usefulness in volunteering were positively associated with ICT access (total access,  $r = .13$ ,  $p = .016$ ,  $N = 365$ ; basic access,  $r = .11$ ,  $p = .04$ ,  $N = 365$ ; specialty,  $r = .12$ ,  $p = .017$ ,  $N = 365$ ). The more positive the manager felt about the usefulness of ICT in volunteering, the more access the volunteer manager had to ICT components.

In 2003, a similar relationship was found. The more positive managers were about the usefulness of ICT applications (as measured by how important, relevant, fundamental, interesting, appealing ICT is), the more access the volunteer program had to ICT components (total  $r = .14$ ,  $p = .003$ ,  $N = 462$ ; specialty,  $r = .12$ ,  $p = .01$ ,  $N = 462$ ; basic,  $r = .09$ ,  $p = .05$ ,  $N = 462$ ). These findings, which are consistent with the ICT acceptance (e.g. Davis, 1989) and ICTe literature (e.g. Seddon & Kiew, 1994; Seddon 1995; 1997), lend considerable support for the attitudes and expectations construct in the model.

Manager perceptions of the impact of ICT on the volunteer program were also associated with ICT access. In the 2001-2002 national sample, the more the manager perceived ICT had a positive impact on the volunteer program in terms of reducing the cost and increasing the productivity, efficiency and service quality of the volunteer program, the more access to ICT the volunteer program had to ICT,  $r = .17$ ,  $p = .001$ ,  $N = 365$  and specialty components,  $r = .23$ ,  $p = .000$ ,  $N = 365$ . Specific components that were associated with manager perceptions of ICT impact were: access to networks,  $r = .19$ ,  $p = .000$ ,  $N = 365$ , handheld computers,  $r = .13$ ,  $p = .012$ ,  $N = 365$ , cellular phones,  $r = .12$ ,  $p = .023$ ,  $N = 365$ , specialty,  $r = .20$ ,  $p = .000$ ,  $N = 365$  and internet-based software  $r = .12$ ,  $p$

=.022,  $N = 365$ . In the regional sample, the more managers perceived ICT had a positive impact on the volunteer program, the more ICT components the volunteer program had access to (total,  $r = .38$ ,  $p = .000$ ,  $N = 98$ ; basic,  $r = .30$ ,  $p = .002$ ,  $N = 101$ ; specialty,  $r = .20$ ,  $p = .05$ ,  $N = 102$ ).

In the 2003 national sample, the more positive managers were about the impact ICT had on the volunteer program, the more access the volunteer program had (total,  $r = .15$ ,  $p = .001$ ,  $N = 462$ ; basic,  $r = .16$ ,  $p = .001$ ,  $N = 462$ ; specialty,  $r = .10$ ,  $p = .03$ ,  $N = 462$ ). There was also a positive association between perceptions of impact and the stage of e-business or level of e-connectivity of the volunteer program website. The greater the perceived impact of ICT on the volunteer program, the greater the level of e-connectivity,  $r = .14$ ,  $p = .007$ ,  $N = 367$ . While the direction of causality in the relationship can go either way, these findings lend support for the expectations of benefits construct as well as the cycle of feedback depicted in the model. For example, as the perception that ICT use resulted in positive impacts increased, so did the level of access. This finding may suggest that motivation to adopt ICT is cyclical translating into future access and higher levels of innovation (e.g. more and newer types of ICT influence progression to additional stages of transformation).

#### *Factors associated with manager use of ICT*

The findings show that there was variation in the use of ICT by managers in volunteerism. Factors that are associated with uses of ICT<sup>34</sup> were examined at different

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<sup>34</sup> Use of ICT for the 2001-2002 regional and national samples will be analyzed using the typology where 1 is no use of ICT to fill volunteer opportunities or have volunteer work performed, 2 is use of ICT to fill opportunities, but volunteer work is performed traditionally, 3 is work is filled traditionally and performed using ICT and 4 is complete adoption where ICT is used by the manager to fill volunteer opportunities and

levels of analysis using the regional and national sample groups<sup>35</sup>. Table 24 shows significant relationships at the  $p \leq .05$  confidence level.

Table 24

*Factors Related to Use of ICT by Managers of Volunteer Resources (MVRs)*

Level/ Construct/ Variable	2001-2002	2001-2002	2003
	<i>Regional</i>	<i>National</i>	<i>National</i>
	ICT Use	ICT Use	ICT use
	fill volunteer positions and have work performed (VfVp) (N=124)	fill volunteer positions; have work performed (VfVp) (N=365)	share tasks at a distance (email; N = 462); find volunteers (VOE; N=127)
<i>Technical Level</i>			
ICT Access			
ICT components		X***+	X*+ (email)
Technical capability		X*+	X***+ (email)
Prior Experience			
Experience (Time)	X*+	X*+	X*+
Stage of VP website connectivity		X***+	

to where volunteer work can be performed at a distance using ICT. The typology will not be used for the 2003 national group because virtual volunteering was not included in the 2003 survey. The dependent variables for this group were: use email to share tasks at a distance with volunteers and colleagues and of the VOE online recruitment system.

<sup>35</sup> The 2003 survey of managers contained more independent variables at the six levels of analysis while, the 2001-2002 surveys included fewer variables at the individual, organizational and work levels.

Table 24 (continued)

	<i>2001-2002</i>	<i>2001-2002</i>	<i>2003</i>
	<i>Regional</i>	<i>National</i>	<i>National</i>
Email use (Vol man volunteers)	X*+	X*+	X****+ (VOE)
<i>System Quality</i>			
ICT easy to learn	n.a.	n.a.	X****+ (email)
ICT system quality	n.a.	n.a.	X*+ (email)
ICT system capacity	n.a.	n.a.	X****+ (email)
ICT Satisfaction	n.a.	n.a.	X****+ (VOE)
<i>Organizational Level</i>			
<i>Organization</i>			
<i>Environment</i>			
Vol. Budget			X**+ (email)
ICT Budget			X*+ (email)
<i>Work Level</i>			
<i>Program Environment</i>			
Volunteer Placements		X*+	
Volunteer leadership	X*+	n.s.	n.a.
Volunteer Office	X*+	X****+	n.a.
Volunteer Business		X****+	n.a.
Volunteer Coord.	n.a.	X****+	n.a.
Volunteer Fundraising		X**+	n.a.

Table 24 (continued)

	2001-2002	2001-2002	2003
	<i>Regional</i>	<i>National</i>	<i>National</i>
Satisfaction	X****+	X****+	n.a.
VV work			
Perception of ICT impact on VP		X*+	X*** (email)
<i>Group Level</i>			
Involvement			
Participation in VOE	n.a.	n.a.	X****+ (VOE)
Participation in ICT decisions	n.a.	n.a.	X*** + (email)
Participation in organizational decisions	n.a.	n.a.	X*** + (email)
Organizational ICT training	n.a.	n.a.	X*** + (email)
<i>Psychological Level</i>			
Demands			
Job stress	n.a.	n.a.	X*+ (email)
Expectations of Benefits			
Perceived usefulness (ICT) in volunteering	X****+	X****+	n.a.
Perceived usefulness ICT	n.a.	n.a.	X****+ (email)
Perceived usefulness of VOE	n.a.	n.a.	X****+ (VOE)

“+” Indicates positive association; “-” indicates negative association, “X” indicates significant association

\* Significant at  $p \leq .05$ ; \*\* significant at  $p \leq .01$ , \*\*\* significant at  $p \leq .001$

n.a. indicates variable does not apply to sample; Blank cell indicates insignificant association.

*Personal level.* Similar to the amount of access managers had to ICT in their volunteer programs, one possible explanation for differences in use of ICT by managers (e.g. few managers were completely virtual in 2001-2002 and only 27% of managers made use of the VOE application in 2003) is that some volunteer programs may be “pre-disposed” to using ICT because their managers possess certain characteristics (e.g. age, gender, and education). Interestingly, no characteristics at this level were associated with use of ICT in volunteerism by managers in the samples.

*Technical level.* At the technical systems level, the easier ICT systems were to learn, the more likely managers in the 2003 sample used email to share tasks,  $r = .25$ ,  $p = .000$ ,  $N = 462$ . The quality and capacity of ICT systems in the volunteer program were other possible influences. The higher capacity and quality of the system, the more likely email was used to share tasks (quality,  $r = .1$ ,  $p = .04$ ,  $N = 462$ ; capacity,  $r = .14$ ,  $p = .003$ ,  $N = 462$ ). While the quality and capacity of available ICT systems in the volunteer program were not a factor in the adoption of the VOE, satisfaction with the VOE application was positively associated with the level the VOE was used,  $r = .70$ ,  $p = .000$ ,  $N = 128$ .

Another factor was the amount of access the manager had to ICT. In the 2001-2002 national sample, the more physical access to ICT components, the more likely the volunteer manager used ICT methods to fill volunteer positions and have virtual types of positions,  $r = .19$ ,  $p = .000$ ,  $N = 364$ . Similarly, the higher the level of e-business (the ways that websites were used to facilitate the work of the volunteer program, from simple information hosting to integrated databases), the more ICT was used by the manager in volunteerism,  $r = .16$ ,  $p = .002$ ,  $N = 364$ .

Feelings of capability in using computers and perceptions of ICT usefulness in volunteering were both positively related to the use of ICT by 2001-2002 managers. In the 2001-2002 national group, managers who were the most positive about their feelings of capability in using computers were significantly more likely to have used ICT to fill openings and have virtual volunteer work performed,  $r = .12, p = .02, N = 364$ . In 2003, managers with positive perceptions of their technical capability in using ICT were significantly more likely to have used email to share tasks with volunteers and colleagues from a distance,  $r = .24, p = .000, N = 462$ .

Another positive factor with ICT use was prior experience with ICT. The more email was used to manage volunteers in 2001-2002, the more virtual the volunteer manager was (regional,  $r = .21, p = .05, N = 91$ ; national,  $r = .11, p = .04, N = 364$ ).

The same pattern of association was found in the 2003 manager group with respect to use of the VOE application. The more email was used to manage volunteers in the volunteer program, the more likely the manager also used the VOE to recruit volunteers,  $r = .39, p = .000, N = 462$ . These findings lend support for Fountain's (2001) claim that higher levels of ICT use are associated with higher levels of task transformation. They also provide support for the feedback loop in the model and the "cycle of use" concept. The more experience with ICT the more motivation to adopt new ICT applications in volunteerism.

*Organizational level.* At the organizational level, while hard factors, such as the size of the organization, volunteer program, and ICT budget were associated with the amount of access managers had to ICT, few of these factors were significantly related to the use of ICT by managers in the volunteer program. There were no significant

organizational relationships found in the 2001-2002 regional and national groups with respect to the use of ICT by managers to find and have volunteer work performed. In the 2003 group, organizational factors were not found to be significantly related to the use of the VOE application; however, there was a positive association with regard to the use of email. The more financial resources allocated to the volunteer programs out of the annual organization budget, the more email was used by the manager to share tasks,  $r = .12$ ,  $p = .01$ ,  $N = 462$ . The same relationship was found for financial resources allocated to ICT out of the volunteer program budget; the more ICT budget, the more email was used for collaboration  $r = .11$ ,  $p = .02$ ,  $N = 462$ . With regard to 'soft' organizational factors, the more job autonomy the manager perceived, the more email was used in the volunteer program to share tasks,  $r = .17$ ,  $p = .000$ ,  $N = 462$ .

For use of the external VOE application, there were no organizational level influences. This finding is not surprising given that the VOE application is a Web-service application that was generated external to the organization (e.g. Volunteer Canada designed and produced the VOE for volunteer managers).

*Work level.* At the work level, size of the volunteer program was not significantly related to the use of ICT by managers however; demand for volunteers was. In the 2001-2002 national group, the more volunteers placed into the volunteer program by the manager, the more ICT was used by the manager,  $r = .11$ ,  $p = .04$ ,  $N = 360$ . Likewise, the more virtual volunteers were placed into the national volunteer program, the more likely the manager had used the VOE online recruitment system to make contact with them about a position,  $r = .23$ ,  $p = .02$ ,  $N = 106$ . Enquiries from virtual volunteers about available positions were another positive factor,  $r = .21$ ,  $p = .03$ ,  $N = 112$ .

In the 2001-2002 regional group, the more volunteers performed leadership roles,  $r = .21, p = .02, N = 123$ , or assisted with office tasks,  $r = .24, p = .009, N = 123$ , the more ICT was used by the manager to fill volunteer openings and have volunteer work performed. In the national group, the more volunteers performed business,  $r = .14, p = .006, N = 364$ , office,  $r = .19, p = .000, N = 363$ , coordination,  $r = .16, p = .002, N = 364$ , and fundraising tasks,  $r = .16, p = .002, N = 364$  in the volunteer program, the more ICT was used by the manager. These findings support the hypothesis that as the demand for volunteer work where ICT is likely to be used increases, so too does the use of ICT by managers.

In 2003, managers who perceived their jobs as the most demanding (having to work fast, hard, and an excessive amount), were the most likely to use email the most often,  $r = .11, p = .02, N = 462$ . This finding follows a pattern similar to ICT access.

Satisfaction with virtual volunteer work was also associated with the use of ICT by the manager in both the 2001-2002 national and regional samples. The more virtual volunteers had been used successfully by the manager in the volunteer program, the more virtual the manager, (regional,  $r = .68, p = .000, N = 101$ ; national,  $r = .74, p = .000, N = 364$ ). This finding lends support for the relationship between met expectations and ICT use behaviour.

Experience of the manager in the position of manager of volunteer resources was another related factor. Analysis of survey responses showed 2001-2002 national sample managers who were newer to the management position (less than 5 years) were the most "virtual",  $r = -.15, p = .004, N = 365$ .

*Group level.* At the group level<sup>36</sup>, participation of the manager in the development, training and evaluation of the VOE application was positively associated with the uptake of it by managers in the 2003 sample,  $r = .23, p = .000, N = 462$ . Participation of the manager in ICT decisions and feelings of ownership over them, was also correlated with use of email to share tasks at a distance with volunteers and colleagues,  $r = .27, p = .000, N = 462$  as was participation in organizational decisions,  $r = .22, p = .000, N = 462$ . These findings are not surprising given that innovative organizations are often found to be more participatory in making technological decisions and in implementing them than organizations that are not considered innovative (Rogers, 2003). These findings suggest that the greater the level of social participation in new ICT applications and in organizational decisions, the more likely new ICT applications like the VOE will be adopted and general applications like the email, will be used by managers. In the innovation diffusion literature, involvement acts as a form of social persuasion which is thought to be a significant factor in the diffusion of innovations (Rogers, 2003). In the organizational behaviour literature, social persuasion is considered a motivational force (Bandura, 1986).

Participation in training was positively associated with use of ICT by managers. The strongest correlation was between the amount of training the manager received from the organization and the use of email,  $r = .16, p = .000, N = 462$ . Training that was provided by a vendor, the national volunteer association (e.g. Volunteer Canada), or was self-directed were also positive influences on email use (vendor,  $r = .14, p = .003, N = 461$ ; national volunteer centre (Volunteer Canada,  $r = .1, p = .03, N = 461$ ; self-motivated,  $r = .1, p = .04, N = 461$ ). Participation in new ICT applications is one of the most talked

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<sup>36</sup> Assessed in the 2003 sample of managers only.

about, but one of the least understood, influences on ICT effectiveness. Within the adoption literature, it has been linked to the acceptance (e.g. Barki & Hartwick, 1994; Taylor & Todd, 1995a; Ghee-Young, 1998), diffusion (Rogers, 2003), and effectiveness of new ICT applications (Tan & Teo; Seddon & Kiew, 1994); however, the nature of the role is not well understood. In the case of new ICT applications like the VOE, participation (e.g. in their development, implementation and evaluation) is a form of social persuasion that is positively related to the adoption through feelings of self-efficacy (Bandura, 1986). According to Bandura, beliefs about one's capability to perform a given action are influenced through a "complex process of self-persuasion" (p. 1179). According to Rogers (2003), "the persuasion stage" is at the time when attitudes are being formed about the innovation (p. 175). In the case of the new online VOE application, participation in the application may have positively influenced the perception that the manager was capable of using the new application as well as the perceptions the manager had of its capability in facilitating the task of volunteer recruitment.

The finding that participation in organizational decisions was positively associated with the use of email to share tasks suggests the association may be a result of social modeling of collaborative behaviour within the organization. According to Rogers (2003), the uptake of an innovation is a social process that begins with knowledge about the innovation then progresses through a process of persuasion in which attitudes are formed about the innovation, then decision-making surrounding engagement in it, followed by acceptance and use, then continued use through a process of confirmation (p. 170). Participation of the manager may provide confirmation to the manager which may have a positive association with the adoption of the innovation.

*Psychological level.* At the psychological level, attitudes were the strongest correlate of manager use of ICT. In the 2001-2002, the more positive the manager was about the perceived usefulness of ICT in volunteering, the more virtual the manager was (regional,  $r = .55$ ,  $p = .000$ ,  $N = 101$ ; national,  $r = .53$ ,  $p = .000$ ,  $N = 364$ ).

In 2003, a number of psychological measures were included in the questionnaire that assessed a variety of perceptions about ICT usefulness. One measure, which was empirically tested by Seddon and Kiew (1994) and initially developed as a measure of user involvement by Barki and Hartwick (1989), assesses the “psychological value” the user places on ICT.<sup>37</sup> Another, which was developed based on the work of Franz and Robey (1986), assesses the perceived usefulness of an ICT application. Analysis of survey responses showed that perceptions of the value placed on ICT by the user was not significantly associated with the use of the VOE online recruitment application by managers. While the general measure of ICT usefulness was not significant, the analysis did show that it was significantly associated with general use of email to manage volunteers ( $r = .21$ ,  $p = .000$ ,  $N = 462$ ). For VOE users, Robey’s measure of ICT expectations surrounding the perceived usefulness of the VOE application was significantly and positively associated with manager use of the VOE. The more positive the perception of VOE usefulness, the more the VOE was used by the manager,  $r = .79$ ,  $p = .000$ ,  $N = 462$ .

In 2001-2002, managers’ perceptions about the impact of ICT on the volunteer program were positively associated with their use of ICT. In the 2001-2002 national group, the greater the perceived impact of ICT on the volunteer program, the greater the

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<sup>37</sup> Psychological value is a measure comprised of how important, relevant, fundamental, interesting, appealing and fascinating the user perceives ICT.

use of ICT by the manager in filling volunteer work and having it performed virtually,  $r = .12$ ,  $p = .02$ ,  $N = 364$ .

In 2003, the greater the perceived impact of ICT on the volunteer program, the greater the use of email to share tasks with those connected to the program (e.g. volunteers and colleagues),  $r = .14$ ,  $p = .002$ ,  $N = 462$ . While general impacts were not significantly associated with uptake of the VOE, perceived impacts of the VOE on the volunteer program were positively related to the extent to which managers, who had adopted the VOE, used it compared to their original expectations,  $r = .73$ ,  $p = .000$ ,  $N = 462$ .

Several inferences can be made from psychological level findings. The finding that managers who perceived ICT applications to be useful in meeting the demands of their job, were more likely to use them, is consistent with the technology adoption and ICTe literature. These findings lend support for the expectations construct and the role attitudes play in motivating ICT use behaviour (DeSanctis and Poole, 1994; Tait and Vessey, 1988).

With regard to the “use of” measure for the VOE application, general perceptions of the usefulness of ICT were found not to be significantly related to the uptake of it. This finding is not surprising given these measures were of a general nature and not specific to the VOE application. This finding raises the issue of use of psychological measures and ICT usage patterns. For example, for a general purpose ICT that has been widely adopted, like email, a general psychological measure of usefulness such as Barki and Hartwick’s involvement scale is appropriate. For ICT applications like the VOE, that are very specialized, and have not been widely adopted, Franz and Robey’s measures of

perceived usefulness of the application were more appropriate. While considerable debate has occurred in the ICTe literature concerning a lack of standard measures, there is some agreement that different usage contexts will require different measures of effectiveness (Seddon et al, 1999, p. 166). The findings clearly support there should be at least two types.

Table 25 provides a summary of the results in relation to the hypotheses (bivariate) stated in Table 1 on page 68. At each level of analysis, the hypothesis has been re-stated and support is indicated for access to and use of ICT by volunteer and manager groups. The hypothesis is supported if the relationship achieved a level of significance of  $p \leq .05$  in one or more of the sample groups.

Table 25

*Summary of Bivariate Hypotheses and Results*

Level of Analysis	Hypothesis	ICT Access		ICT Use	
		Volunteer Support	Manager Support	Volunteer Support	Manager Support
Personal level	• <i>The greater the level of education, the greater the level of ICT adoption.</i>	No	No	No	No
	• <i>Males will be predisposed to ICT adoption.</i>	No	Yes	No	No
	• <i>Individuals in the workforce will be predisposed to ICT adoption.</i>	Yes	n.a.	No	n.a.

Table 25 (continued)

Level of Analysis	Hypothesis	ICT Access		ICT Use	
		Volunteer Support	Manager Support	Volunteer Support	Manager Support
Technical Level	• <i>The greater the motivation/need for ICT, the greater the adoption.</i>	Yes	n.a.	Yes	n.a.
	• <i>The greater the level of ICT access, the greater the level of ICT adoption.</i>	Yes	Yes	Yes	Yes
	• <i>The greater the perception that ICT is easy to use, the greater the adoption of ICT.</i>	n.a.	No	n.a.	Yes
	• <i>The greater the satisfaction with ICT, the greater the adoption.</i>	n.a.	No	n.a.	Yes
Organization Level	• <i>The greater the experience with ICT, the greater the adoption.</i>	Yes	Yes	n.a.	Yes
	• <i>The more organizational resources and support, the greater the adoption.</i>	n.a.	Yes	n.a.	No
	• <i>The greater the perceived impact of ICT, the greater the adoption.</i>	n.a.	Yes	n.a.	Yes
Work Level	• <i>The greater the demand for volunteers/work, the greater the level of ICT adoption.</i>	Yes	Yes	Yes	Yes
Group Level	• <i>The greater the level of participation in ICT, the greater ICT adoption.</i>	n.a.	Yes	n.a.	Yes

Table 25 (continued)

Level of Analysis	Hypothesis	ICT Access		ICT Use	
		Volunteer Support	Manager Support	Volunteer Support	Manager Support
Psychological Level	<ul style="list-style-type: none"> <li>• <i>The more barriers, the less likely ICT will be adopted.</i></li> </ul>	No	No	Yes	No
	<ul style="list-style-type: none"> <li>• <i>The more negative the reaction to ICT, the less likely ICT will be adopted.</i></li> </ul>	n.a.	No	n.a.	No (+)
	<ul style="list-style-type: none"> <li>• <i>The greater the expectations, the greater the adoption.</i></li> </ul>	No	Yes	Yes	Yes

*Research question #4: Why are some volunteers and managers motivated to use ICT methods in their work and not others?*

The approach to solving the research problem has, until this point, been one of understanding how much and in what ways volunteer and managers are making use of ICT in their work, as well as what types of factors were associated with access and usage. The finding that use is associated with more than just access to ICT lends support for use as a multidimensional construct. However, to fully understand why some volunteers and managers are making more work-related use of ICT than others requires a theory that accounts for the role the factors play in the motivation to adopt ICT process.

As discussed in the literature review of ICT effectiveness in the voluntary sector, Seddon's (1995) adaptation of the DeLone and McLean (2002) model showed the most promise because it incorporated a socio-technical (ST) dimension by building elements of

expectancy theory into the model in the form of “expectations of benefits from future IS use” (Seddon, p. 10). However, a review of the literature following the second phase of the research revealed Bandura’s social cognitive theory (SCT) to be a more robust theory of human motivation for explaining ICTe. Specifically, SCT is a more appropriate theoretical framework than expectancy theory alone for several reasons.

1. It includes an expectancy dimension and independent variable influences that shape expectancy.
2. It closely matches the construct dimensions identified as important in a voluntary sector model, thereby providing a form of validation for the model.
3. It is more capable than expectancy theory alone of providing a broad explanation of both the variance in effectiveness and the DED phenomenon.
4. There is wide support for this framework in the ICT literature (e.g., Compeau & Higgins, 1995; Compeau, Higgins, and Huff, 1999; Hartzel, 2003; Henry & Stone, 1995; Lending & Dhillon, 2004; Tillquist, 1996, p.107; Venkatesh & Davis, 1996).

SCT postulates that what people believe about their capability to perform a given action (i.e., feelings of “self-efficacy”) rather than objective measures of capability influence their motivation to engage in the action. Although there is some disagreement about how the theory should be applied in the ICT context, support for its use has grown in recent years. Moreover, even though other theories exist that explain the motivation to adopt ICT by user intentions (e.g., the theory of planned behaviour), SCT is a more suitable choice because it contains many of the same variables (independent, mediating,

and dependent) empirically identified as important in the ICT adoption, innovation diffusion, and ISS literature.

The purpose of this fourth section of the findings is to empirically test SCT as a theoretical framework for explaining ICT adoption in volunteerism. Thus, Bandura's social cognitive theory (SCT) is applied to the findings and constructs from previous sections to produce a causal model of ICT adoption in volunteerism for manager and volunteer user groups (see Figures 7 and 8 below).

In the model as it applies to managers of volunteer resources (hereafter referred to as "the manager model"), expectations about future benefits associated with the use of ICT (ICT efficacy expectations) ( $z$ ) directly influence the dependent variables ( $y$ ) with regard to the use and perceived effectiveness of a new ICT application to recruit volunteers-the Volunteer Opportunities Exchange (VOE).. The dependent variables ( $y$ ) are defined on three levels: (a) individual use of ( $y_1$ ) and satisfaction with ( $y_2$ ) the VOE application; (b) outcome expectancies met ( $y_3$ ) or perceptions that benefits have resulted from use of the VOE; and (c) organizational impacts that measure the extent to which individuals have adopted similar methods (third party recruitment) in their work ( $i_1$ ) and have also motivated others to use the application (social level of impact) ( $i_2$ ).

In the model as it applies to traditional volunteers (hereafter referred to as "the volunteer model"), two mediating variables are included: feelings of self-efficacy or capability in using computers ( $z_1$ ) and ICT efficacy expectations surrounding the usefulness of ICT in volunteering ( $z_2$ ). The dependent variables include use of ICT in volunteerism (i.e. to having used ICT to find work and perform it in their current

volunteer positions) (y1) and a general measure of use of ICT by the volunteers in personal, business, volunteering, and other situations (y2).

Whereas the mediating variables (z) directly influence the dependent variables (y), efficacy expectations are also shaped by a number of independent variable influences (x) (see Figures 7 and 8). According to SCT, the independent variables (x) that influence feelings of efficacy (z) fall within four dimensions (see 1–4 below). To expand the theoretical framework, four further variables have been added to produce a possible eight dimensions:

1. *Mastery experience* or previous experience performing a given behaviour or related behaviour;
2. *Vicarious experiences* gained through modeling of the behaviour by others within the social environment;
3. *Social persuasion* such as participation in training and development activities specific to the behaviour;
4. *Psychological and physical influences* that interfere with motivation, such as feelings of job stress and barriers that inhibit behaviour;
5. *Personal background characteristics* such as demographic characteristics that may predispose an individual to adoption of new ICT (e.g., because of gender, age, or education);
6. *Technical systems influences* including characteristics related to ICT, such as the quality and capacity of the system or application;
7. *Organizational influences* including “hard” and “soft” characteristics like financial resources and organizational support; and

8. *Work influences* such as position type, job experience, and personal preferences.

Even though the constructs within each model follow the same theoretical pattern, the manager and volunteer models differ in terms of the number of dimensions represented because of the context in which ICT use was assessed. For example, the manager model represents use of Volunteer Canada's VOE online application to recruit volunteers, whereas the volunteer model represents both general use of ICT by volunteers and specific use related to having found and performed work in their current volunteer position.

Just as the context and models differ, so too does the extent to which they can be tested. The volunteer model represents only a partial test of SCT because, owing to the absence of measures of effectiveness in the 2001–2002 traditional volunteer dataset, dependent variables are confined to individual use of ICT. The manager group, on the other hand, allows for a more complete test of the theory because the 2003 manager sample included measures of effectiveness.

The primary reason that testing of the model is incomplete is the inductive nature of the study. The study began as a simple descriptive investigation into what type of and how much ICT volunteers and volunteer program managers in Canada were making use of in their work. However, following data analysis and during a 2003 follow-up investigation in which expectancy theory was explored as a means to explain why new ICT applications were being adopted and used by some managers but not others, the research began to take on a more deductive approach. Subsequently, in 2004, during analysis of the 2003 follow-up data, SCT was identified as a more robust theory for explaining motivation to adoption new ICT in volunteerism beyond the attitudinal level

(i.e., that of expectations). More specifically, the theory provides a theoretical basis for the inclusion of independent variables that influence the attitudes and expectations individuals have.

Though SCT is hypothesized to be a more appropriate theoretical framework, applying it after the fact has its limitations. First, the variables had to be fitted into the framework rather than vice versa as is usually the case in deductive research designs. Additionally, in some cases, the measures used were not ideal and are approximations. In others, no measures were collected at all, thereby limiting the extent to which the theory could be tested. Despite these limitations, the evidence lends considerable support for SCT as a theoretical framework to explain motivation to adopt ICT in volunteerism.

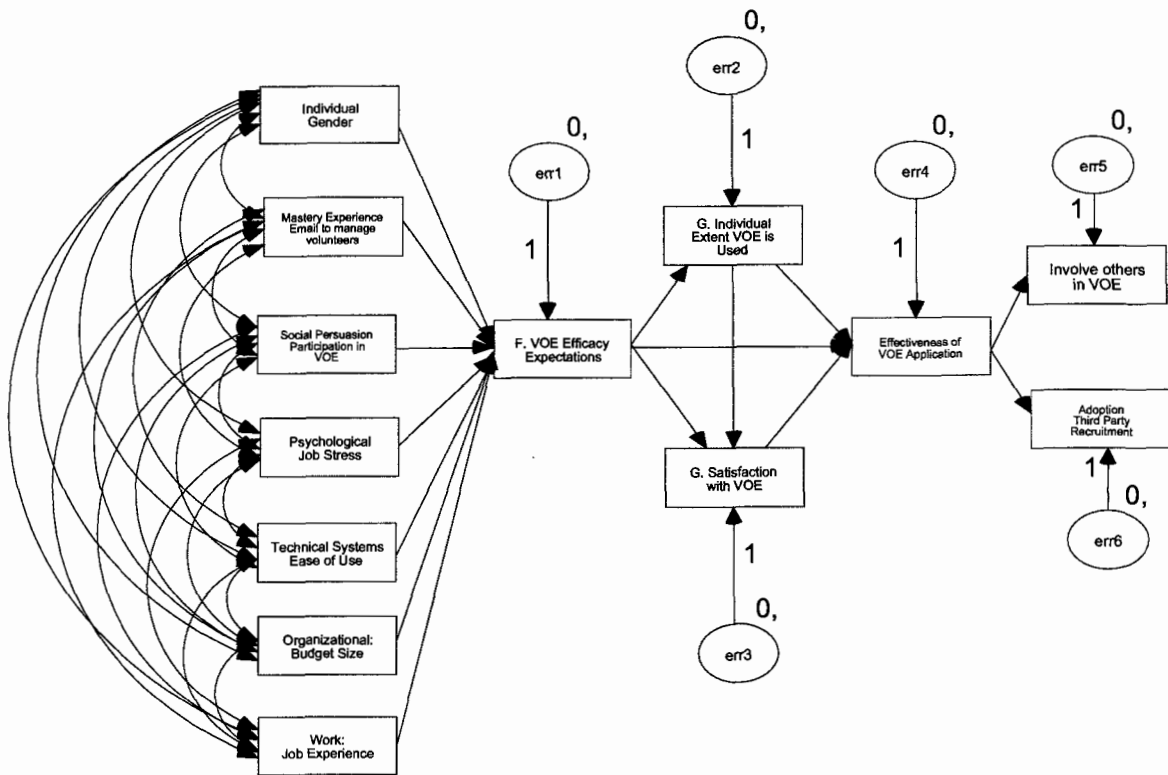


Figure 7. The manager model

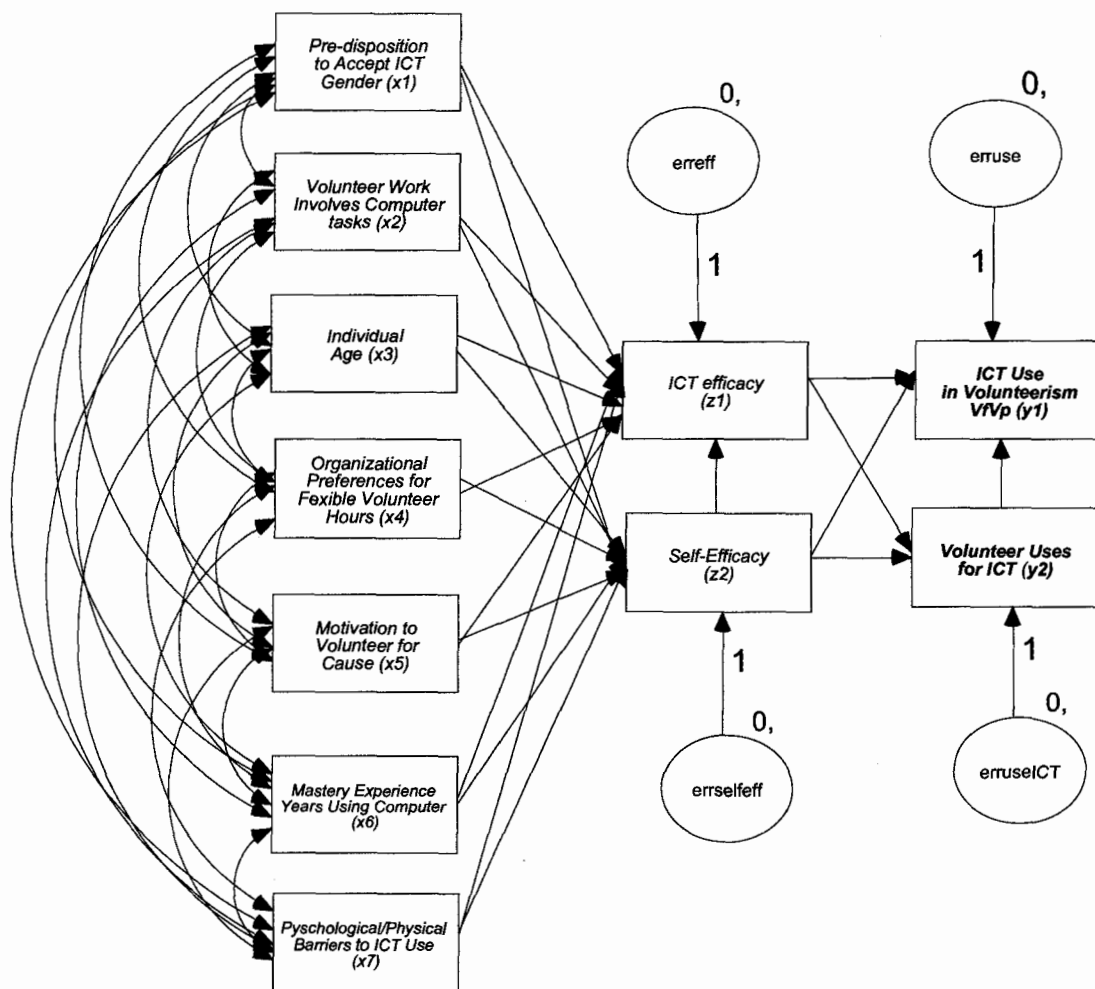


Figure 8. The volunteer model

### *Data Analysis*

Survey responses were analyzed using structural equation modeling (SEM), which Schumaker (2005) described as a statistical analytic technique used to test multivariate theoretical models, as well as hypothesized relationships between variables. In addition to model and hypotheses testing, SEM allows for the testing of parameters within a model. For example, for this research, in cases of multiple representations of theoretical constructs, SEM was used to statistically determine the best representations of the observed variables. This procedure was used because there was no a priori way of determining which representation was the most important.

The statistical software program used for the SEM statistical tests was AMOS 5.0, which Schumaker (2005) suggested is an appropriate software program for SEM and the testing of complex multivariate theoretical models because it is programmed to recognize issues that threaten the reliability and validity of observed scores (e.g., impact of missing data, outliers, nonnormality of range).

To determine model fit, goodness-of-fit (GOF) criteria were assessed, including chi-square ( $\chi^2$ ), normed fit index (NFI), and root mean square error estimate of approximation (RMSEA) statistics (Arbuckle, 2003; Loehlin, 1998; Schumaker & Lomax, 1996). Generally, a chi-square value that is nonsignificant ( $p > .05$ ) indicates that the data fit the model (Arbuckle; Schumaker & Lomax). The probability ( $p$ ) statistic is associated with chi-square and indicates the fit of the covariance structure—the larger the probability, the greater the certainty (Borel, 1950) and the better the fit of the data to the model (Loehlin). The normed fit index (NFI) is a population-based criterion for determining model fit (Arbuckle; Schumaker & Lomax). Schumaker and Lomax

identified the range as 0–1, where 0 indicates no fit and 1 indicates a perfect fit (p. 121). Arbuckle, designer of the AMOS 5.0, stated that “as a rule of thumb,” the NFI should be .90 or greater, a proposal supported in the SEM literature (Loehlin; Schumaker & Lomax). A model is considered significant if the RMSEA, which measures badness of fit of the model, is .05 or less (Arbuckle; Loehlin; Schumaker & Lomax).

The method employed to “determine the direct and indirect effects of variables” within the model<sup>38</sup> was path analysis (Wright, 1921, 1934, 1960, as cited in Schumaker & Lomax, 1996, p. 39), whose significance was determined by the correlation and critical ratio (C.R.) for regression weight. This value is “derived from dividing the regression weight by the estimate of its standard error” and should be greater than 2.0 (Arbuckle, p. 1). For the path analyses, the significance level was set at  $p < .05$ .

*VOE users, 2003 manager sample (n = 127).* The goodness of fit analysis revealed that the 2003 national sample data were a good fit to the model, explaining 16% of the variance in VOE efficacy expectations, 70% in VOE use, 55% in satisfaction, 77% in perceived effectiveness of the VOE, 42% in adoption of third party recruitment methods, and 17% in social involvement of others in using the VOE application. The chi-square statistic  $\chi^2$  was 24.6 with 32 degrees of freedom and a probability of .82, suggesting that the data were a good fit for the theoretical model. Other statistics of model fit included an NFI that was greater than .9 at .96 and an RMSEA of 0 indicating a

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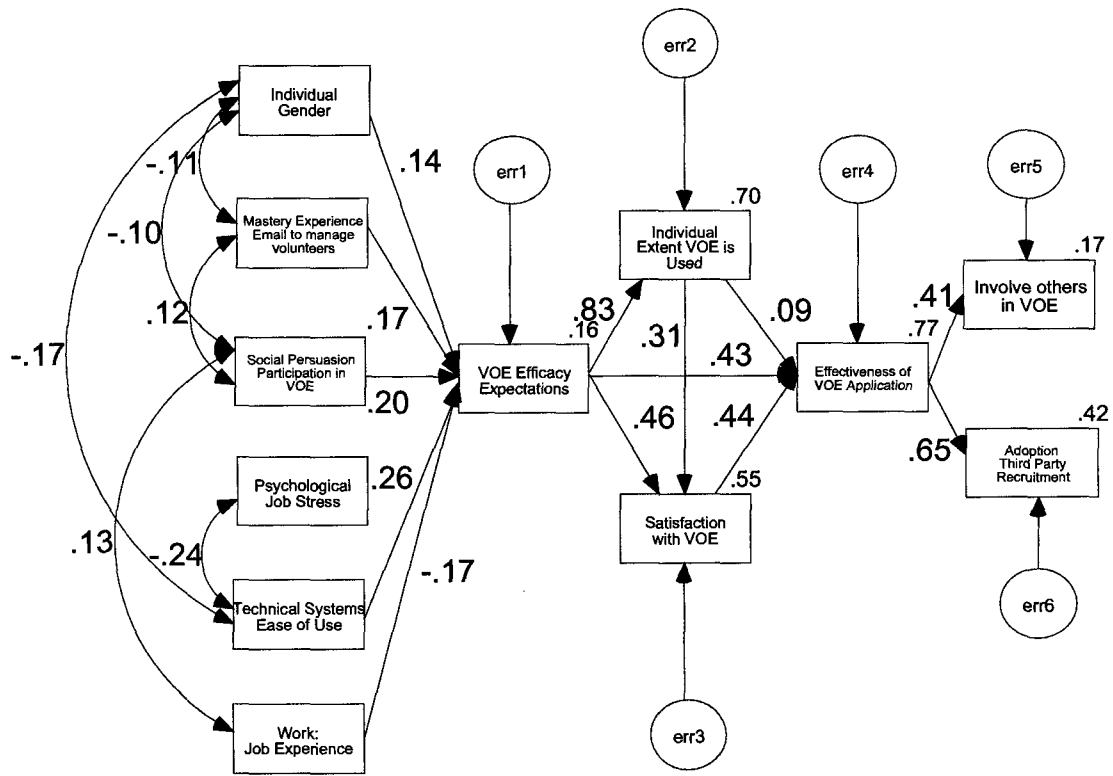
<sup>38</sup> It must be noted that the use of path analysis to establish causality was extremely limited because the observed variables were taken at one point in time. Given this limitation, causality is implied because many of the limitations were controlled for. For example, Schumaker and Lomax (1996) suggested that causality can be implied when the following occurs: “a theory [SCT] is used to establish temporal ordering of the variables, there is covariation or correlation among variables; when other causes are controlled for (e.g. through the use of error variables); and when variables were measured on at least an interval level” (p. 39). In defense of any criticism of the causal nature of the model, SCT was used for temporal ordering of variables and AMOS 5.0 was used to control for other causes (error variables).

perfect fit (Arbuckle, 2003). Given high degrees of freedom (32 df), the low RMSEA statistic should be a reliable indicator of model fit (Loehlin, 1998).

Overall, the results not only lend support for SCT in explaining much of the variance in use, perceived effectiveness of, and impact of the VOE but go further to reveal insights into the nature of the relationships between variables within the hypothesized model.

Table 26 shows the results of path analysis tests in which 12 of the 15 hypothesized paths in the manager model were statistically significant at or beyond the  $p < .05$  level. Of the three that were not, two were borderline significant and were therefore included in the discussion of results that follows (see Figure 9 for a revised model with significant path coefficients).

Figure 4.1



$\chi^2 = 30.1, df = 37, p = .783$

Figure 9. Findings for the manager model

With regard to the hypothesized relationships between the mediating variable and dependent variables within the manager model, the findings show support for use of the SCT framework. Specifically, as expectations surrounding the VOE increased ( $z$ ), so too did met expectations ( $y_1$ ) that benefits resulted from use of the VOE application ( $H1, p < .001$ ). Similar results were found with regard to the relationship between VOE efficacy expectations and use ( $H2, p < .001$ ) and satisfaction with use of the VOE application ( $H3, p < .001$ ). The greater the efficacy expectations associated with the VOE application, the greater the extent of application use, the more the user was satisfied. Thus, as hypothesized, as use increased, so did satisfaction with the VOE application ( $H4, p < .01$ ). Moreover, increases in satisfaction were positively related to increases in met outcome expectancies ( $H6, p < .001$ ). However, the hypothesized relationship between use and met outcomes ( $H5$ ) was not supported.

These findings lend support for use of the SCT framework and the direct effect that efficacy expectations have on the use and perceived effectiveness of ICT. Not only do the findings lend support for SCT, they also help to clear up a contention in the ISS literature concerning use as a dependent variable. Seddon (1995) called for the removal of IS use as a construct in the Delone and Mclean (1992) model of ISS because use is considered a behaviour and therefore should not be included as an ISS measure (pp. 4–5). However, the findings of this study do not support his contention. Rather, they lend support for Delone and Maclean's (1992) claim for their original model that use should be included as a construct.

The finding that use is unrelated to benefits or met outcome expectancies ( $H6$ ) helps to clarify another of Seddon's (1995) criticisms of the Delone and Maclean (1992)

model; specifically, that “the critical factor for IS success measurement is not use but that net benefits should flow from use” (p.3). The finding that benefits flow from efficacy expectations about use lends support to Seddon’s hypothesis that those who believe that positive benefits are associated with IS use will be motivated to use ISs. Conversely, those who do not perceive benefits will not (Seddon).

Finally, the findings lend support for the Delone and Maclean (1992; 2002) model of ISS and Seddon’s (1995) respecified model of ISS in terms of levels of impact. Like these earlier studies, this study found impacts at multiple levels. The fact that there were positive relationships between met expectations and the adoption of third party recruitment methods ( $H7, p < .001$ ) and involvement of others in the social environment ( $H8, p < .001$ ) suggests that the causal ordering flows from met expectations to individual and social impacts. The finding further suggest that the nature of motivation is self-generating, thereby lending support for the feedback loop that Seddon included in his respecified model.<sup>39</sup>

Analysis of the survey responses provided support for the five hypothesized relationships between the independent variables (x) and ICT efficacy expectations (z). At the personal level there was a significant relationship between gender and ICT efficacy with female managers having more positive feelings about the usefulness of the VOE than their male counterparts ( $H9, p < .05$ ). This finding is not surprising and consistent with US data from VolunteerMatch, a popular online recruitment site matching prospective volunteers to volunteer opportunities that reported users of their online matching web service were “overwhelmingly female” (84%) (O’Rourke, Hart & Baldwin, 2004, p.19).

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<sup>39</sup> It should be noted that a feedback loop could not be tested because of the recursive nature of the model.

There were also significant covariance relationships between gender and VOE efficacy. Covariance relationships show male managers having more mastery experience (e.g. having used email applications more often to manage volunteers) ( $p < .05$ ) and participation in the VOE ( $p < .05$ ), as well as positive perceptions that the VOE system is easier to use ( $p < .05$ ). These findings lend support for an earlier claim that gender differences in access could be explained by male exposure and experience with ICT (Cooper & Weaver, 2003). Further lends support for SCT and the motivational role mastery experiences and social persuasion play in ICT adoption.

Also found was support for the relationship between mastery experience and ICT efficacy. The more mastery experience managers had using email applications to manage volunteers, the more positive their feelings of efficacy with regard to the VOE application (H10,  $p < .001$ ). This finding is consistent with SCT and the portion of the IS literature that discusses the link between experience and ICT adoption behavior (Ajzen & Fishbein, 1975, 1980; Bagozzi, 1981; Bently & Speckart, 1979; Todd & Taylor, 1995, p. 561; Triandis, 1979).

At the social level, support was found for participation as a positive influence on efficacy expectations for the VOE. The more social persuasion or participation<sup>40</sup> in the design, training, and evaluation of the VOE application, the more positive the manager was about the usefulness of the VOE (H11,  $p < .01$ ). This finding is in keeping with SCT and the role that social persuasion plays as a general motivational influence on behaviour change. In terms of ICT use behaviour, the finding is in keeping with the work of Taylor

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<sup>40</sup> Note the finding is a result of an application specific measure of participation rather than a general measure of involvement or the psychological value the user places on ICT (e.g. importance, interesting, etc) (Hartwick and Barki, 1994) that has been the subject of empirical tests in the IS literature (e.g. Seddon, 1995).

and Todd (1995), who suggested that active participation of inexperienced users would be positively associated with use of ICT.

Even though the negative relationship between job stress and ICT efficacy expectations was not supported (H12), a covariance with technical systems influences indicated a significant indirect relationship between job stress and VOE efficacy. The more stressful the job was perceived to be, the more difficult the use of the VOE application was perceived to be. This finding lends support for SCT and the negative influence that psychological factors like job stress can have on attitudes and motivation toward ICT change.

At the technical systems level, there was support for the positive relationship between perceived system quality of the VOE application and VOE efficacy expectations (H13,  $p < .01$ ). The more the manager perceived the VOE application as easy to use, the more positive the efficacy expectations were with regard to use of the application. This finding is not surprising given that ease of use and perceived usefulness of ICT are two variables that have already been linked in the literature to technology acceptance (e.g., Davis, 1989) and ISS (e.g., Delone & Mclean, 1992, 2002; Seddon, 1997; Seddon & Kiew, 1994).

At the work level, a negative relationship was found between job experience and VOE efficacy expectations. Managers who were newer to the volunteer management context were more positive in their feelings of VOE efficacy (H14,  $p < .05$ ), which finding suggests that those who perform work using familiar ways of doing things are at a disadvantage for being motivated to adopt new ICT methods in their work. The good news for the experienced manager is the covariance between participation in the VOE ( $p$

< .05) and ICT efficacy expectations, which indicates a positive indirect association. The more experienced the manager, the more probable a high level of participation in the VOE application. This finding suggests that the problem experienced managers face in failing to adopt new ICT applications may be reduced by increased application-specific participation, a finding in keeping with the IS literature and Taylor and Todd's (1995) recommendation to involve first-time users.

At the organizational level, the findings showed that environmental factors failed to achieve a level of significance with regard to their association with manager efficacy expectations of the VOE (H15).

Table 26

*Hypothesis Testing: 2003 Manager Group*

Variable	Hypothesis	Supported		Sig.
		Direct	Indirect	
↑VOE Efficacy/↑VOE Use	H1	Yes	n.a.	$p < .001$
↑VOE Efficacy/↑VOE Satisfaction	H2	Yes	n.a.	$p < .001$
↑VOE Efficacy/↑VOE Met Outcome Expectations	H3	Yes	Yes (ICT Satisfaction)	$p < .001$
↑VOE Use/↑VOE Satisfaction	H4	Yes	n.a.	$p < .01$
↑VOE Use/↑Perception of Benefits from VOE	H5	No	Yes (ICT Satisfaction)	n.s.
↑VOE Satisfaction/↑Perception of Benefits from VOE	H6	Yes	n.a.	$p < .001$
↑Perception of Benefits from VOE/↑Adoption of other ICT and third party recruitment methods	H7	Yes	n.a.	$p < .001$
↑Perception of Benefits from ICT/↑Involvement of Others in ICT	H8	Yes	n.a.	$p < .001$
Gender (males)/↑VOE efficacy	H9	Yes	Yes (↑Male/↑Mastery Experience, $p < .05$ ; ↑Participation in VOE, $p < .05$ ); ↑Ease of Use of VOE)	$p < .05$
↑Use of Email to Manage Volunteers/↑ICT Efficacy	H10	Yes	Yes (↑Formal Participation in ICT, $p = .01$ ; gender (males), $p < .05$ )	$p < .05$

Table 26 (continued)

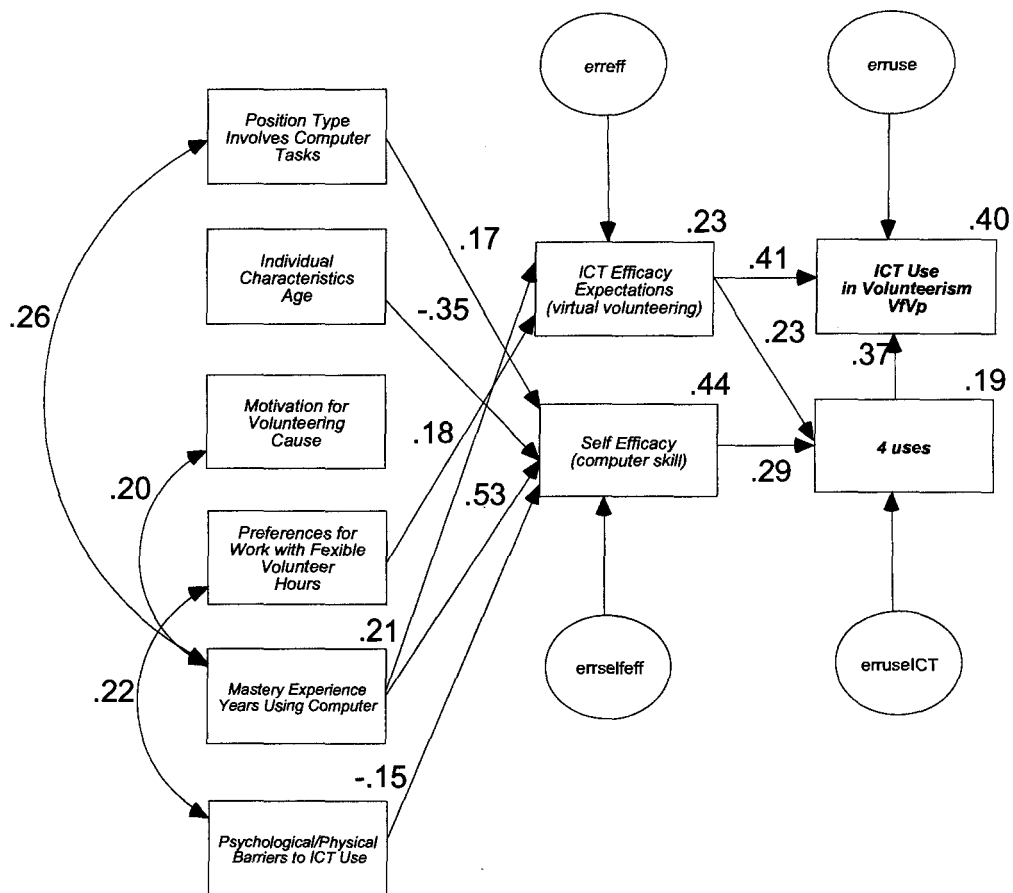
Variable	Hypothesis	Supported		Sig.
		Direct	Indirect	
↑Participation in ICT/↑ICT Efficacy	H11	Yes	Yes (↑Job Experience, $p < .01$ ; ↑Email Volunteer Management, $p = .01$ )	$p < .01$
↑Job Stress/↓ICT Efficacy	H12	No	Yes (↓Ease of Use, $p < .01$ )	
↑Ease of Use of VOE/↑ICT Efficacy	H13	Yes	Yes (↓Job Stress, $p < .05$ )	$p < .01$
↓Years in Position/↑ICT Efficacy	H14	Yes	Yes (↑Years in Position/↑ Participation in VOE, $p < .01$ )	$p < .05$
↑Budget/↑ICT Efficacy	H15	No	No	n. s.

Note.  $n = 127$

*Traditional volunteers, 2001–2002 sample (n = 150).*<sup>41</sup> The results of the path analysis show that the volunteer model accounted for the following variances: 44% in feelings of self-efficacy toward the ability (skills) to use computers, 23% in ICT efficacy regarding the usefulness of ICT in volunteering, 19% in the general use of ICT (combining personal, business, volunteer and other uses), and 40% in the use of ICT to find and perform in current volunteer work positions (VfVp). Goodness of fit (GOF) indices show that the traditional volunteer data were a good fit to the model (see Figure

<sup>41</sup> Cases with missing mediating and dependent variables data were removed to reduce measurement error and increase the validity and reliability of SEM tests.

4.4) The chi-square  $\chi^2$  was 16.50 with 14 degrees of freedom and a probability of .28. The NFI was greater than .9 at .94, and the RMSEA was within an acceptable range at .04.



$\chi^2 (12, N=127) = 15.40, p=. 22$

Figure 10. Findings for volunteer model

Table 27 below shows the results of the path analysis for the traditional volunteer groups, in which 12 of the 20 hypothesized paths in the volunteer model (see Figure 4.4 for significant path coefficients) were statistically significant beyond the 95% confidence interval ( $p < .05$  level). (See Table 27 for direct and indirect path coefficients and their significance values).

The findings provide empirical support for the hypothesized relationships between the mediating variable, ICT efficacy expectations, use of ICT specific to having found and performed volunteer work (y1) (H1,  $p < .001$ ), and general use of ICT (y2) (H2,  $p < .01$ ). Simply put, the greater the efficacy expectations for ICT use in volunteering, the greater the use of ICT by the volunteer. Like those for the manager sample, these findings lend support for SCT and ICT efficacy as a mediating variable that predicts volunteer ICT use behaviour. They also lend support for the inclusion of use as a dependent variable construct in the model.

Even though the relationship between self-efficacy and use of ICT to find and perform volunteer work was not supported (H3), the relationship between feelings of self-efficacy (z1) and general use of ICT by the volunteer (y2) was. The more positive the volunteer's feelings of self-efficacy in using computers, the more uses he or she had for ICT (H4,  $p < .001$ ). This finding lends support for self-efficacy as a general measure and motivational construct.

The positive relationship between the dependent variables was also supported. The more uses the volunteer had for ICT (y2), the more he or she used ICT to find and perform volunteer work (y1) (H5,  $p < .001$ ). This finding could be explained by SCT and the positive influence mastery experience has on motivational behaviour. More

specifically, the more the volunteer uses ICT, the more experience he or she has with ICT. Thus, whereas the model depicts mastery experience as an input variable, this finding suggests that it is also an output variable, implying that the nature of motivation is cyclical.

The hypothesized relationship between the two mediating variables, ICT efficacy expectations towards use of ICT in volunteering ( $y_1$ ) and self-efficacy in using ICT ( $z_2$ ), was borderline significant ( $H_6, p = .07$ ). This borderline positive relationship suggests that feelings of self-efficacy may have some influence on whether ICT is considered an appropriate method for conducting volunteer work. However, the findings also suggest that feelings about capability are not enough to shape the attitudes that volunteers have about the appropriateness of ICT use in volunteering (virtual volunteering). For clues as to what does influence the attitudes that volunteers have about the usefulness of ICT in volunteering, results of path analysis between the independent influences ( $x$ ) and the mediating variables ( $z$ ) are presented and discussed below.

At the individual level, a preference for flexible volunteer work (hours) was a significant positive influence on feelings toward ICT efficacy in volunteering ( $H_{11}, p < .05$ ). Support for this hypothesis is not surprising given that virtual volunteer work has been identified in the literature as a means of volunteering for those who, because of time and other physical limitations, are unable to volunteer (Cravens, 2000; Virtual Volunteer Project, 2001).

The only independent variable for predicting both mediating variables was mastery experience with regard to time spent using computers. The greater the number of years using computers the more positive the perception of ICT efficacy ( $H_{12}, p < .05$ )

and the greater the feelings of self-efficacy or capability (skills) in using computers (H19,  $p < .001$ ). These findings lend support for the SCT and mastery experience as an input dimension in the model.

With regards to the relationships between the independent variables and feelings of self-efficacy in using computers, four hypotheses were supported. At the individual level, there was support for the negative relationship between age and feelings of self-efficacy in capability of using the computer. However, as age increased, feelings of self-efficacy toward using computers decreased (H15,  $p < .001$ ), a finding that mirrors the relationship between Internet uptake and age in Canadian households (head of household) (Statistics Canada, 2004a).

At the work level, the more that volunteer work involved assisting with computers, the more positive the volunteer self-efficacy in using computers (H16,  $p = .01$ ). This finding lends support for the positive influence that mastery experience has on motivation through positive feelings of self-efficacy.

Finally, at the psychological and/or physical level, the negative relationship between barriers to ICT use (e.g., lack of knowledge, time, training, organizational use, money, and other barriers) and feelings of self-efficacy was supported. The more barriers that volunteers perceived as preventing them from using ICT the less positive their feelings of self-efficacy in ability to use ICT (H20,  $p < .05$ ). This finding lends support for the negative influence that psychological or physical threats can have directly on attitudes and indirectly on individual motivation to adopt ICT.

The ability of AMOS to show indirect relationships reveals insights into which independent variables, even though not playing a central role, indirectly help shape

volunteer attitudes about ICT, as indicated by their covariance relationships with other independent variables. At the personal level, there was a positive indirect relationship between motivation to volunteer for a cause and the mediating variables of mastery experience. The more motivated volunteers were because of a cause they believed in or supported, the more mastery experience (years) they had in using computers ( $p < .05$ ). Gender (female) was another indirect influence on attitudes as revealed by its relationship with cause motivation ( $p < .05$ ). Specifically, women were more likely to have positive feelings about their capability (self-efficacy) to use computer and the usefulness of them (ICT efficacy) if they volunteered for a cause they believed in.

At the work level, there was a positive covariance between volunteer tasks that involved assisting with computers and mastery experience (years) using computers ( $p < .01$ ). Even though tasks involving ICT were not directly associated with feelings of ICT efficacy, the finding suggests a positive indirect influence with years using computers.

Finally, there was a positive covariance relationship between perceived barriers to ICT use and preferences for flexible volunteer hours ( $p < .01$ ): flexible volunteer work arrangements were associated with positive perceptions of ICT efficacy. Barriers to ICT use (e.g., lack of time or money.) may be indicative of other barriers that necessitate a need for a flexible volunteer work arrangement.

Table 27

*Hypotheses Tests: 2001-2002 Traditional Volunteers*

Variable	Hypothesis	Direct	Supported	Sig.
			Indirect covariance	
↑ICT Efficacy/↑ICT Use in Volunteering (VfVp)	H1	Yes	n.a.	$p < .001$
↑ICT Efficacy/↑Use of ICT	H2	Yes	n.a.	$p < .01$
↑Self-Efficacy/↑ICT Use in Volunteering (VfVp)	H3	No	Yes (Uses for ICT)	n.s.
↑Self-Efficacy/↑Use of ICT	H4	Yes	n.a.	$p < .001$
↑Use of ICT/ ↑ICT Use in Volunteering (VfVp)	H5	Yes	n.a.	$p < .001$
↑Self-efficacy/↑ICT Efficacy	H6	Borderline	n.a.	$p = .07$
↑ Predisposition to Accept ICT (gender-males)↑ ICT Efficacy	H7	No	Yes (gender (females); ↑cause motivation, $p < .05$ )	
↑Mastery experience (position involves assisting with computer tasks)/ ↑ ICT efficacy	H8	No	Yes (↑years using computers, $p < .01$ )	
↑Predisposition to Accept ICT (↓age) /↑ICT efficacy	H9	No	No	
↑Motivation to volunteer for cause (Work Influence)/↑ICT Efficacy	H10	No	Yes (↑years using computers, $p < .05$ )	
↑Preference for flexible volunteer work (hours)/ ↑ICT Efficacy	H11	Yes	Yes (↑barriers to ICT Use, $p < .05$ )	$p < .05$

Table 27 (continued)

Variable	Hypothesis	Supported		Sig.
		Direct	Indirect covariance	
↑Mastery Experience (years using computers)/↑ICT Efficacy	H12	Yes	Yes (↑computer tasks, $p < .01$ ; ↑cause motivation, $p < .05$ )	$p < .05$
↑Barriers to ICT Use (psychological/physical)/↓ ICT Efficacy	H13	No	Yes (↑flexible hours, $p < .05$ )	
↑Predisposition to Accept ICT (↓age) /↑Self-Efficacy	H15	Yes	No	$p < .001$
↑Mastery experience (position involves assisting with computer tasks)/ ↑ Self-Efficacy	H16	Yes	Yes (↑years using computers, $p < .01$ )	$p < .01$
↑Motivation to volunteer for cause (Work Influence)/↑Self-Efficacy	H17	No	Yes (↑years using computers, $p < .05$ )	
↑Preference for flexible work (hours)/ ↑Self-Efficacy	H18	No	Yes Barriers to ICT Use, $p < .05$ )	
↑Years using computers (Mastery Experience)/↑Self-Efficacy	H19	Yes	No	$p < .001$
↑Barriers to ICT Use (psychological/physical)/↓ Self-Efficacy	H20	Yes	Flexible work hours	$p < .05$

## Chapter Six

### Conclusions

The digital effectiveness divide (DED) is a relatively new phenomenon that extends beyond insufficient access to include underutilization of ICT. The research sought to answer basic questions about the DED including the extent to which it exists in volunteerism and what kinds of factors influence and predict whether a volunteer or manager will be digitally effective or not. Multiple factors were found that were directly or indirectly related to the adoption of ICT in volunteerism which suggests digital effectiveness is a multidimensional construct and a complex problem.

The research also sought to clarify the extent to which being ineffective is a problem in volunteerism. While the new technological and institutional context places importance on ICT as a means of increasing the capacity of voluntary organizations, a review of the research findings shows that the problem of ineffective use of ICT as it relates to volunteers and the management of volunteer programs is dependent upon the context in which ICT is used. For volunteers and volunteer programs that have successfully met their needs for volunteering or demands for volunteer labour, the question, at this stage, is the relatively low level of adoption. The findings showed there were very few “complete” virtual volunteers and managers, suggesting the majority of work will continue to be performed in traditional ways.

However, for volunteers who have become disconnected or who want to volunteer in specific areas or in specific ways that match their needs or preferences for work or for the manager of volunteer resources with a low supply of volunteers, and/or a growing demand for volunteer resources the problem is of greater significance. For these end-

users, being digitally deficient in the ability to connect either directly (as a result of self-deficiency) or indirectly (as a result of the volunteer program deficiency) puts them at a disadvantage relative to those who demonstrate less need for ICT.

This chapter begins with a presentation of the key findings relating to the four research questions for volunteer and manager groups. Subsequently, the implications of the findings are discussed from theoretical, social, practical, and policy perspectives. The chapter concludes with recommendations for future research.

### *Key Findings*

#### *Adoption of ICT by Volunteers*

The findings show there are differences in access, with the regional group falling behind the e-enabled group with regards to physical access to ICT components. The problem, however, as perceived by volunteers, would probably correct itself with time (in about two years).

For use of ICT by volunteers to *find* work, the research findings reveal that the variation in use between volunteers who used ICT to search for work and those who used traditional methods could be explained by different needs for volunteer work. For prospective volunteers from the follow-up group, use of ICT to search for a volunteer position was for purposes of matching preferences for volunteering to volunteer positions. These findings are consistent with the emerging literature on the episodic or occasional volunteer who is motivated to volunteer to meet self-interests (Hustinix & Lammertyn, as cited in McDuff).

The findings regarding use of ICT to find work by volunteers in the traditional group was similar—to match their preferences for volunteering to available opportunities.

The findings also showed that the more ICT was used to perform volunteer work, the more engaged the volunteer was compared to volunteers who performed their work using traditional methods. This finding suggests that the medium may not completely define the means. Whereas online recruitment sites may be the best place to search for episodic volunteers, once they become engaged, the findings showed these volunteers were capable of traditional engagement. Apart from the positive impact of virtual volunteering on civic engagement, the findings also demonstrate that ICT use in volunteering offers volunteers more choice in how they wish to be engaged rather than a means of replacing traditional forms of volunteering.

The overall level of ICT adoption by volunteers to find and perform volunteer work, while low in the volunteer groups sampled, was not unlike that in U.S. reports in which only a small percentage of volunteers who searched for work online actually went on to perform it in the same way (Independent Sector, 2000). The pattern of virtual volunteering indicates that the majority was performed in combination with on-site work. Differences between the samples with respect to work performed indicate a propensity for ICT to be used as a way to complete volunteer work originated on-site. The findings further suggest the following:

1. The majority of volunteer work continues to be performed in traditional ways;
2. Virtual volunteering need not be thought of as an isolating force; and
3. Virtual volunteering is geared to technical types of tasks (e.g., communications, desktop publishing, and Web design) but is emerging in areas of traditional service (i.e., direct service mediated through ICT becomes indirect service

delivery) suggesting the potential for volunteer work to be re-engineered to the online environment.

Whereas the use of ICT by prospective volunteers to find work was high, the success of ICT in matching them to available positions was low. The 2001 findings show the success rate of the traditional group of volunteers is lower than the 2002 follow-up group. This observation suggests that a gap exists between the samples, with the traditional group of volunteers being most at risk for being on the wrong side of the DED. The extent to which this is a problem in the traditional group is relatively low because the traditional group of volunteers was already associated with a volunteer agency, whereas the prospective group was not. For volunteers not associated with a volunteer agency, being digitally deficient is a larger problem.

#### *Findings Relating to the Adoption of ICT by Managers of Volunteer Resources*

Adoption of ICT by managers exhibited a similar pattern to the findings related to the adoption of ICT by volunteers. When compared to the reports of national sample managers, regional volunteer programs were no different from the e-enabled national manager group in the degree they used ICT to facilitate the volunteer management process (to find and have work performed). In addition, there was no difference between the samples in the availability of virtual types of volunteer positions and little variation across the samples in the types of tasks virtual volunteers performed. Top among them were those that involved the use of ICT, such as research, Web site development and maintenance, desktop publishing, and communications. While differences exist between the samples with respect to access, these findings suggest the volunteer programs (in

2001-2002) sampled were relatively similar in terms of overall adoption of ICT in volunteerism and use of virtual volunteers to conduct the work of the volunteer program.

*Findings Relating to the Factors Associated with ICT Adoption*

There were several important findings about the factors affecting the adoption of ICT in volunteerism. The results of bivariate hypotheses tests suggest that being digitally deficient may be related to a number of factors; however, these factors vary according to whether the dependent variable is access to or use of ICT. This finding is consistent with the innovation diffusion literature, which contends that the factors that are associated with the adoption of innovations change over time as innovations become more accepted and used (Rogers, 2003; van Dijk & Hasker, 2003).

*Volunteers and ICT access.* The results of hypotheses tests concerning volunteer access to ICT, suggest demographic characteristics may play a prominent role. For volunteers, employment status was a significant factor in ICT access. The finding relating being out of the work force and lack of access to ICT was attributed to lack of exposure and experience with ICT. Perceptions of technical capability were another factor. The findings showed a confidence divide exists with volunteers who were the most confident in their technical capability more likely to have the most access.

*Volunteer programs and ICT access.* Consistent with the findings for volunteers, access to ICT by managers was associated with demographic characteristics and ICT experience. At the level of demographics, gender was a factor, with male managers seemingly more predisposed to having more ICT access than female managers. Other factors were related to prior experience. Specifically, the more years experience using ICT, the more access the manager had. As with volunteers, ICT access was positively

related to ICT confidence, with managers who were the most positive in their feelings of capability having the most access. Not surprisingly, the more experience female managers had with ICT, the more positive their feelings of capability. This observation suggests that even though volunteer programs having male managers tend to be predisposed to more physical access to ICT, the gender divide in volunteer programs exists only until such time as female managers gain experience with ICT.

At the organizational level, the findings show a “size divide,” with large volunteer organizations from the national sample (i.e., those with a worth greater than \$250,000) having the most access to ICT. The findings further suggest that organizational slack, rather than volunteer program innovation, may account for the digital divide between large and small sized volunteer programs.

The most influential factor concerning the amount of physical access that volunteer programs had to ICT was demand for volunteers. As demand for volunteer work increased, so did access to ICT components. This finding suggests that access to ICT in volunteer programs is associated with need, with larger volunteer programs in excess of 75 volunteers demonstrating the most need for ICT.

At the social level, participation in training and involvement in ICT and organizational decisions were positively associated with the amount of access volunteer programs had to ICT. This finding is consistent with the innovation diffusion literature, which has described innovative organizations as more participative and therefore more prone to ICT adoption (Rogers, 2003).

Finally, at the effectiveness level, the more positive the perception that ICT resulted in positive benefits in the volunteer program, the more ICT the manager reported

accessing in the volunteer program. This finding lends supports for the feedback loop in the model, suggesting a positive relationship between the perception that ICT is effective and future access.

#### *Factors Associated with the Use of ICT*

As with access, different factors at different levels of analysis were related to the use of ICT by volunteers and managers.

*Volunteers and ICT use.* For volunteers, the factors that were associated with the use of ICT as a means of finding and performing volunteer work (VfVp) were primarily related to need satisfaction of personal motives for volunteering. For example, for prospective volunteers, ICT offers a new method of finding work, one for which traditional volunteers who have formed an association with a volunteer agency may have less need for. This finding suggests that a DED will naturally exist within the volunteer population between prospective and traditional volunteers.

*Managers and ICT use.* At the demographic level, even though gender was a factor in access to ICT, it was not a significant influence on use. The volunteer programs that were predisposed to using ICT in volunteerism (to fill volunteer opportunities and have work performed virtually (VfVp)) were those in which the manager of volunteer resources was newer to the job.

In keeping with this finding, for the regional and national groups, use was significantly associated with ICT experience. The more experience using ICT (email) to manage volunteers and conduct the work of the organization, the more virtual the manager. These findings suggests that differences in use of ICT by managers may be

attributed to an experience divide between those who are newer to the position and those who have spent more time performing “old ways” of volunteer management business.

At the group level, participation was associated with use of ICT applications by managers of volunteer programs. Participation of the manager in ICT organizational decisions and feelings of ownership of them were positively associated with the use of ICT to fill volunteer opportunities and have work performed virtually. Similarly, participation in the VOE application was positively associated with its adoption and use. The findings suggest that differences in use of ICT by volunteer programs may be related to how involving and integrated the volunteer program is with the organization.

At the organizational level, the more demanding the manager perceived the job to be, the more ICT was used to share tasks. Similar findings were found at the work level, lending further support for the positive association between demand and use of ICT in volunteerism. For example, in the 2001—2002 national group, the more virtual volunteers the manager had placed in the volunteer program, the more likely the manager had used the VOE system to contact a volunteer about a position. In the regional program, there was a similar finding. The more that managers had used the Internet as a means of communication, the more likely they had also used ICT to fill volunteer opportunities and have volunteer work performed. These findings suggest that the DED could be explained by differences in work demands between volunteer programs. They also lend support for the feedback loop in the model, which suggests that the more use of ICT, the more uses found for ICT in volunteerism.

At the technical systems level, the findings support the system quality construct. The easier ICT was to learn, or the higher the perceived quality and capacity of available

ICT in the volunteer program, the more ICT (email) was used by the managers to share tasks at a distance. However, the quality of available ICT systems in the volunteer program was not significantly related to the adoption of the VOE application. Likewise, the quality of the VOE application was not significantly related to use of it. These findings suggest that differences in use may not be related to differences in the quality of available ICT systems.

ICT access was also associated with use of ICT. The higher the level of Web site connectivity, the more ICT was used by managers to fill volunteer opportunities and have work performed. This finding supports the work of Fountain (2001), who argued that higher levels of access are associated with higher levels of task transformation. In this case, the higher the functionality of volunteer program sites, the more virtual the manager.

Managerial perceptions that ICT is useful (or important, beneficial, and so forth) were associated with general use of ICT by managers to fill volunteer opportunities and have volunteer work performed, as well as to share tasks at a distance. Similarly, perceptions that the VOE application was a useful tool were associated with its adoption. These findings lend support for the expectations of benefits from ICT as a positive factor in ICT adoption. The findings also point to two kinds of expectation measures:

1. Those that are specific to assessing the effectiveness of a specific application (e.g. the VOE application); and
2. Those general to assessing the effectiveness of ICT (e.g., available ICT components).

At the dependent level, the more satisfied managers were with the VOE application, the more they made use of the VOE to recruit volunteers. Similarly, there was a positive association between satisfaction with the work of virtual volunteers and use of ICT by managers to find and maintain volunteer positions in which work could be performed virtually. These findings suggest that perceptions of ICT effectiveness (ICTe) may shape future use, which lends support for the notion that past behaviour is a predictor of future behaviour (via the nature of feedback in the model).

At the level of effectiveness, there was a positive association between the perception that ICT had positive impacts on the volunteer program (e.g., cost, efficiency, effectiveness, service quality) and use of ICT by national managers to fill volunteer opportunities and have work performed virtually (2001–2002), as well as to share tasks at a physical distance with others (2003). For the VOE application, positive perceptions of the impact of VOE on the volunteer program were positively associated with the extent to which the application was used. Again, these findings lend support for the feedback loop in the model in which perceptions about the effectiveness of ICT set the stage for future experiences with ICT.

#### *Model of ICT Effectiveness (ICTe)*

As already presented in the fourth section of the research findings, the analysis included empirical tests of two more sophisticated multi-variate models of ICT effectiveness for volunteers and managers. The constructs in the two models—volunteer and manager—were based on Bandura's social cognitive theory (SCT). Key findings from this phase of the research provide considerable support for SCT and the motivating

effect that efficacy expectations have on the dependent variables for use and perceived effectiveness of ICT.

*Manager model test.* With regard to use of the VOE online volunteer recruitment system, the findings show that the data for the national 2003 manager sample were a good fit to the manager model, explaining 16% of the variance in expectations, 70% in use, 55% in satisfaction, 77% in perceived effectiveness of the VOE, 42% in adoption of third party recruitment methods, and 17% in social involvement of others in it.

While the results do lend support for SCT in explaining much of the variance in use and perceived effectiveness of the VOE application in volunteer recruitment, the findings go further to reveal important insights into direct and indirect relationships between variables within the model that findings reported in the earlier sections fail to account for.

In terms of the independent variable influences that shape user attitudes and expectations that benefits would flow from ICT, the model provides a useful framework for identifying what kind of factors might be associated with being on one side of the DED or another. Most particularly, an analysis of survey responses identifies significant direct and indirect relationships between these factors and ICT efficacy expectations.

*Direct relationships.* At the demographic level, female managers were more likely than male managers to perceive the VOE application as useful. This finding suggests that female managers may be more accepting of new ICT applications than male managers. Indeed, Geffen and Straub (1997) provide empirical support for this finding in the technology acceptance literature, arguing that women have more positive perceptions of the usefulness of email applications than men. While volunteer programs with males may

be more likely to have more physical access to ICT, any differences between males and females in their use of new online applications need not be attributed to males having more favourable attitudes toward it.

The relationship between prior experience and ICT efficacy expectations was also supported. The more experience managers had using email applications to manage volunteers, the more positive their feelings of efficacy toward the VOE application. This finding is consistent with SCT and the body of literature on the link between experience and ICT adoption behavior (Ajzen & Fishbein, 1975, 1980; Bagozzi, 1981; Bently & Speckart, 1979; Todd & Taylor, 1995; Triandis, 1979).

At the social level, there was support for participation as a positive factor related to the perceptions managers had of ICT efficacy. The more managers participated in the design, training, and evaluation of the VOE application, the more positive their efficacy expectations associated with the VOE. This finding is consistent with SCT as well as the innovation diffusion literature, which reports a positive relationship between social persuasion and adoption behaviour (Rogers, 2003). It is also in keeping with the work of Taylor and Todd (1995), who argued that active participation of inexperienced users in ICT positively influences their acceptance.

At the technical systems level, there was support for the positive relationship between VOE system quality and ICT efficacy expectations. While not a direct factor on use, the more the managers perceived the VOE application was easy to use, the more positive they felt about the application (which was positively associated with use). This finding is not surprising given that ease of use and perceived usefulness of ICT are two variables that the literature has already linked to acceptance (e.g., Davis, 1989) and

effectiveness of ICT (e.g., Delone & Mclean, 1992, 2002; Seddon, 1997; Seddon & Kiew, 1994).

At the work level, the findings show a negative relationship between job experience and VOE efficacy expectations. Managers who were newer to the volunteer management context were more positive in their feelings of VOE efficacy, suggesting that those who perform using old ways of volunteer management business are less likely to be motivated to adopt new ICT methods in their work and are at risk for being on the wrong side of the DED.

*Indirect relationships.* One of the more interesting aspects of the research was the ability to explore covariance relationships between the constructs in the model at the independent variable level to determine what relationship, if any, they had on ICT efficacy expectations and motivation to adopt ICT in volunteerism.

At the personal level, an indirect relationship between gender and efficacy was indicated by covariances with mastery experience, participation in the VOE, and perceptions of VOE system quality. Covariance relationships showed male managers as more likely than female managers to have higher levels of mastery experience (i.e., to make use of email applications more often to manage volunteers), to have participated more in the VOE, and to perceive the VOE system as easy to use. The finding that men perceived the VOE as easier to use is in keeping with other research showing that men have a “tendency to feel more at ease with computers” (Geffen & Straub, 1997, p. 397). Indeed, these findings offer insights into the propensity for male managers to be more socially involved with the new VOE application, which helps clarify the nature of the relationship between demographic influences and ICT adoption. Specifically, they

provide insight into what types of influences help to shape the attitudes that individuals have about new ICT applications. The earlier finding that males do not show a greater natural propensity than female managers to perceive the VOE as useful suggests that the predisposition to accept ICT by males may not be gender specific but rather may be actively shaped through experiences with ICT, either through related use or indirectly through socially persuasive influences (e.g., being asked to participate more often ICT design, development, and training).

A positive indirect influence was also found between job experience and ICT efficacy expectations as indicated by a covariance relationship with participation in the VOE. The greater the job experience, the greater the manager's participation in the VOE application. This finding suggests that the problem experienced managers faced with regard to being less motivated to adopt new ICT applications could be reduced by social participation strategies.

Even though the negative relationship between job stress and ICT efficacy expectations was not supported, the findings did reveal a significant indirect relationship between job stress and VOE efficacy, indicated by a covariance with technical systems influences. The more stressful the job was perceived to be, the more difficult to use the VOE application was perceived to be. This finding lends support for SCT and the negative influence psychological factors like job stress can have on perceptions and expectations about ICT. It further suggests that negative attitudes about ICT applications should not be ignored but explored and effectively managed.

At the organizational level, environmental factors failed to achieve a level of significance with regard to their influence on managerial perceptions that the VOE was

useful. While these factors were related to access, they had little impact on use of the VOE application to recruit volunteers. The old saying, “money can’t buy you happiness” may be an appropriate way to sum up the influence organizational factors had on the uptake of the VOE application.

*Volunteer model partial test.* The results of the path analysis show that the volunteer data were a good fit to the model, accounting for 44% of the variance in feelings of self-efficacy in capability (skills) to use computers, 23% in ICT efficacy concerning the usefulness of ICT in volunteering, 19% in general uses of ICT (combining personal, business, volunteer and other uses), and 40% in the use of ICT to find and perform volunteer work (VfVp).

Overall, the findings provide empirical support for the hypothesized relationships between ICT efficacy expectations and general use of ICT and use of ICT specific to having found and performed volunteer work (VfVp). As with the manager sample, these findings lend support both for SCT and the role efficacy expectations play as a mediating variable that predicts the dependent variable, ICT adoption behaviour.

The positive relationship between the dependent variables was also supported, which suggests that the more uses for ICT perceived by the volunteer, the more use they will have for it. This finding could be explained by the causal effect that prior experience has on ICT behaviour. Therefore, even though the model depicts prior experience as an input variable, the finding lends support for it as an output variable, suggesting that the supply of virtual volunteers should grow as volunteers gain more experience with ICT.

The hypothesized relationship between the two mediating variables, ICT efficacy expectations towards use of ICT in volunteering and self-efficacy in using ICT, was not

supported. This finding suggests that feelings of capability in using computers and the perception that ICT is useful in volunteering are unrelated constructs. It further suggests that feelings of capability in using ICT are not enough to shape volunteer attitudes about the appropriateness of ICT use in volunteering (virtual volunteering). With respect to what factors shape attitudes, the results of the path analysis at the independent level provide insights into which factors have a direct relationship and which ones have an indirect role.

*Direct relationships.* At the independent level, insights were found both into the problem of which volunteers in the traditional group might be on the wrong side of the DED and the factors that are related to the feelings volunteers' have about their capability in using computers and ICT efficacy or the usefulness of ICT in volunteering.

At the demographic level, there was support for the negative relationship between age and feelings of self-efficacy, which suggests that as volunteers grow older, their confidence in using computers decreases.

At the technical level, prior experience or years using computers was the only variable to moderate volunteer feelings of capability in using computers and ICT efficacy. As volunteer experience with ICT increases, so do feelings of capability in using computers and their usefulness in volunteering.

On a psychological level, the negative relationship between perceived barriers to ICT use (e.g., lack of knowledge, time, training, organizational use, money, and other barriers) and feelings of capability (self-efficacy in using ICT) was also supported. The more barriers the volunteers perceived, the more uncertain volunteers were about their capability in using computers.

These findings suggest that the volunteers most at risk for being on the wrong side of the DED are:

- Older volunteers;
- Volunteers with limited ICT experience; and
- Volunteers who face barriers to ICT use.

*Indirect relationships.* The results show that volunteer feelings about their capability in making use of ICT and their expectations as to its usefulness in volunteering were moderated through independent variable covariance relationships. The more volunteers were motivated for a cause or had a volunteer position in which ICT was used to perform a task, the more experience the volunteer had with ICT, which was positively associated with feelings of capability and usefulness of ICT in volunteering. The finding that need to volunteer motivates use is keeping with expectancy theory which “suggests that motivation is based on how much we want something and how likely we think we are to get it” (Croft, 2005, p. 1).

#### *Summary*

Overall, the research results support the argument that a DED exists in the voluntary sector (e.g. Kirschenbaum & Kunamneni, 2001; Manzo & Pitkin, 2002a; 2002b). With respect to ICT use in volunteerism, the research suggests that a DED exists within the groups sampled with some volunteers and manager groups more motivated to adopt ICT than others. The finding that attitudes and expectations about ICT predict motivation to adopt in volunteerism is consistent with SCT and the expectancy theory of motivation. However, SCT proved to be more capable of explaining the relationship than

expectancy theory and the models of information system success (ISS) have been unable to.

Understanding the DED and whether a volunteer or volunteer program will be deficient in their use of ICT or not is important to our understanding of ICT and how to navigate ICT related changes in volunteerism. The next section discusses the implications of the findings from theoretical, social, practical, and policy perspectives.

### *Implications of the Findings*

#### *Theoretical Implications*

There are several implications of the research findings. From a theoretical perspective, the findings lend support for a voluntary sector model of ICT effectiveness (ICTe) that assumes that ICT change is a process predicted by individual attitudes and expectations about ICT. The research was especially helpful in identifying the types of influences that motivate the adoption of ICT in volunteerism not pinpointed by other theories. For example, even though DeLone and McLean (2002) include a service quality dimension in their revised model, they fail, as did Seddon (1995; 1997) in his, to include factors beyond the technical and attitudinal levels. One reason that Seddon may have excluded other factors in his effectiveness model (i.e., those that influence adoption) is because ICT must be adopted to be considered effective. The findings of this research lend support for extending the model to include the factors that influence motivation to adopt ICT, because they may have originated as byproducts of effectiveness (mastery experience and social involvement of others) either from direct experience with ICT or, in the case of new users, indirectly through the experience of others (e.g., through a network).

### *Social Capital Implications*

The research findings suggest that ICT use in volunteerism may have positive impacts on civic engagement and social capital. From the point of view of the volunteer, the research has demonstrated that ICT can provide volunteers with potential benefits, from matching their interests to jobs to helping them volunteer in time-efficient and effective ways. While ICT use in volunteering had a positive impact on civic engagement, there were very few “complete” virtual volunteers and that the majority of virtual volunteering was performed in combination with traditional methods.

From the point of view of society as a whole, a tool that facilitates civic engagement should be thought of as a potential means of building social capital—that is, the mutual trust and respect that citizens have for one another that forms one of the basic values of civil society (Coleman, 1990). As virtual volunteering and the capacity to respond to and manage virtual volunteers grow ICT should add to, rather than erode, social capital.

### *Practical Implications*

Increasing the capacity of volunteer programs to make effective use of ICT requires that managers learn how to manage the new kinds of volunteer relationships made possible through ICT. The research showed the majority of managers making use of ICT were doing so *in addition to* using traditional methods to find and oversee volunteers. To be more effective, managers of volunteer resources must recognize that there will be competing attitudes about ICT that are based on differences in need and experience. It is important for managers to recognize competing interests and manage

their programs utilizing both traditional and technological approaches. The research demonstrated different factors will challenge the capacity of volunteer programs to implement new technological innovations, however, such implementation is well worth the undertaking for the potential volunteer looking to become connected, to satisfy a personal need or motivation, for the organization needing volunteer help, and for the benefit to society in general.

To successfully meet these challenges, several practical suggestions come to mind to assist the manager in navigating ICT change.

1. ICT change should be introduced in manageable pieces so that changes take place over time within an evolving rather than a static process. One purpose of managing change in this way is to create opportunities for success, so that ICT does not seem overwhelming or the new demands created by ICT not overly stressful to managers, especially those who have been in the job longer or have only been performing their work in traditional ways. Success becomes incremental and cumulative, with one successful change setting the stage for another as managers develop positive attitudes and experience with new applications. Such change also represents a more flexible, longer term approach to ICT change and organizational development, a contrast to the more rigid approaches used to facilitate ICT reforms in the nonprofit sector (Brock, 2002; Phillips, 2000). This approach is also strategic and more aligned with how the private and public sectors facilitate ICT transformation (Langford and Harrison, 2001; Segil, 2001).
2. In addition, participation strategies should also target volunteers and managers of volunteer resources who are not predisposed to make use of new ICT applications in

their work. Among managers, this group would include those who have been in the job for more than five years and/or who lack experience using ICT applications in the volunteer management context. Among volunteers, this group would include volunteers with limited ICT experience, such as those who have been restricted to performing volunteer work in traditional ways or who work in volunteer organizations in which ICT is not widely used. Additionally, it would include volunteers who are older and who lack ICT literacy and face barriers to using it. The critical success factor is that users actively engage in ICT both formally—in such activities as the design, training, and evaluation stages of new ICT applications—and informally; for example, in conversations with colleagues about ICT. Participation can come from many sources (e.g., from vendors, from local volunteer centres and professional associations) but the best source is training provided by the voluntary organization. Making experienced managers and volunteers into champions of ICT change and recognizing them for efforts in their work environments as well as within the voluntary sector community at large should set the stage for future success. This involves creating informal resources that provide social support in the user environment.

3. The role of the ICT support specialist needs to be redefined to include the role of “facilitator” rather than lone problem “solver”. This role amendment transfers the responsibility for ICT change to the individual users who, through direct experience managing ICT change, will gain confidence in their own capability as well as the capability of ICT.

4. Special attention should be also paid to ensuring that ICT applications are easy to learn, user friendly and satisfying, so that managers and volunteers perceive them as useful and want to adopt them in their work.

Two important questions pertain to the issue of managing ICT change. First, what is the risk of *not* managing ICT change in the ways prescribed? The impact of not managing ICT change would be a widening of the effectiveness divide. Second, what are the implications for the volunteer program? Failure to manage ICT change within the context of volunteer management may result in disadvantaged volunteer programs and organizations that lack the capacity to meet the demands of volunteer resources in the new economy. Cravens (as cited in Kirby, 2000) argued that failure to manage ICT change in volunteerism would result in closure of innovative and important online programs that function to increase volunteerism. The recent closure of the VOE is a case in point. For the individual volunteer associated with these programs, the impact may be disadvantaged volunteers who are limited or restricted in their choice of volunteering.

The critical lesson from this study is not to advocate for one side of the divide or another but to increase understanding of the phenomenon to inform ICT decisions. To this end, a process logic model was constructed to guide managers of volunteer resources and volunteers in making ICT decisions (see Figure 11 below).

The first type of decision concerns the appropriateness of ICT use as a method to assist in meeting the needs of volunteers or the volunteer program. Within the logic, this type of decision involves exploring the different types of methods that could be used to perform volunteer work and making an informed choice about how the work could be done using a variety of methods. A good place for information on the appropriateness of

virtual volunteering can be found in the virtual volunteering section of the Service Leader organizational Web site.<sup>1</sup>

If the decision has been made in favour of ICT use, the next decision concerns whether or not access needs are met; that is, whether there is adequate physical access to ICT components and literacy or the skills necessary to be an effective user of ICT. If the answer is no, then actions should be taken to correct the access imbalance. If ICT access is positive, the next decision concerns predicting how effective the individual will be in making use of ICT. Questions to be asked include whether they have had enough training in use of a new application to perform the task and whether they have experience with ICT or know people with experience who will help them. An additional consideration is whether use of ICT stretches an already heavy workload. If after asking these types of questions, the answer is that ICT use will probably be an ineffective method for the manager or volunteer, then steps should be taken to increase effectiveness. For example, individual workloads could be lightened to accommodate ICT change, individuals could attend training to increase experience and/or locate colleagues who have experience with ICT. The framework of factors could be used at this stage to explore the risk of failure and how to take corrective action to increase effectiveness.

Finally, following use of ICT, the method should be evaluated as to its impact on volunteerism in terms of enhancing the volunteer experience or work of the volunteer program. If ICT is determined to be an ineffective method, then action should be taken to increase the effectiveness or other methods to perform the task should be explored. Conversely, if ICT is having a positive impact, then ICT methods should be used again.

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<sup>1</sup> [www.serviceleader.org](http://www.serviceleader.org)

Identification of the types of tasks that have been effective in meeting volunteer needs and program demands should be documented and shared.

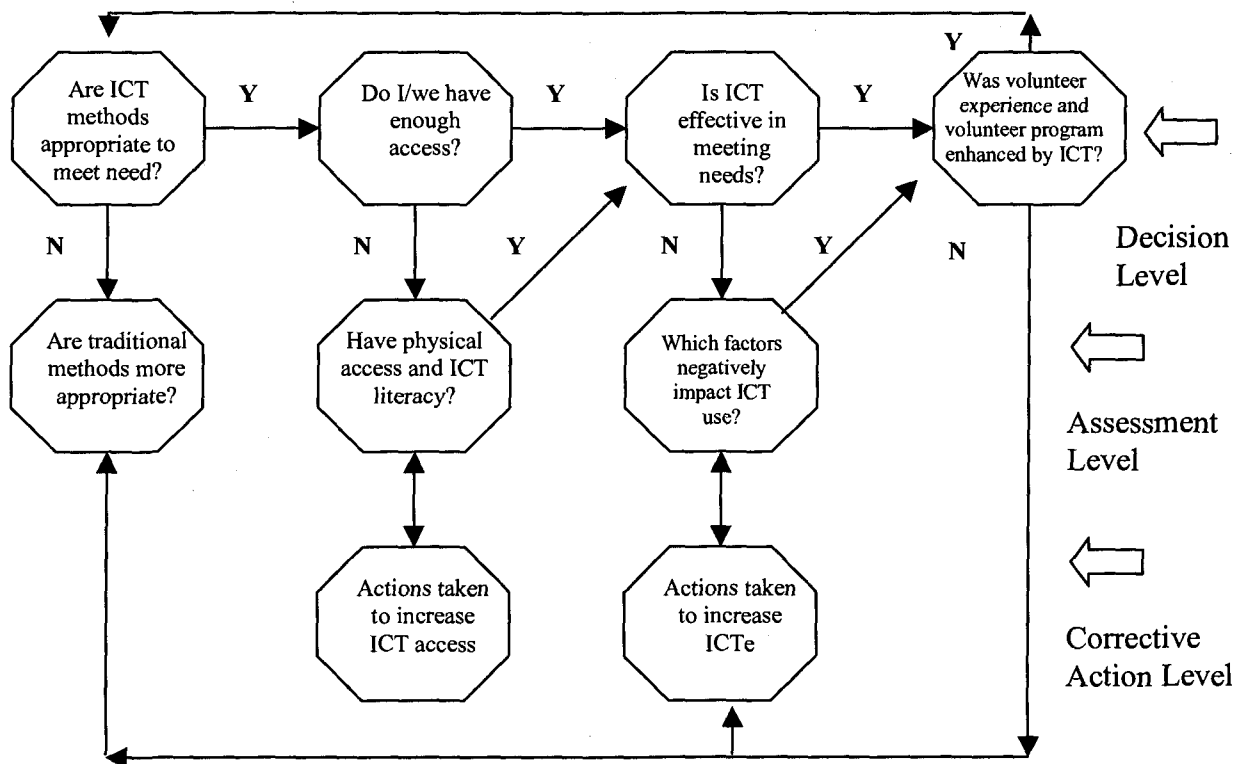


Figure 11. ICTe process logic model and decision tree

### Policy Implications

For government and sector-wide policy-making, there are several implications for policies that leaders of the voluntary sector and government should pay attention to when considering how to reduce the DED. First, they should recognize that the DED is a complex problem requiring a comprehensive approach that does not contribute to it. For example, a comprehensive approach would ensure smaller “have-not” voluntary organizations (with budgets under \$250,000) that demonstrate the need for ICT (e.g.,

have volunteer programs in excess of 50–75 volunteers) have access to government funding and support for ICT. In addition, to increase effective and innovative use of ICT, government should tie funding to ICTe or to the benefits derived from use on a number of levels (e.g., impacts at the individual, social, program, and organizational levels).

Finally, as the voluntary sector plays a larger role in the economic, political, and social life of society, government and leaders of the voluntary sector should continue working together to develop policy that targets prospective volunteers at risk for being on the wrong side of the DED. This group would include women, the poor, the unemployed, the underemployed, those who are out of workforce because of a disability or family responsibilities, and who face language or cultural barriers.

Strategies targeting these groups must be holistic, ensuring both physical access to ICT and access to ICT experience. For example, local volunteer centers, together with the federal and provincial government-sponsored employment centers, could match disadvantaged groups with unpaid work opportunities in which ICT is likely to be used. The primary purpose of providing these kinds of opportunities is to ensure the following:

- That the disconnected have opportunities to connect and contribute to civil society,
- Those on the wrong side of the DED have opportunities to develop the range of skills experiences that are necessary to participate in the new economy.

While participation strategies targeting the disadvantaged and disconnected provide potential benefits, it is important to recognize and not to lose sight of the need for traditional approaches.

### *Recommendations for Future Research*

Even though the demand for ICT use in volunteerism may not be large at present, further research is needed to track the connectedness of volunteers and volunteer programs in order to monitor adoption rates.

Future research should be directed at empirically testing the full theoretical framework. In addition to the constructs included in the voluntary sector model proposed here, a full test would include Bandura's construct of vicarious experience; the influence that the experiences of others play in shaping the attitudes inexperienced volunteers and managers have about the usefulness of ICT, and perceptions that ICT is effective in volunteerism.

One of the criticisms of the research could be that subjective rather than objective measures of performance were included to measure constructs in the model. While the literature supports use of subjective measures in assessing the effectiveness of ICT, future testing of the model could include objective measures. Convergence of objective and subjective measures of performance would function to increase the validity of the effectiveness constructs.

Finally, there is a need for case study research that questions and validates the proposed ICTe process logic and links it to effectiveness (perceived (subjective measures) and actual (objective measures)).

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**THE IMPACT OF  
INFORMATION AND COMMUNICATION TECHNOLOGY  
ON VOLUNTEERING IN CANADA**

**Questionnaire for Volunteer Program Administrators**

**Section 1****About You**

**We would like to find out some general information about you.**

1. What is your gender?
  - a. Male
  - b. Female
  
2. In which of the following age categories do you fall?
 

a. Under 25	d. 45-54
b. 25-34	e. 55-64
c. 35-44	f. 65 and Over
  
3. What is the highest level of education you have achieved?
 

a. Some High School	d. Post Secondary diploma
b. High School diploma	e. University degree
c. Some Post Secondary	f. University Graduate degree
  
4. How many years have you been using a computer? \_\_\_\_\_ Number of Years
  
5. How would you rate your computer skills?
 

Poor	Fair	Good	Excellent
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**Section 2****About Your Position**

**We would like to find out some general information about your position as volunteer program administrator.**

6. As the administrator of the volunteer program in your organization, how many years of previous experience have you had in this and other similar positions?  
\_\_\_\_\_ Years
  
7. Indicate the approximate number of hours you work as volunteer program administrator per week:  
\_\_\_\_\_ Hours per Week

8. Indicate the major tasks/responsibilities of your position and the percentage of your time devoted to each: % Time

- a. Recruiting and selecting \_\_\_\_\_
- b. Scheduling \_\_\_\_\_
- c. Placement \_\_\_\_\_
- d. Managing relationships \_\_\_\_\_
- e. Training \_\_\_\_\_
- f. Other \_\_\_\_\_

If 'other' describe tasks/responsibilities and note the % of time:

\_\_\_\_\_

\_\_\_\_\_

9. Sometimes volunteer administration positions also include duties not related to volunteers. Does this apply to your position? Yes No

10. If 'yes', what percentage of your time is spent on duties not related to volunteers?

\_\_\_\_\_ % Time

<b>Section 3</b>	<b>About the Volunteer Program</b>
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**We would like to know about the volunteer program.**

11. How long has your volunteer program been in existence? \_\_\_\_\_ Number of Years

12. Approximately, how many volunteers are involved in your program per year?

\_\_\_\_\_ Number of Volunteers

13. Approximately, what percentage of work in your organization is performed by volunteers? (Check one)

- |                  |             |
|------------------|-------------|
| a. Less than 15% | d. 46-60%   |
| b. 16-30%        | e. 61-75%   |
| c. 31-45%        | f. Over 75% |

14. What kinds of volunteer positions are available in your organization (check as many as apply):

- a. Providing services directly to clients
- b. Assisting with office and administrative tasks
- c. Helping with fund-raising activities (e.g. special events, campaigns)
- d. Assisting in business-related activities such as a shop
- e. Performing leadership roles (e.g. board of directors, committees)
- f. Assisting with maintenance or repairs
- g. Other volunteer activities

If 'other', please identify: \_\_\_\_\_

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**We would like to know about the use of information and communications technology (ICT), such as computers and computer software applications, in the volunteer program.**

15. Which of the following do you have set-up for your use in the volunteer program:

- a. Personal computer
- b. Handheld computer
- c. Cellular phone
- d. Fax machine

16. If you have use of a personal computer in the volunteer program, how old is this computer?

\_\_\_\_\_ Number of Years

17. In the volunteer program, do you have access to professional computer support when you need it (e.g. computer helpdesk)?

Yes No

18. Which of the following functions do you use a computer for in the volunteer program? (Check as many as apply)

- a. Keeping records on volunteers
- b. Keeping records on volunteer positions
- c. Scheduling volunteers
- d. Internet communication (e.g. email)
- e. Preparing volunteer position descriptions
- f. Preparing newsletters, advertisements, etc.
- g. Preparing letters, reports and other documents
- h. Other

If 'other', please describe: \_\_\_\_\_

---

19. What computer software applications do you use in the volunteer program?  
 (Check and if possible name all the applications you use, e.g. Word 2000,  
 Volunteer Works, MS Office Professional...)

	Application Name
a. Office suite	_____
b. Word-processing	_____
c. Desk top publishing	_____
d. Spread sheet	_____
e. Specialized Volunteer Management	_____
f. Statistics	_____
g. Graphics	_____
h. Financial	_____
i. Communications (e.g. Internet, email)	_____
j. Other:	_____

---

**We would like to know about the use of information and communications technology like the Internet (World-Wide-Web and Websites) and electronic mail (email) for sending or receiving information in the volunteer program.**

20. Do you have access to the Internet in the volunteer program      Yes    No

21. Do you use your Internet access to search the Internet?      Yes    No  
**If 'no', skip to question 24**

22. If 'yes', what kinds of information do you usually search for on the Internet?

- a. Volunteer Management
- b. Other Volunteer Agencies
- c. Volunteer Resources
- d. Other

If 'other', please describe: \_\_\_\_\_

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23. Do you usually find the information you need when you search the Internet?  
 I usually find the information I need... (Check one)

- a. About 75% or more of the time
- b. About 50-75% of the time
- c. About 25-50% of the time
- d. Less than 25% of the time

24. Do you have an electronic mail (email) account setup for the use of the volunteer program? Yes No

**If 'no', skip to question 32**

25. Do you use this email account? Yes No

**If 'no', skip to question 32**

26. If 'yes', from which points can you access this email account?

- a. From my office only
- b. From my home only
- c. From my home and office

27. Which of the following groups of people do you communicate with using this email account? (Check as many as apply)

- a. Management and staff in our organization
- b. Board and committee volunteers
- c. Office and administrative volunteers
- d. Direct service delivery volunteers
- e. Fundraising volunteers
- f. Colleagues in other organizations
- g. Prospective volunteers
- h. Other

If 'other', please specify: \_\_\_\_\_

28. What general purpose(s) do you use e-mail for? (Check as many as apply)

- a. Listserv providing information to all volunteer program members
- b. Sharing minutes of meetings with volunteers
- c. Notifying volunteers of events and meetings
- d. Communicating with volunteers about their position or work schedule
- e. Recognition messages to individual volunteers (e.g. thank-you)
- f. Sharing information with colleagues in other organizations
- g. Sharing information with management and staff in our organization
- h. Other

If 'other' please specify \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

29. In your opinion, what do you find are the advantages of email? (Check as many as apply)

- a. It is fast
- b. It makes me more efficient
- c. It is convenient
- d. It is an effective relationship management tool
- f. No advantages
- g. Other

If 'other', please specify: \_\_\_\_\_

30. In your opinion, what do you find are the disadvantages of email? (Check as many as apply)

- a. I do not have enough time to answer all of my email
- b. I find email confusing
- c. I find email adds to my workload
- d. I do not find email as effective as the telephone
- e. I do not find email as effective as a face-to-face meeting
- f. No disadvantages
- e. Other

If 'other' please specify: \_\_\_\_\_

31. Overall, indicate how useful a communication medium you perceive email to be in meeting the tasks/responsibilities of a volunteer program administrator?

- a. Very useful
- b. Useful
- c. Not very useful

32. To what extent has the use of information and communications technology in the volunteer program resulted in the following: (Check as many as apply)

Large Moderate Small Not  
Extent Extent Extent At All

- a. Reduced cost
- b. Increased productivity
- c. Improvements in the overall efficiency
- d. Improvements in service quality
- e. Other

If 'other' please describe extent of results:

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## Section 4

**We would like to know about the recruitment of volunteers in the volunteer program.**

33. How do you currently recruit your volunteers? (Check all that apply)

- a. Present volunteers find people for us
- b. Potential volunteers come to our office or phone us
- c. We recruit through our organization's web site
- d. We use paid or free publicity in newspapers, radio and TV
- e. We use Volunteer Victoria's recruitment services
- f. Other

If you checked 'f', please describe: \_\_\_\_\_

34. Please rank order the recruitment methods identified in question 6 above with 1 indicating "most effective" to 6 indicating "least effective" in yielding applications for volunteer opportunities.

Rank Order

- a. Current volunteers' word of mouth
- b. Office visits or phone calls
- c. Web site
- d. Newspapers radio and TV
- e. Volunteer Victoria recruitment services
- f. Other

As you may know, *Volunteer Victoria* operates a volunteer opportunities information system called *VICTA*. When member organizations submit a request for volunteers to *Volunteer Victoria* it is automatically posted on the *VICTA* system. *VICTA* enables prospective volunteers to input information on the kind of volunteer positions they prefer into the system. *VICTA* then searches to match and find opportunities that meet the user's volunteer needs and preferences. Though the *VICTA* system has been available on computer in the offices of Volunteer Victoria for the past 6 years, in 1998 *VICTA* was made available to volunteers on the Internet through Volunteer Victoria's Website, [www.volunteervictoria.bc.ca](http://www.volunteervictoria.bc.ca).

35. Have you heard of Volunteer Victoria's volunteer opportunities information system (VICTA)? (Please check as many as apply)
- I am aware of the computer-based system
  - I am aware of the on-line system
  - I am unaware of this system
36. Since Volunteer Victoria began using the online VICTA system in January 1998, have you noticed any increase or decrease in the numbers of volunteers applying for work in your organization?
- I have noticed an increase in applicants
  - I have noticed a decrease in applicants
  - I have not noticed any change in the number of applicants

**If you have not used VICTA, please skip to question 42**

37. Have you had prospective volunteers tell you that they applied to you because they learned about your program through Volunteer Victoria's on-line volunteer opportunities information system (VICTA)?
- Yes    No
38. If you have submitted requests for volunteers through Volunteer Victoria's information system (VICTA) approximately, how many requests for volunteer positions have you submitted over the past year?
- \_\_\_\_\_ Number of Positions
39. Approximately, what percentage of the volunteers that you have taken on over the past year received their lead to your organization through Volunteer Victoria's information system (VICTA)?
- \_\_\_\_\_ %
40. In your experience, how would you rate VICTA's effectiveness in producing prospective volunteers for your program? (Check one)
- Poor                  Fair                  Good                  Excellent
41. Do you have any recommendations on how Volunteer Victoria might improve VICTA (the volunteer opportunities information system)? Please describe in the space provided or on the final page of this survey if additional space is necessary.

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**Another source of potential volunteers that is based on interactive computer technology is the Volunteer Opportunities Exchange (VOE) operated nationally by Volunteer Canada.**

42. Have you heard of the VOE? Yes No
43. Have you ever submitted a request for volunteers through the VOE? Yes No
44. Would you be interested in learning more about the VOE Yes No
45. How likely is it that you will make use of the VOE in the next 12-18 months?
- a. Not likely at all
  - b. Some possibility
  - c. Highly likely

**The following questions pertain to the recruitment of on-site and off-site or ‘virtual volunteers’. On-site volunteers are those who are physically present to perform volunteer work, while off-site or ‘virtual volunteers’ are those who use information and communications technology to perform volunteer work without having to be physically present.**

46. How many openings for on-site volunteers did you have in the past year? \_\_\_\_\_ Number
- a. About how many enquiries did you get in response to these openings? \_\_\_\_\_ Number
  - b. About how many on-site volunteers did you actually place in your volunteer program in response to these openings? \_\_\_\_\_ Number
47. Have you had openings for ‘virtual volunteers’ during the past year? Yes No

**If ‘no’, please skip to question 50**

48. If ‘yes’, about how many openings for ‘virtual volunteers’ did you have during the past year? \_\_\_\_\_ Number
- a. About how many enquiries did you receive regarding your virtual volunteer openings? \_\_\_\_\_ Number
  - b. About how many virtual volunteers did you actually end up using? \_\_\_\_\_ Number

49. How did you go about finding people to fill 'virtual volunteer' openings?
- Word of mouth recruiting
  - Ads in the media
  - Volunteer Victoria (VICTA)
  - Volunteer Canada (VOE)
  - Other
- If 'other', please describe: \_\_\_\_\_
- 
50. If you have used 'virtual volunteers', for what purpose(s) did you use them?  
(Check all that apply)
- Service to clients (e.g. mentoring)
  - Desk-top publishing (e.g. newsletters, banners and posters)
  - Research (i.e. statistics and literature search)
  - Developing websites
  - Maintaining websites
  - Fundraising
  - Policy development
  - Developing manuals
  - Distance-based training and education for staff and volunteers
  - Management consulting
  - Other
- If 'other', please specify what purpose: \_\_\_\_\_
- 
51. Of the 'virtual volunteers' you have used in the volunteer program, did you notice any difference in the quality of their work as compared to on-site volunteers?
- I found the work of virtual volunteers to be of higher quality
  - I found no difference in the quality of virtual volunteers work
  - I found the work of virtual volunteers to be of lower quality
52. Of the 'virtual volunteers' you have used in the volunteer program, did you notice any difference in their dependability as compared to on-site volunteers?
- I found virtual volunteers to be more dependable
  - I found no difference in the dependability of virtual volunteers
  - I found virtual volunteers to be less dependable

53. Which of the following statements best describes your position on the concept of 'virtual volunteering':
- We have used virtual volunteers in our organization and they have worked out successfully so we would use them again.
  - We have not had a chance to explore the contribution of virtual volunteering to our organization but we think it may have promise.
  - We have used virtual volunteers and they have not worked out so we would not use them again.
  - In general, virtual volunteering may be a useful idea though not one that we would be able to make use of in our particular organization.
  - For most nonprofit organizations there are very few volunteer activities that can be undertaken by people without direct physical contact with the Organization, so virtual volunteering is a concept of very little value.

## Section 5

## About the Volunteer Organization

**We would like to find out some general information about the organization in which your volunteer program is a part.**

54. What is the full name of the organization you work for?

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55. Briefly describe the nature of the services your organization provides?

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56. What is the approximate annual budget of your organization?

- |                           |                             |
|---------------------------|-----------------------------|
| a. Under \$50,000         | d. \$500,000 to \$1,000,000 |
| b. \$50,000 to \$250,000  | e. Over \$1,000,000         |
| c. \$250,000 to \$500,000 |                             |

57. Within your organization's budget, approximately what percentage is allocated to your volunteer program? (Check one)

- |                  |                     |
|------------------|---------------------|
| a. Less than 10% | d. 31-40%           |
| b. 10-20%        | e. 41-50%           |
| c. 21-30%        | f. Greater than 50% |

58. Within your volunteer program budget in the past year, approximately what percentage is allocated to buying and maintaining computers, computer software, Internet access and related resources like training? (Check one)

- |                  |                     |
|------------------|---------------------|
| a. Less than 10% | c. 21-30%           |
| b. 11-20%        | d. Greater than 30% |

59. Does your organization have an Internet Website? Yes No

60. If 'yes', which of the following are features of your organization's Website:  
Our Website contains...(Check as many as apply)

- a. Information about our volunteer program
- b. Information on current postings for volunteers
- c. Application forms for volunteer positions that can be downloaded
- d. Prospective volunteers can apply for a position on-line
- e. On-line listserv (i.e. all recipients are sent the same information)
- f. On-line discussion groups for volunteers (e.g. Web board)
- g. On-line surveys (i.e. volunteers provide input on important issues)
- h. On-line database can be accessed by other volunteer agency's
- i. On-line database communicates with other agency databases  
(i.e. database information is shared )
- j. Linkages to other volunteer agencies (local, regional, national)
- k. Other  
If 'other', please describe these features: \_\_\_\_\_

36. Are there features that are not presently a part of your organization's Website that you would like to see there? Yes No

37. If 'yes' please describe the features you would like to see on your organization's Website:

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38. Does your organization have any policies or guidelines covering how you are to use the Internet? Yes No

## Section 6

## About the Factors Affecting the Use of Information and Communication Technology

Obviously not everyone uses computers and information technology in all the ways they might be used, nor should they. The following questions ask about the factors affecting the use of information and communications technology.

39. When I look over the various ways that computers and information and communications technology (ICT) are used in the volunteer program as revealed in this questionnaire:
- I am completely satisfied with how these tools are used.
  - There are a few improvements I would like to make.
  - There are many improvements I would like to make.
40. If you checked (b) or (c) in the question above, which of the following changes would you like to make if you could? (Check as many as apply)
- |                              |  |
|------------------------------|--|
| a. Newer computer            | f. More Internet access points for volunteers (e.g. school, library) |
| b. Access to the Internet    | g. Volunteer email accounts  |
| c. More volunteer software   | h. More affordable ICT tools   |
| d. More training             | i. Interactive Website   |
| e. More technical assistance | j. Other   |

41. Please describe the changes you would like to make if you could:

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42. Realistically speaking, which of these changes are you likely to make in the next two years?

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43. In so far as you may not be able to make the changes you would like to make (as noted in question 67 above), why is that? (Please check as many as apply and note the most important one with an asterisk \*)

- a. We do not have enough knowledge and experience in our program to implement the needed changes. \_\_\_\_\_ (Most Important?)
- b. We do not have enough money to enable us to obtain the needed equipment, staff and training. \_\_\_\_\_ (Most Important?)
- c. There are not enough training opportunities provided in convenient form (place, time cost). \_\_\_\_\_ (Most Important?)
- d. The culture of our organization does not value the volunteer program highly enough to invest in new technology for it. \_\_\_\_\_ (Most Important?)
- e. Other priorities for my time must come first. \_\_\_\_\_ (Most Important?)
- f. There is a lack of technical assistance to implement the needed changes within our organization \_\_\_\_\_ (Most Important?)
- g. Other barriers to change: \_\_\_\_\_ (Most Important?)

If 'other', please describe each barrier

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44. Are there any other comments you would like to make on the use of computers, the Internet or email in your volunteer programs? Please note them here and on the last page of this survey if necessary.

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**Many thanks for helping us with this research project.**

As an additional component of this research project we would like to compare volunteers who find their volunteer opportunities without the aid of computers with those who use computers. To help us with this we would very much appreciate a chance to send a short questionnaire to a sample of your volunteers. You would be provided with a summary report of these answers. If you would be willing to assist us in this regard, could you please provide information on how we can contact you?

\_\_\_\_\_ I would be willing to discuss a survey of a sample of our volunteers for your project (Check )

*Respondent Information*

*Name and title:* \_\_\_\_\_

*Organization:* \_\_\_\_\_

*Address:* \_\_\_\_\_

*Phone Number* \_\_\_\_\_

*Signature* \_\_\_\_\_

**RETURN THE COMPLETED QUESTIONNAIRE IN THE ENCLOSED POSTAGE PAID ENVELOPE BY OCTOBER 30<sup>TH</sup> AND YOU WILL BE ENTERED INTO A DRAW FOR A \$300.00 GIFT CERTIFICATE AT OFFICE DEPOT. IF YOU HAVE ANY QUESTIONS PLEASE DO NOT HESITATE TO CONTACT US. MANY THANKS FOR YOUR HELP.**

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**Use the space on the following page to add any final thoughts you might have about this project or the subject of computers and volunteer management.**

**On Volunteering in Canada**

**Questionnaire for Volunteers**

**Section 1****About You**

**We would like to find out some general information about you.**

1. What is your gender?
  - a. Male
  - b. Female
  
2. In which of the following age categories do you fall?
  - a. Under 20
  - b. 20-25
  - c. 26-30
  - d. 31-40
  - e. 41-50
  - f. 51 and Over
  
3. What is the highest level of education you have achieved?
  - a. Some high school
  - b. High school diploma
  - c. Some post secondary
  - d. Post secondary diploma
  - e. Some university
  - f. University undergraduate degree
  - g. University graduate degree
  - h. Other
  
4. What is your employment status? (Check as many as apply)
  - a. I am employed
  - b. I am self-employed
  - c. I am seeking employment
  - d. I am a student
  - e. I am a homemaker
  
5. If employed, on average, how many hours are you employed per week?
  - a. Less than 10
  - b. 11-20
  - c. 21-30
  - d. 31-40
  - e. Greater than 40

**Section 2****About Your Position**

**We would like to find out some general information about your volunteer job.**

6. What is the full name of the organization you volunteer for?
  
7. Approximately how many hours do you volunteer per week
  - a. Less than 2
  - b. 3-5
  - c. 6-10
  - d. 11-15
  - e. More than 15

8. People have many reasons for volunteering. Please check the statements below that best represent your reasons for volunteering. I do volunteer work because...
- I want to help a cause I personally believe in.
  - I am personally affected by the cause of the organization
  - My friends volunteer.
  - I can improve my chances of getting paid work.
  - It is part of my religious obligations or beliefs.
  - It allows me to use my skills and experiences
  - I want to explore my own strengths
  - I was asked to help
  - I get a chance to learn new skills
  - It allows me to gain work experience
  - It allows me to try out a specific job/career path
  - None of these
9. What are the most important considerations for you when it comes to choosing a volunteer opportunity? I prefer a volunteer opportunity that...
- Has flexible hours
  - Provides for a specific type of volunteer work
  - Is with a specific type of group or organization
  - Is in a specific location
  - I do not have any preferences
  - Other preferences  
If 'other preferences', please describe: \_\_\_\_\_
10. How did you first become a volunteer for this organization?
- Someone in the organization asked me
  - A friend/relative outside the organization asked me
  - My boss at work asked me
  - I responded to a public appeal in the media (newspaper/radio)
  - I was referred by a volunteer bureau (e.g. Volunteer Victoria)
  - I approached the organization on my own initiative
  - I used the Internet to look up my volunteer opportunity
  - I was a member of the organization and they asked for my help
  - I was nominated, appointed or elected to my position

j. I founded the organization Continued on next page...

k. Other

If 'other', please specify how you first became a volunteer for this organization:  
\_\_\_\_\_

11. How long have you been a volunteer for this organization?

- |                       |                      |
|-----------------------|----------------------|
| a. Less than 6 months | d. 3 to 6 years      |
| b. 6 months to 1 year | e. More than 6 years |
| c. 1 to 3 years       |                      |

12. Indicate the main volunteer task you carry out in your position:

- a. I provide direct service to clients
- b. I assist with office and administrative tasks
- c. I help with fundraising activities
- d. I assist with business-related activities such as a shop
- e. I perform leadership roles (e.g. board of directors, committees)
- f. I assist with maintenance or repairs
- g. I assist with computer tasks (e.g. data entry)
- h. I assist with desk-top publishing (e.g. manuals, newsletters)
- i. I assist with research (e.g. Gathering statistics, Internet searching)
- j. I assist with developing Websites
- k. I assist with maintaining Websites
- l. I carry out training and education for staff and volunteers
- m. I provide management consulting services
- n. Other  
If 'other', please describe the volunteer task you carry out:  
\_\_\_\_\_

13. Does your volunteer position allow you to volunteer for the organization 'virtually' (commonly know as 'virtual volunteering')? *(Note: virtual volunteering is work performed by a volunteer off-site using information and communications technology like a computer to perform and/or send and receive the volunteer work to the organization)*

**If no skip to question 15**

Yes No

14. If you have performed 'virtual volunteer' work, what type of work was this?

- a. Direct service to clients
- b. Assisting with office and administrative tasks

- c. Helping with fundraising activities
  - d. Assisting with business-related activities such as a shop
- Continued on next page...
- e. Performing leadership roles (e.g. board of directors, committees)
  - f. Assisting with maintenance or repairs
  - g. Assisting with organization communications
  - h. Desk-top publishing (e.g. manuals, newsletters, banners and posters)
  - i. Research (e.g. Gathering statistics, Internet searching)
  - j. Developing Websites
  - k. Maintaining Websites
  - l. Training and education for staff and volunteers
  - m. Management consulting
  - n. Other
- If 'other', please describe the volunteer task/responsibility:
- 
- 

15. Which of the following statements best describes your thoughts about virtual volunteering:

- a. I have tried virtual volunteering and it has worked out successfully so I would try it again.
- b. I have not had a chance to try virtual volunteering but I think it may have promise.
- c. I have known other virtual volunteers and they have been successful so I would consider volunteering in this way.
- d. In general, virtual volunteering may be a useful idea though not one that I would be able to make use of in my particular volunteer organization
- e. In nonprofit organizations there are very few volunteer activities that can be undertaken by people without direct physical contact with the organization so virtual volunteering is a concept of very little value.

### Section 3      About Your Use of Information and Communications Technology

We would like to know about your use of information and communications technology like computers and the Internet.

16. Do you have access to a personal computer? Yes    No
17. If 'no' how likely are you to have access to a personal computer within the next two years?
- a. Highly Likely δ
- b. Fairly Likely δ
- c. Not at all Likely δ
18. If you do have a personal computer, how many years have you been using it?  
Number of Years \_\_\_\_\_
19. How would you rate your computer skills?
- Poor                      Fair                      Good                      Excellent
20. Currently, what do you use a computer for? (Check as many as apply)
- i. Personal and/or family use
- j. Work or Professional business
- k. Volunteering
- l. Other
- If 'other', please describe: \_\_\_\_\_
21. Do you have access to the Internet? Yes    No
22. If 'no' how likely is it that you will have access to the Internet within the next year?
- a. Highly Likely
- b. Fairly Likely
- c. Not at all Likely

23. If 'yes' do you search the Internet for information on volunteer opportunities?

Yes No

24. If you have not searched the Internet for information on volunteer opportunities, would you be interested in learning more about this type of service?

Yes No

25. Do you have access to email?

Yes No

**If no, please skip to question 32**

26. Do you use email in your volunteer position?

Yes No

**If no, please skip to question 30**

27. If you use email in your volunteer position, for what general purpose(s) do you use it? (Check as many as apply)

h. Requests for information about the volunteer organization

i. Requests for information about your volunteer position

j. Responding to scheduling requests

k. Sharing information with other volunteers

l. Personal messages to the program administrator

m. Other

If 'other' please specify \_\_\_\_\_

28. Are there other purposes you would like to use email for in your volunteer position that you do not currently use email for now? Yes No

29. If 'yes' describe what other purpose(s) you would like to use email for in your volunteer position:

30. What do you perceive are the advantages of using email in your volunteer position? (Check as many as apply)

a. Saves me time

b. Is an effective relationship building tool

c. Is an effective relationship management tool

d. Makes my volunteer work easier

- e. Is fast
  - f. Is convenient
  - g. Other  
If 'other', please specify \_\_\_\_\_
- 

31. What do you perceive are the disadvantages of using email? (Check as many as apply)

- a. I do not have enough time to answer my email
- b. I do not find email as effective as the telephone
- c. I do not find email as effective as a face-to-face meeting
- d. Other  
If 'other' please specify \_\_\_\_\_

As you may or may not be aware, *Volunteer Victoria* operates a volunteer opportunities information system called *VICTA*. When member organizations submit a request for volunteers to *Volunteer Victoria* it is automatically posted on the *VICTA* system. *VICTA* enables prospective volunteers to input information on the kind of volunteer positions they prefer into the system. The system then searches to find opportunities that meet the user's volunteer needs and preferences.

32. Are you aware of Volunteer Victoria's on-line (Internet) volunteer recruitment and referral system (VICTA)?

Yes No

**If no skip to question 36**

33. Have you used Volunteer Victoria's on-line recruitment and referral system (VICTA)?

Yes No

**If no skip to question 36**

34. Approximately, how many of the volunteer positions that you have taken on were found through Volunteer Victoria's on-line recruitment and referral system (VICTA)?

Number \_\_\_\_\_

35. Did you find that Volunteer Victoria's on-line volunteer opportunity information system (VICTA) provided you with the volunteer information you needed? (Check one)

- a. Found everything that I needed
- b. Found most of what I needed
- c. Found little of what I needed
- d. Found none of what I needed

**Another source of potential volunteers that is based on interactive computer technology is the Volunteer Opportunities Exchange (VOE) operated nationally by Volunteer Canada.**

36. Are you aware of Volunteer Canada's on-line (Internet) volunteer recruitment and referral system (VOE)?

Yes No

**If no, skip to question 40**

37. Have you used Volunteer Canada's on-line recruitment and referral system (VOE) to find volunteer opportunities?

Yes No

**If no skip to question 40**

38. Approximately, how many positions that you have taken on were found through Volunteer Canada's on-line recruitment and referral system (VOE)?

\_\_\_\_\_ Number

39. Did you find that Volunteer Canada's on-line volunteer opportunity information system (VOE) provided you with the volunteer information you needed? (Check one)

- a. Found everything that I needed      c. Found little of what I needed  
b. Found most of what I needed      d. Found none of what I needed

40. Thinking back over the times you have used Internet volunteer opportunity information system services, how likely are you to use this type of service in the future? (*If you have not used Internet services please skip to next question*)

Very Likely    Somewhat Likely    Somewhat Likely    Very Likely

#### **Section 4 About the Factors Affecting the Use of Information and Communication Technology**

**Obviously not everyone uses computers and information technology in all the ways they might be used, nor should they. The following questions ask about the factors affecting your use of information and communication technology in your volunteer position.**

41. When I look over the various ways that I use information and communications technology in my volunteer work as revealed in this questionnaire:

- a. I am completely satisfied with how I use these tools.
- b. There are a few improvements I would like to make.
- c. There are many improvements I would like to make.

42. If you checked (b) or (c) in the question above, which of the following changes would you like to make if you could? (Check as many as apply)

I would like to...

- a. Be able to volunteer virtually
- b. Be able to use technology in my volunteer work more
- c. Have my own volunteer email account
- d. Have access to the Internet
- e. Have access to computer support
- f. Use the Internet more
- g. Obtain training on how to use technology in my volunteer work
- h. Other

If 'other', please specify \_\_\_\_\_

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43. What are the main reasons you are not able to make the changes you would like to have made in the question above? (Please check as many as apply and note the most important one with an asterisk \*)

- h. I do not have enough knowledge and experience to make these changes.  
\_\_\_\_\_ (Most Important?)
- i. I do not have enough time to make these changes.  
\_\_\_\_\_ (Most Important?)
- j. I do not have enough money to make these changes.  
\_\_\_\_\_ (Most Important?)

- k. The organization does not provide enough training opportunities for me to make these changes. \_\_\_\_\_ (Most Important?)
- l. The organization does not use technology and therefore I have no need too make any changes. \_\_\_\_\_ (Most Important?)
- m. Other barriers to change: \_\_\_\_\_ (Most Important?)  
If 'other', please describe why you are not able to make the changes you would like to make if you could:
- 

44. ~~Are there any other comments you would like to make on the use of computers, the Internet or email in your volunteer programs? Please note them here and on the last page of this survey if necessary.~~

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**Many thanks for helping us with this research project.**

**If you require additional writing space, for any question, please feel free to use the writing space provided on the following pages. Please remember that the information you provide to us is completely confidential and only statistical summaries will be reported. If you would like a copy of the summary report, please feel free to contact us or provide contact information below.**

***Contact Information***

***Name:*** \_\_\_\_\_

---

***Organization:*** \_\_\_\_\_

---

***Email:*** \_\_\_\_\_

---

***Phone Number*** \_\_\_\_\_

**Dr. Vic Murray**  
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## You could win a PALM PILOT Handheld

**Please take a moment to answer some simple questions about the ways modern information and communications technology is being used in your volunteer program and you can enter to win.**

**It will only take a few minutes - get started!**

About the Survey

Contest Rules and Regulations

### About You and Your Position

We would like to find out some general information about you and your position.

#### 1. What is your gender?

- Male                       Female

#### 2. What is the highest level of education you have achieved?

- |  |   |
|--|---|
| <input type="checkbox"/> Some high school    | <input type="checkbox"/> Post secondary diploma     |
| <input type="checkbox"/> High school diploma | <input type="checkbox"/> University degree          |
| <input type="checkbox"/> Some post secondary | <input type="checkbox"/> University graduate degree |

#### 3. How many years have you been using a computer?

Drop box with categories Less than 5; 6-10, 11-15 years; greater than 15 years

#### 4. How would you rate your computer skills?

- |                               |                                    |
|-------------------------------|------------------------------------|
| <input type="checkbox"/> Poor | <input type="checkbox"/> Good      |
| <input type="checkbox"/> Fair | <input type="checkbox"/> Excellent |

#### 5. What is your position?

- Executive Director
- Coordinator of Volunteers
- Board Member
- Other

**6. How many years of experience do you have in this and other similar positions?**

- Drop Box with the following categories: Less than 5; 5-10; 11-15; Greater than 15

**7. Indicate the major tasks/responsibilities of your position:**

- Recruiting and selecting volunteers
- Scheduling volunteers
- Placement of volunteers
- Managing relationships
- Training
- Planning
- Other (Must answer 8)

**8. If other, please describe:**

### About the Use of Technology in the Volunteer Program

We would like to know about the use of information and communications technology (ICT), such as computers and computer software applications, in the volunteer program.

**9. Which of the following types of ICT do you use in the volunteer program:**

- |  |   |
|--|---|
| <input type="checkbox"/> Personal computer | <input type="checkbox"/> Networks, servers or mainframe computers |
| <input type="checkbox"/> Handheld computer | <input type="checkbox"/> Standard off-the shelf software          |

- |   |   |
|---|---|
| <input type="checkbox"/> Cellular phone | <input type="checkbox"/> Specialized <i>Volunteer Management</i> software |
| <input type="checkbox"/> Fax machine    | <input type="checkbox"/> Internet-based software                          |

**10. Which of the following functions do you use a computer for in the volunteer program?**

- Keeping records on volunteers
- Keeping records on volunteer positions
- Scheduling volunteers
- Internet Communication (email)
- Preparing volunteer position descriptions
- Preparing newsletters, advertisements, flyers, brochures...
- Preparing letters, reports and other documents
- Other

**11. What general purpose (s) do you use the Internet for?**

- Searching for information
- Organization Website
- Communication (email)
- Recruiting prospective volunteers
- Other

**12. If other, please describe:**

**13. If you use the Internet to search for information, do you usually find the information you need? I usually find the information I need...**

- |  |  |
|--|--|
| <input type="checkbox"/> About 75% or more of the time | <input type="checkbox"/> About 25-50% of the time  |
| <input type="checkbox"/> About 50-75% of the time      | <input type="checkbox"/> Less than 25% of the time |

**14. Which of the following are features of your organization's Website:**

- Information about our volunteer program
- Information on current postings for volunteers
- Application forms for volunteer positions that can be downloaded
- Prospective volunteers can apply for a position on-line
- On-line listserv
- On-line discussion groups (e.g. Web board)
- On-line surveys (i.e. volunteers provide input on important issues)
- Linkages to other volunteer agencies (local, regional, national)
- On-line database communicates with other agency databases (i.e. volunteer posting is shared automatically)
- Other

**15. What general purpose (s) do you use email for?**

- Listserv providing information to all volunteer program members
- Sharing minutes of meetings with volunteers
- Notifying volunteers of events and meetings
- Communicating with volunteers about their position or work schedule
- Recognition messages to individual volunteers (e.g. thank-you)
- Sharing information with colleagues in other organizations
- Sharing information with management and staff in our organization
- Other

**16. What do you find are the advantages of email?**

- It is fast
- It makes me more efficient
- It is convenient
- It is an effective relationship management tool
- No advantages
- Other

**17. What do you find are the disadvantages of email?**

- I do not have enough time to answer all of my email
- I find email confusing
- I find email adds to my workload
- I do not find email as effective as the telephone
- I do not find email as effective as a face-to-face meeting
- Other

**18. Overall, indicate how useful a communication medium you perceive email to be in meeting the tasks/responsibilities of a volunteer program administrator:**

- Very useful
- Useful
- Not very useful

## About the Use of Volunteers in the Volunteer Program

**We would like to know about the use of volunteers you use in the volunteer program.**

Please Note: 'Virtual volunteers' are those volunteers who use information and communications technology like computers and the Internet to perform or mediate volunteer work without physical presence in the organization. 'On-site' volunteers include all other types of volunteer positions where physical presence is required.

**19. Approximately how many volunteers are involved in your program per year?**

**Drop box with number of volunteers**

Drop Box with the following categories: Less than 10; 11-25; 26-50; 51-75; 76-100; 101-200; More than 200

20. Approximately, how many different volunteer positions did you have open last year?

**Drop Box with the following categories: 5 or fewer; 6-10; 11-15; 16-20; 21-30; 31-40; and greater than 40**

21. About how many volunteers did you actually place in your volunteer program in response to these openings?

Drop Box with the following categories: None, Less than 5; 6-10; 11-15; 16-20; 21-30; 31-40; and greater than 40

22. What kinds of work do you use volunteers for in the volunteer program?

- |   |  |
|---|--|
| <input type="checkbox"/> Providing services directly to clients         | <input type="checkbox"/> Performing leadership roles (e.g. board of directors) |
| <input type="checkbox"/> Assisting with office and administrative tasks | <input type="checkbox"/> Assisting with maintenance or repairs                 |
| <input type="checkbox"/> Helping with fund-raising activities           | <input type="checkbox"/> Coordinate media events (e.g. newspaper, radio)       |
| <input type="checkbox"/> Assisting with business-related activities     | <input type="checkbox"/> Other   |

23. If 'other', please describe the type of volunteer work performed in the space below:

24. Of the volunteer openings you have had in the volunteer program in the past year, were there any openings for volunteer work that could be performed 'virtually' by way of information and communications technology without physical presence in the organization? (If yes move to question 25, if 'no' bypass 25-32 and start at question 33)

Yes       No

25. About how many enquiries did you receive regarding your 'virtual volunteer' openings?

**Drop Box with the following categories: None, Less than 5; 6-10; 11-15; 16-20; 21-30; 31-40; and greater than 40**

26. Approximately, how many 'virtual' volunteers did you actually place in the volunteer program in response to these openings?

**Drop Box with the following categories: None, Less than 5; 6-10; 11-15; 16-20; 21-30; 31-40; and greater than 40**

**27. Of the 'virtual volunteers' you have used, did you notice any difference in the quality of their work as compared to other volunteers (i.e. those that do not use technology to perform volunteer work)?**

I found the work of virtual volunteers to be of higher quality

I found no difference in the quality of virtual volunteers work

I found the work of virtual volunteers to be of lower quality

**28. Of the 'virtual volunteers' you have used in the volunteer program, did you notice any difference in their dependability as compared to other volunteers (i.e. those that do not use technology to perform volunteer work)?**

I found virtual volunteers to be more dependable

I found no difference in the dependability of virtual volunteers

I found virtual volunteers to be less dependable

**29. How did you go about finding volunteers to fill 'virtual volunteer' openings?**

Word of mouth recruiting

Ads in the media

Internet recruitment services

Other (answer 30 below)

**30. If other, please describe:**

--

**31. If you have used 'virtual volunteers' for what purpose did you use them?**

- |  |  |
|--|--|
| <input type="checkbox"/> Service to clients (e.g. mentoring) | <input type="checkbox"/> Fundraising                           |
| <input type="checkbox"/> Desk-top publishing                 | <input type="checkbox"/> Policy development                    |
| <input type="checkbox"/> Research                            | <input type="checkbox"/> Developing manuals                    |
| <input type="checkbox"/> Developing and maintaining Websites | <input type="checkbox"/> Distance-based training and education |
| <input type="checkbox"/> Management consulting               | <input type="checkbox"/> Other                                 |

**32. If 'other', please describe:**

**33. Which of the following statements best describes your position on the concept of 'virtual volunteering'? Please Note: 'Virtual volunteers' are those volunteers who use information and communications technology like computers and the Internet to perform or mediate volunteer work without physical presence in the organization.**

- We have used virtual volunteers in our organization and they have worked out successfully so we would use them again
- We have not had a chance to explore the contribution of virtual volunteering to our organization but we think it may have promise
- We have used virtual volunteers and they have not worked out so we would not use them again
- In general, virtual volunteering may be a useful idea though not one that we would be able to make use of in our particular organization
- For most nonprofit organizations there are very few volunteer activities that can be undertaken by people without direct physical contact with the organization, so virtual volunteering is a concept of very little value

About the Recruitment of Volunteers for the Volunteer Program

**We would like to know about the use of Volunteer Canada's Volunteer Opportunities Exchange (VOE) to recruit volunteers for your volunteer program.**

**34. Since registering with the VOE, have you been in contact with any volunteers through your VOE account about a volunteer posting?**

- Yes       No (If 'no'-move to question 41)

**35. If 'yes', approximately how many volunteers have you been in contact with through this account?**

Choose one (drop box with categories of numbers from Less than 5; 5-10; 11-20; 21-30; 31-40; greater than 40)

36. Approximately how many volunteer positions did you post on the VOE in the past year?

- Drop Box with the following categories: Less than 5; 6-10; 11-15; 16-20; 21-30; 31-40; and greater than 40 hours**

37. About how many enquiries did you get in response to these postings?

- Drop Box with the following categories: Less than 5; 6-10; 11-15; 16-20; 21-30; 31-40; and greater than 40**

38. About how many volunteers did you actually place in your volunteer program in response to the VOE postings?

- Drop Box with the following categories: Less than 5; 6-10; 11-15; 16-20; 21-30; 31-40; and greater than 40**

**39. Of the contacts you have had with prospective volunteers through VOE, agree or disagree with the following statements regarding who initiated contact first?**

Contact	Agree	Disagree
We initiated contact with volunteers through their postings on the VOE	<input type="checkbox"/>	<input type="checkbox"/>
Generally, the volunteer initiated contact with us through our posting on the VOE	<input type="checkbox"/>	<input type="checkbox"/>

**40. If you did not end up taking on volunteers that you**

**have been in contact with through VOE, why was that? Please explain in the space below:**

**41. Using the following scale where 1 equals "not satisfied at all" and 10 equals "extremely satisfied", indicate how satisfied you are with VOE recruitment services:**

1      2      3      4      5      6      7      8      9      10  
                          

**Not Satisfied at All**  
**Extremely Satisfied**

42. If you are not satisfied with the VOE service and think improvements could be made, please describe how in the space below:

---

**43. Please rank order the following volunteer recruitment methods with 1 indicating "most effective" and 6 indicating "least effective" in yielding applications for volunteer opportunities? (Ability to input number beside recruitment method)**

- Current volunteers' word of mouth
- Office visits or phone calls
- Posting volunteer opportunities on our Website
- Advertising in newspapers, radio and TV
- Internet recruitment services
- Other

### About the Organization

We would like to find out some general information about the organization in which your volunteer program is a part.

**44. What is the best description of the area of service your organization provides?**

- Arts and Culture
- Education
- Environment
- Faith Group
- Health

- International Aid
- Social Services
- Sport Recreation
- Other

**45. What is the approximate annual budget of your organization?**

- |   |   |
|---|---|
| <input type="checkbox"/> Under \$50,000         | <input type="checkbox"/> \$500,000 to \$1,000,000 |
| <input type="checkbox"/> \$50,000 to 250,000    | <input type="checkbox"/> Over \$1,000,000         |
| <input type="checkbox"/> \$250,000 to \$500,000 |   |

**46. Within your organization's budget, approximately what percentage is allocated to your volunteer program?**

- |  |   |
|--|---|
| <input type="checkbox"/> Less than 10% | <input type="checkbox"/> 31-40%           |
| <input type="checkbox"/> 10-20%        | <input type="checkbox"/> 41-50%           |
| <input type="checkbox"/> 21-20%        | <input type="checkbox"/> Greater than 50% |

**47. Within your volunteer program budget in the past year, approximately what percentage is allocated to buying and maintaining computers, computer software, Internet access and related resources like training?**

- |  |   |
|--|---|
| <input type="checkbox"/> Less than 10% | <input type="checkbox"/> 21-30%           |
| <input type="checkbox"/> 11-20%        | <input type="checkbox"/> Greater than 30% |

**48. Does your organization have policies or guidelines covering how you are to use information and communications technology?**

**49. Does your organization provide you with professional technology support?**

- Yes     No

About the Factors Affecting the use of Technology in the Volunteer Program

**The final set of questions, ask about the factors affecting the use of information and communications technology in the volunteer program.**

**50. When I look over the ways that computers and information and communications technology are used in the volunteer program as revealed in this questionnaire:**

- I am completely satisfied with how these tools are used in our organization
- There are a few improvements I would like to make
- There are many improvements I would like to make

**51. If you feel you would like to make improvements, which of the following changes would you like to make if you could? (Check as many as apply)**

- |  |   |
|--|---|
| <input type="checkbox"/> Newer computer            | <input type="checkbox"/> More Internet access points for volunteers |
| <input type="checkbox"/> Access to the Internet    | <input type="checkbox"/> Volunteer email accounts                   |
| <input type="checkbox"/> More volunteer software   | <input type="checkbox"/> More affordable technology                 |
| <input type="checkbox"/> More training             | <input type="checkbox"/> Interactive Website                        |
| <input type="checkbox"/> More technical assistance | <input type="checkbox"/> Other                                      |

**52. Insofar as you may not be able to make the changes you would like to make, why is that?**

- We do not have enough knowledge and experience in our program to implement the needed changes
- We do not have enough money to enable us to obtain the needed equipment, staff and training
- There are not enough training opportunities provided in convenient form (place, time, cost)
- The culture of our organization does not value the volunteer program highly enough to invest in new technology for it.
- Other priorities for my time come first
- There is a lack of technical assistant to implement the needed changes within our organization
- Other barriers to change

**53. To what extent has the use of information and communication technology in the volunteer program resulted in the following:  
(Choose only one for each)**

	Large Extent	Moderate	Small	Not at All
Reduced cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased service quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Many thanks for your help. To submit your survey responses and to be entered into the draw for the Palm Pilot and Palm accessories, please complete and submit the contact information below:**

Full Organization Name (First, Last)

Full Name (First, Last)

Email address

Province of Residence

**Note:** Only one Palm Pilot entry per person. The information you provide is for statistical and contest purposes only. Your information will be kept completely confidential and will not be used for any other purposes. If you checked 'yes' to be contacted by email, expect to be contacted within four months. By clicking **Submit** you give permission to be entered into the contest and to be contacted by email.

[About the Survey.doc](#)  
[Contest Rules and Regulations.doc](#)

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## Follow-up Questionnaire

Please take a moment to answer a follow-up to the questionnaire you completed on Volunteer Victoria's (VICTA) or Volunteer Canada's (VOE) Website several months ago. The questionnaire we would like you to complete asks about your experiences as a volunteer since we last made contact with you. Whether you have or have not volunteered since we last made contact is not important, your input is valuable regardless. Also, remember, that there are no 'right' or 'wrong' answers to these questions.

It will only take a few minutes - get started!

1. Indicate where you completed our last questionnaire:

- On Volunteer Canada's Volunteer Opportunity Exchange (VOE) Website
- On Volunteer Victoria's (VICTA) Website

2. Since you completed our questionnaire, have you been in contact with any volunteer organizations about a volunteer position?

- Yes (go to 5)  No  In the process

3. If you have not been in contact with any volunteer organizations about a volunteer job, why is that?

- I decided not to contact the volunteer organization at this time.
- The organization did not respond to my contact
- Other

If 'other', please describe:

4. If you decided not to make contact at this time, why is that?  
(Check as many as apply)

- The nature of the work they wanted me to do was not what I had in mind.
- The times they required my volunteer services were not convenient for me.
- I did not like the way they treated me as a potential volunteer.
- My application was not accepted by the organization.
- Work or study pressures prevented me from making contact
- Family or relationship obligations prevented me from making contact
- Social activities prevented me from making contact
- Health problems prevented me from making contact
- My interest in volunteering has declined
- Other interests competed for my time

5. If you have made contact, about how many volunteer organizations have you been in contact with since we last were in contact with you?

Drop box with 1, 2-5, 6-10, More than 10

6. Did any of these contacts lead to volunteer work?

- Yes (go to 8)  No (next question)

7. If these contacts did not lead to volunteer work, why was that?  
(Check as many as apply)

- The nature of the work they wanted me to do was not what I had in mind.
- The times they required my services were not convenient for me.
- I did not like the way they treated me as a potential volunteer.

- My application was not accepted by the organization.
- Work or study pressures prevented me from volunteering
- Family or relationship obligations prevented me from volunteering
- Social activities prevented me from making volunteering
- Health problems prevented me from volunteering
- Other interests competed for my time

8. If contacts did result in volunteer work, how did you first learn of the volunteer opportunity? (Check one for three of your most recent volunteer jobs)

I learned of the volunteer position by way of...	<u>Job</u> <u>1</u>	<u>Job</u> <u>2</u>	<u>Job</u> <u>3</u>
Volunteer Victoria's on-line volunteer opportunity information system (VICTA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volunteer Canada's on-line volunteer opportunity information system (VOE)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Word of mouth (friends, family, volunteer).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ad/media story about the need for volunteers at this volunteer organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The volunteer organization's Website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If 'other', please describe:

9. Indicate the type of volunteer work you have been doing since we were last in contact with you (Note: if you have had more than one volunteer job, indicate the kind of volunteer work for the three most recent volunteer jobs you have had):

<b>Type of Volunteer Work</b>	<u>Job</u> <u>1</u>	<u>Job</u> <u>2</u>	<u>Job</u> <u>3</u>
Direct service to clients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assisting with office and administrative tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helping with fundraising activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assisting with business-related activities such as a shop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performing leadership roles (e.g. board of directors, committees)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assisting with maintenance or repairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assisting with organization communications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Desk-top publishing (e.g. manuals, newsletters, banners and posters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research (i.e. gathering statistics, Internet searching)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Developing Websites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining Websites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Policy Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training and education for staff and volunteers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management consulting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Was any of the volunteer work you performed done 'virtually' by way of information and communications technology? (Note: 'Virtual' volunteers are those who use information and communications technology to perform volunteer work without having to be physically present in the organization).

Yes (next question)  No (go to 12)

11. If you have performed volunteer work 'virtually', what type of volunteer work was this?

Direct service to clients

- Assisting with office and administrative tasks
- Helping with fundraising activities
- Assisting with business-related activities such as a shop
- Performing leadership roles (e.g. board of directors, committees)
- Assisting with maintenance or repairs
- Assisting with organization communications
- Desk-top publishing (e.g. manuals, newsletters, banners and posters)
- Research (e.g. gathering statistics, Internet searching)
- Developing Websites
- Maintaining Websites
- Policy Development
- Distance-based training and education for staff and volunteers
- Management consulting
- Other

12. Which statement best describes your most recent volunteer position:

- It was for a fixed time period (i.e. 2 weeks or 3 months)
- It was open-ended (i.e. was available for an extended period of time)

13. If your most recent volunteer position was for a fixed time period, did you complete the agreed upon period of time?

- Yes  No

14. If your most recent volunteer position was open-ended are you still volunteering?

- Yes  No

15. If you left either type of position before the agreed upon time was up, why was that? (Check as many as apply)

- Personal circumstances forced me to leave (e.g. health, work/family pressures)
- I found I did not enjoy the work as much as I expected I would
- The work was OK but I was put off by the atmosphere of the organization (e.g. the people I had to work with)
- Things were too disorganized (e.g. time wasted, unclear duties)
- I did not feel I was making enough of a contribution for the time I put in
- Other reasons

If 'other reasons', please describe:

16. Did the September 11 terrorist attacks have any effect on your motivation to volunteer?

- Yes  No

17. If 'yes', explain how this event motivated you to volunteer in the space below:

18. Thinking back over the time since you last used on-line volunteer information services, how likely are you to use this type of service again?

- |  |  |
|--|--|
| <input type="checkbox"/> Very likely     | <input type="checkbox"/> Somewhat unlikely (next question) |
| <input type="checkbox"/> Somewhat likely | <input type="checkbox"/> Very unlikely (next question)     |

19. If you are unlikely to use on-line volunteer information service again, why is that?



**To submit your survey responses submit the contact information below:**

Full Name (First,  
Last)

Email address

Province of Residence

**Note:** The information you provide is for statistical purposes only. Your information will be kept completely confidential and will not be used for any other purposes.

Top of Form Bottom of Form

## You could win a PALM PILOT Handheld

**Please take a moment to answer a few simple questions about your experience with Volunteer Canada's on-line volunteer opportunities information system, the Volunteer Opportunities Exchange (VOE), and you can enter to win.**

**It will only take a few minutes - get started!**

About the VOE Survey ([linkage to page](#))

Contest Rules and Regulations ([linkage to page](#))

**1. What language do you speak most often?**

English  French  Other

**2. What is your gender?**

Male  Female

**3. In which of the following age categories do you fall?**

Under 20

41-50

20-25

51-60

26-30

60 and Over

31-40

**4. What is the highest level of education you have achieved?**

Some high school

Some university

High school diploma

University undergraduate degree

Some post secondary

University graduate degree

Post secondary diploma

Other

**5. What is your employment status?**

- I am employed by an organization
- I am seeking employment
- I am self-employed
- I am at home caring for children/family

**6. If you are 'employed' do you work the same number of hours each week or does the time vary from week to week?**

- Same number of hours each week
- Varies from week to week

**7. On average, how many hours are you employed per week?**

**Choose One** drop box with the following categories: Unemployed, less than 10; 11-20; 21-30; 31-40; and greater than 40 hours

**8. Are you currently performing volunteer work?**

Yes  No

**9. If 'yes', approximately how many hours do you volunteer per week?**

Drop Box with the following categories: Less than 5; 6-10; 11-15; 16-20; 21-30; 31-40; and greater than 40 hours

**10. People have a number of reasons for volunteering for a group or organization. From the list below "agree" or "disagree" whether each is a reason for your volunteering:**

<b>The reason I volunteer or would like to volunteer is...</b>	<b>Agree</b>	<b>Disagree</b>
To help a cause in I personally believe in	<input type="checkbox"/>	<input type="checkbox"/>
Because I have been affected by the cause the group or organization	<input type="checkbox"/>	<input type="checkbox"/>
Because my friends volunteer	<input type="checkbox"/>	<input type="checkbox"/>

To improve my job opportunities	<input type="checkbox"/>	<input type="checkbox"/>
To fulfill religious obligations or beliefs	<input type="checkbox"/>	<input type="checkbox"/>
To use my skills and experiences	<input type="checkbox"/>	<input type="checkbox"/>
To explore my own strengths	<input type="checkbox"/>	<input type="checkbox"/>
Because I was asked to help	<input type="checkbox"/>	<input type="checkbox"/>
To learn new skills	<input type="checkbox"/>	<input type="checkbox"/>
To gain work experience	<input type="checkbox"/>	<input type="checkbox"/>
To try out a specific job/career path	<input type="checkbox"/>	<input type="checkbox"/>
None of these	<input type="checkbox"/>	<input type="checkbox"/>

---

**The following questions relate to your experience with Volunteer Canada's on-line volunteer opportunities information system, the Volunteer Opportunities Exchange (VOE).**

**11. In which of the following VOE registration categories do you fall?**

- I am a first-time visitor to the VOE
- I am a returning visitor who is already registered with the VOE

**12. If you are a returning visitor when did you first register with the VOE?**

Choose one [less than a month; 1 to 3 months ago; 3 to 6 months ago; 6-12 months ago; and greater than 12 months ago]

**13. Since registering your volunteer preferences with the VOE, have you been in contact with any organizations through your VOE account about a volunteer position?**

Yes  No (If they checked 'no', they automatically move to question 22)

**14. If 'yes', approximately how many organizations have you been in contact with through this account?**



I did not undertake volunteer work for the organization (go to question 19).



**19. If you did not volunteer for an organization that you have been in contact with through your VOE account, why was that? Please explain in the space below (If outcome was 'did not undertake volunteer work', then must answer this question):**

**20. If you have volunteered for an organization that you have been in contact with through your VOE account, indicate the types of volunteer work you have undertaken (Note: virtual volunteer positions are those that are performed by way of information and communications technology without physical presence):**

- In-person volunteer positions only (move to question 22)
- Virtual volunteer position only (move to question 21)
- Both in-person and virtual volunteer positions (move to question 21)

**21. If you have undertaken virtual volunteer work, what kind of work was this? (Ability to choose more than one category)**

- I have not undertaken virtual volunteer work (Checked automatically if chose in-person volunteer positions)
- Service to clients (e.g. mentoring)
- Desk-top publishing (e.g. newsletters, banners and posters)
- Research (i.e. statistics and literature search)
- Developing Websites
- Maintaining Websites
- Fundraising
- Policy development
- Developing manuals

- Distance-based training and education for staff and volunteers
- Management Consulting
- Other

**22. Using the following scale where 1 equals "not satisfied at all" and 10 equals "extremely satisfied", indicate how satisfied you are with the volunteer opportunity services VOE provides?**

1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Not Satisfied at All  
Extremely Satisfied

23. If you are not satisfied with the VOE service and think improvements could be made, please describe how in the space below:

**The following questions ask about the ability of the VOE system to provide you with the volunteer opportunity information you need and the ability of the system to match your needs for volunteering to volunteer positions.**

**24. Did you find Volunteer Canada's on-line volunteer opportunity exchange (VOE) provided the volunteer opportunity information you needed?**

- Found everything that I needed
- Found most of what I needed
- Found little of what I needed
- Found none of what I needed

**25. If you did not find VOE provided you with the volunteer opportunity information you needed, describe what was missing:**

**26. If you used VOE's on-line volunteer opportunity matching feature, in which you input your volunteer preferences and the "browse" feature of the system searched for a volunteer opportunity for you, how well did the match actually meet the preferences you had in mind for volunteering?**

- Excellent match
                         
  Fair match  
 Good match
                         
  Poor match

**27. What would be the likelihood that you would contact one of the volunteer organizations VOE identified for you?**

- Very likely  
 Likely  
 Not Likely

**28. Would you be willing to let us contact you by email in four months to find out how you are doing with your volunteer work?**

Yes  No

**To submit your survey responses and to be entered into the draw for the Palm Pilot, please complete and submit the contact information below:**

Full Name (First, Last)

Email address

Province of Residence

**Note:** Only one Palm Pilot entry per person. The information you provide is for statistical and contest purposes only. Your information will be kept completely confidential and will not be used for any other purposes. If you checked 'yes' to be contacted by email, expect to be contacted within four

months. By clicking **Submit** you give permission to be entered into the contest and to be contacted by email.

[About the VOE Survey.doc](#)

[Contest Rules and Regulations.doc](#)

Top of Form Bottom of Form

[Return to my VOE account](#)

## You could win a PALM PILOT Handheld

**Take a moment to answer a few simple questions about your experience with Volunteer Victoria's On-line Volunteer Opportunities Information System (VICTA) and you can enter to win.**

**It will only take a few minutes - get started!**

[About the VICTA Survey.doc](#)

[Contest Rules and Regulations.doc](#)

### **What is your gender?**

Male  Female

### **In which of the following age categories do you fall?**

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> Under 20 | <input type="checkbox"/> 41-50       |
| <input type="checkbox"/> 20-25    | <input type="checkbox"/> 51-60       |
| <input type="checkbox"/> 26-30    | <input type="checkbox"/> 60 and Over |
| <input type="checkbox"/> 31-40    |                                      |

### **What is the highest level of education you have achieved?**

- Some high school  Some university

- |   |  |
|---|--|
| <input type="checkbox"/> High school diploma    | <input type="checkbox"/> University undergraduate degree |
| <input type="checkbox"/> Some post secondary    | <input type="checkbox"/> University graduate degree      |
| <input type="checkbox"/> Post secondary diploma | <input type="checkbox"/> Other                           |

**What is your employment status?**

- I am employed by an organization
- I am seeking employment
- I am self-employed
- I am at home caring for children/family

**If you are 'employed' do you work the same number of hours each week or does the time vary from week to week?**

- Same number of hours each week
- Varies from week to week

**On average, how many hours are you employed per week?**

- Drop Box with hours (1-40 and greater than 40) click on exact number

**Are you currently performing volunteer work?**

- Yes  No

**If 'yes', approximately how many hours do you volunteer per week?**

- Drop Box with hours (1-40 and greater than 40) click on exact number

**People have a number of reasons for volunteering for a group or organization. From the list below "agree" or "disagree" whether each is a reason for your volunteering?**

**The reason I volunteer or would like to volunteer is...    Agree    Disagree**

- |  |                                     |                          |
|--|-------------------------------------|--------------------------|
| To help a cause in I personally believe in   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Because I have been personally affected or know someone who has been personally affected by the cause the volunteer group or organization supports | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Because my friends volunteer   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| To improve my job opportunities  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| To fulfill religious obligations or beliefs  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| To use my skills and experiences   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| To explore my own strengths  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Because I was asked to help  |                                     |                          |
| To learn new skills  |                                     |                          |
| To gain work experience  |                                     |                          |
| To try out a specific job/career path  |                                     |                          |
| None of these  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**What preferences are most important to you in choosing a volunteer opportunity? I wanted a volunteer opportunity that...**

- |   |  |
|---|--|
| <input type="checkbox"/> Could be carried out in a flexible time period | <input type="checkbox"/> Was with a specific type of group or organization |
| <input type="checkbox"/> Provided a specific type of volunteer work     | <input type="checkbox"/> Was in a specific place or location               |
| <input type="checkbox"/> Other preferences                              | <input type="checkbox"/> I have no preferences                             |

If you checked 'other preferences' please describe:

**Did you find Volunteer Victoria's on-line volunteer opportunity information system (VICTA) provided the volunteer information you needed?**

- |  |  |
|--|--|
| <input type="checkbox"/> Found everything I needed   | <input type="checkbox"/> Found little of what I needed |
| <input type="checkbox"/> Found most of what I needed | <input type="checkbox"/> Found none of what I needed   |

**If you did not find VICTA provided you with the volunteer opportunity information you needed, describe what was missing:**

**If you used VICTA's on-line volunteer opportunity matching feature (in which you input your volunteer preferences and the system searched for a volunteer opportunity for you) how well did the match actually meet the preferences you had in mind for volunteering?**

- |  |                                     |
|--|-------------------------------------|
| <input type="checkbox"/> Excellent match | <input type="checkbox"/> Fair match |
| <input type="checkbox"/> Good match      | <input type="checkbox"/> Poor match |

**What would be the likelihood that you would contact one of the volunteer organizations VICTA identified for you?**

- Very likely
- Likely
- Not Likely

**Would you be willing to let us contact you by email in four months to find out how you are doing with your volunteer work?**

Yes  No

**To submit survey responses and to be entered into the draw for the Palm Pilot, please complete and submit the contact information below:**

Full Name (First, Last)	<input type="text"/>
Email address	<input type="text"/>
Province of Residence	<input type="text" value="Select From List"/>

[Submit my responses](#)

**Note:** Only one Palm Pilot entry per person. The information you provide is for statistical and contest purposes only. Your information will be kept completely confidential and will not be used for any other purposes. If you checked 'yes' to be contacted by email, expect to be contacted within four months. By clicking **Submit** you give permission to be entered into the contest and to be contacted by email.

[About the VICTA Survey.doc](#)

[Contest Rules and Regulations.doc](#)

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[Return to Volunteer Opportunities Page](#)

**Technology Choice Questionnaire (TCQ)**

**Managers of Volunteer Resources (MVRs)**

**IYV Research Project Team**

**Yvonne Harrison, Vic Murray and Jim MacGregor**

# You could win a \$500.00 CompuSmart Gift Certificate!

Please take a moment to answer some questions about your work and the ways you use modern information and communications technology (ICT) in the volunteer program and you can enter to win.

**It will only take a few minutes - get started!**

(Programmers Only: we will need a VISUAL OF GIFT CERTIFICATE FROM COMPUSMART)

## Section 1

## About You

We would like to find out some general information about you.

1. What is your gender?
  - a. Male
  - b. Female
  
2. In which of the following age categories do you fall?

a. Under 25	d. 45-54
b. 25-34	e. 55-64
c. 35-44	f. 65 and Over
  
3. What is the highest level of education you have achieved?

a. Some High School	d. Post Secondary diploma
b. High School diploma	e. Some University
c. Some Post Secondary	f. University degree
  
4. What kind of specialized training have you had in the management of volunteer resources?
  - a. Learned on the job training
  - b. Short courses or workshops/conferences
  - c. Certificate or diploma program training

- d. Other

**Section 2****About Your Work**

**We would like to find out some general information about your position.**

5. Please choose the title that best describes your position:
- Manager or Coordinator of Volunteer Resources
  - Executive Director with responsibility for Volunteer Resources
  - Board Member
  - Organization Information Technology Support
  - Other
- If other, please describe: \_\_\_\_\_
6. How many years have you been working in this position in your organization?
- Drop box: less than 5; 6-10; 11-15; greater than 15
7. How many years of previous experience have you had in this and other similar positions?
- Drop box: less than 5; 6-10; 11-15; greater than 15
8. How many hours do you work in this position per week?
- Drop box (5 or fewer; 6-10; 11-15; 16-20; 21-30; 31-40; >40)
9. Of the total hours you work each day, approximately what percentage of hours would you say include the use of information and communications technology (ICT) like computers, software and the Internet?
- I do not use ICT
  - I use ICT less than 10% of the time
  - 11-25%
  - 26-50%
  - 51-75%
  - I use ICT over 75% of the time

10. What percentage of your personal time, outside of work, do you use ICT?

- a. I do not use ICT outside of work
- b. I use ICT less than 10% of my personal time
- c. 11-25%
- d. 26-50%
- d. 51-75%
- e. I use ICT over 75% of my personal time

**The next set of questions asks about your position in the volunteer program. For each of your responses please, check the box that comes closest to your situation.**  
(See question 41 on national survey to create the type of scale illustrated below)

11. My job requires that I learn new things.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

12. My job involves a lot of repetitive work.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

13. My job requires me to be creative.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

14. My job allows me to make a lot of decisions on my own.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

15. My job requires a high level of skill.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

16. I get to do a variety of different things on my job.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

17. I have a lot of say about what happens on my job.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

18. I have an opportunity to develop my own special abilities.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

19. My job requires working very fast.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

20. My job requires working very hard.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

21. I am asked to do an excessive amount of work.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

22. I have enough time to get the job done.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

23. I am free from conflicting demands that others make.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

24. The person I report to is concerned about the welfare of those under her/him.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

25. The person I report to pays attention to what I am saying.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

26. The person I report to is helpful in getting the job done.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

27. The person I report to is successful in getting people to work together.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

28. The person I report to provides me with guidance and support.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

29. The person I report to works hard to ensure I have the tools I need to do the job.

Strongly Disagree                      Strongly Agree  
 1        2        3        4        5

30. People I work with are competent in doing their jobs.

Strongly Disagree                      Strongly Agree





Text box here. Please note that all text box comments should be part of the excel spreadsheet output.

C. Network (Choose one):

- a. I use the Internet (external type of network) in the volunteer program.
- b. I use an Intranet (i.e. internal type of network)
- c. I use both the Internet and Intranet in the volunteer program

41. Does your organization have an Internet Website? Yes No

**If no, please skip to question 43**

42. If 'yes', which of the following are features of your organization's Website:

Our Website contains...(Check as many as apply)

- a. Information about the volunteer program. May also include downloadable forms, listserv, or calendar.
- b. Information about the volunteer program (a) above PLUS interactive features such as online transactions, applications or satisfaction surveys.
- c. (a) and (b) above PLUS databases that can be accessed remotely over a network (the Internet or Intranet) by our agency.
- d. (a), (b) and (c) above PLUS databases that can be accessed remotely over a network by other organizations we are affiliated with.

43. For what purpose (s) do you use E-mail?

- a. Sharing information with volunteers (e.g. minutes of meetings, events)
 

Never Use					Use Very Much
	1	2	3	4	5
- b. Personal communication with volunteers about their position or work schedule.
 

Never Use					Use Very Much
	1	2	3	4	5
- c. Personal recognition messages to individual volunteers (e.g. thank-you).
 

Never Use					Use Very Much
	1	2	3	4	5
- d. Sharing information with management and staff in our organization.
 

Never Use					Use Very Much
	1	2	3	4	5
- e. Sharing information with colleagues in other organizations.



Strongly Disagree                      Strongly Agree  
 1      2      3      4      5

52. After breakdowns, our ICT system is quickly back in service.

Strongly Disagree                      Strongly Agree  
 1      2      3      4      5

53. There are so many other users on the ICT system that it slows down my work.

Strongly Disagree                      Strongly Agree  
 1      2      3      4      5

## Section 4

## About the use of ICT in your job

Please focus now on your ability to use the information and communications technology (ICT) you have available to you in your job. For the following questions, you are asked to rate your level of ability using a scale where 1 is “Extremely Weak” and 5 is “Extremely Strong”.

54. My ability to use off-the-shelf software packages is...

Extremely Weak                      Extremely Strong  
 1      2      3      4      5

55. My ability to use specialized software packages is...

Extremely Weak                      Extremely Strong  
 1      2      3      4      5

56. My ability to program software is...

Extremely Weak                      Extremely Strong  
 1      2      3      4      5

57. My ability to develop (design and implement) databases is...

Extremely Weak                      Extremely Strong  
 1      2      3      4      5

58. My ability to use ICT (e.g. email, voice mail, text editing, calendar management etc.) is...

Extremely Weak                      Extremely Strong  
 1      2      3      4      5







**One source of potential volunteers that is based on online interactive computer technology is the Volunteer Opportunities Exchange (VOE) operated nationally by Volunteer Canada. The VOE allows managers to post their volunteer opportunities directly into the online system without the aid of a third party. After registering with the system, volunteers can input their preferences for volunteering and the system matches their skills with available volunteer opportunities.**

**This next set of questions asks you about your experiences with Volunteer Canada's Volunteer Opportunities Exchange (VOE).**

76. To what extent were you involved in the development of the VOE?

Not at All					Very Much
1	2	3	4		5

77. To what extent have you received training on the VOE?

Not at All					Very Much
1	2	3	4		5

78. To what extent have you been involved in evaluating the VOE?

Not at All					Very Much
1	2	3	4		5

79. Do you use the VOE to recruit volunteers? Yes No

80. If you do not use the VOE to recruit volunteers, why is that (Please check as many as apply)? I do not use the VOE system because...

- a. It does not allow for local community recruitment
- b. My volunteer center provides the recruitment services we need
- c. I don't believe the VOE provides a good source of volunteers.
- d. I don't know enough about the VOE to make a decision to use it.
- e. The VOE is difficult for me to use.
- f. I am not aware of the VOE
- g. Other

If other, please describe why you do not use the VOE to recruit volunteers:  
Text box here

**If yes, please complete the next set of questions. If no, skip to question 92**

81. To what extent do you understand the VOE and what it can do to assist you with your job?

Not at All					Very Much
------------	--	--	--	--	-----------

- |   |            |   |   |   |           |
|---|------------|---|---|---|-----------|
|   | 1          | 2 | 3 | 4 | 5         |
| 82. To what extent do you actually use the VOE compared to your original expectations?                                    |            |   |   |   |           |
|   | Not at All |   |   |   | Very Much |
|   | 1          | 2 | 3 | 4 | 5         |
| 83. To what extent could you get along without the use of the VOE?  |            |   |   |   |           |
|   | Not at All |   |   |   | Very Much |
|   | 1          | 2 | 3 | 4 | 5         |
| 84. To what extent does the VOE assist you in performing your job better?   |            |   |   |   |           |
|   | Not at All |   |   |   | Very Much |
|   | 1          | 2 | 3 | 4 | 5         |
| 85. To what extent does the VOE meet your information processing needs (i.e. matching volunteers to available positions)? |            |   |   |   |           |
|   | Not at All |   |   |   | Very Much |
|   | 1          | 2 | 3 | 4 | 5         |
| 86. To what extent is the VOE troublesome for you or difficult to operate or to interact with?                            |            |   |   |   |           |
|   | Not at All |   |   |   | Very Much |
|   | 1          | 2 | 3 | 4 | 5         |
| 87. To what extent would you like this system to be modified or redesigned all over again from the beginning?             |            |   |   |   |           |
|   | Not at All |   |   |   | Very Much |
|   | 1          | 2 | 3 | 4 | 5         |

**The next set of questions pertains to actual use of the VOE system.**

- |  |            |   |   |   |                     |
|--|------------|---|---|---|---------------------|
| 88. How efficient is the VOE in terms of saving you time or other resources?                   |            |   |   |   |                     |
| Extremely Inefficient  |            |   |   |   | Extremely Efficient |
|  | 1          | 2 | 3 | 4 | 5                   |
| 89. How effective is the VOE in bringing in volunteers?  |            |   |   |   |                     |
| Extremely Ineffective  |            |   |   |   | Extremely Effective |
|  | 1          | 2 | 3 | 4 | 5                   |
| 90. Overall, how satisfied are you with the VOE?   |            |   |   |   |                     |
| Very Dissatisfied  |            |   |   |   | Very Satisfied      |
|  | 1          | 2 | 3 | 4 | 5                   |
| 91. To what extent have you involved others (e.g. colleagues and volunteers) in using the VOE? |            |   |   |   |                     |
|  | Not at All |   |   |   | Very Much           |
|  | 1          | 2 | 3 | 4 | 5                   |

**Section 6****About Change**

**With the advancement in information and communications technologies (ICT) such as faster computers and networks and improved Internet-based software applications, many organizations are adopting these new technologies as more efficient and effective ways of doing the work of the organization. The following questions ask about your perceptions of changes in your type of work.**

92. Sometimes changes in the way a job is done are more trouble than they are worth because they create a lot of problems and confusion. How often do you feel that the ICT changes that have affected you and your job have been like this?
- 50% or more of the changes have been more trouble than they are worth
  - About 40% of the changes
  - About 25% of the changes
  - About 15% of the changes
  - Only 5% or fewer of the changes have been more trouble than they are worth
93. Decision-makers such as senior management or the Board of Directors sometimes introduce changes from time to time in organizational policies, procedures, and equipment. With respect to changes made regarding the use of ICT, how often do these types of changes lead to better ways of doing things?
- Changes of this kind never improve things.
  - They seldom do.
  - About half of the time they do.
  - Most of the time they do.
  - Changes of this kind always lead to an improvement.
94. How well do the various people in your organization (staff, volunteers) that are affected by ICT changes accept them?
- Very few of the people involved accept the changes
  - Less than half do
  - About half of them do
  - Most of them do
  - Practically all of the people involved accept the changes

95. In general, how do you now feel about ICT related changes made during the past five years or as long as you have been with your organization that affected the way your job is done?

- a. Made things somewhat worse
- b. Not improved things at all
- c. Not improved things very much
- d. Improved things somewhat
- e. Been a big improvement

96. In the past five years or as long as you have been with this organization, approximately, how many ICT related changes have occurred in your job (e.g. new computer, software, Internet)?

- a. No ICT changes in my job in the past five years
- b. One or two
- c. About three or four
- d. About five
- e. Six to ten
- f. More than ten changes

97. With respect to the ICT changes that have occurred in you job, how much of a sense of ownership do you feel for them?

No sense of Ownership	1	2	3	4	Very Strong Sense of Ownership
					5

98. In your job, if a person tries to change the “tried and true” ways of doing things by using ICT in their work, how does it generally turn out?

- a. Usually turns out worse; the “tried and true” methods work best in my work
- b. Usually doesn't make a difference
- c. Usually turns out better; our methods need improvement

99. In my kind of job, it's usually better to let the person you report to (i.e. executive director or the Board of Directors) worry about how ICT can lead to new or better ways of doing things.

Strongly Disagree	1	2	3	4	Strongly Agree
					5

100. For me personally, in my job, I feel ICT is...(Please answer each of the following)

- |                |   |   |   |   |   |             |
|----------------|---|---|---|---|---|-------------|
| a. unimportant | 1 | 2 | 3 | 4 | 5 | important   |
| b. irrelevant  | 1 | 2 | 3 | 4 | 5 | relevant    |
| c. trivial     | 1 | 2 | 3 | 4 | 5 | fundamental |
| d. interesting | 1 | 2 | 3 | 4 | 5 | boring      |
| e. appealing   | 1 | 2 | 3 | 4 | 5 | unappealing |
| f. mundane     | 1 | 2 | 3 | 4 | 5 | fascinating |

101. To what extent has the use of ICT in the volunteer program resulted in the following: See question 53-note there is an addition to the old question: (Check one for each)

Large Moderate Small Not  
Extent Extent Extent At All

- a. Reduced cost
- b. Increased productivity
- c. Improved overall efficiency
- d. Improved service quality
- e. Increased significance of the volunteer program.
- e. Other

## Section 8

## About Your Organization

**We would like to find out some general information about the organization in which your volunteer program is a part.**

102. In your organization, how frequently do you participate in the following types of decisions:

- a. Decisions on the adoptions of new policies?  
Never Always  
1            2            3            4            5
- b. Decisions on the adoption of new programs or services?  
Never Always  
1            2            3            4            5
- c. Decisions to hire new staff or contract workers?

Never					Always
1	2	3	4	5	
d. Decisions regarding the organization budget?					
Never					Always
1	2	3	4	5	
e. Decisions regarding ICT use?					
Never					Always
1	2	3	4	5	

103. Does your organization have ICT support (i.e. staff or volunteer that problem solve and attend to ICT issues)? Yes No
104. Which of the following best describes your organization's mission: (question 44 on national survey)
105. Please choose the item that best describes your organization type. The organization that I currently work for is (Use list type question from national survey):
- A member, a branch or subsidiary of a larger provincial, national or international organization (e.g. Red Cross)
  - A standalone organization with formal affiliations or linkages to other organizations
  - A standalone organization with no formal affiliation or linkages to other organizations.
106. What is the approximate annual budget of your organization? (Question 45 national survey)
- Under \$50,000
  - \$50,000 to \$250,000
  - \$250,000 to \$500,000
  - \$500,000 to \$1,000,000
  - Over \$1,000,000
107. Within your organization's budget, approximately what percentage is allocated to your volunteer program? (Q: 46 national survey)
- Less than 10%
  - 10-20%
  - 21-30%
  - 31-40%
  - 41-50%
  - Greater than 50%

108. Within your volunteer program budget in the past year, approximately what percentage is allocated to ICT such as buying and maintaining computers and computer software, Internet access and related resources like training and support? (Q: 47 national survey)

- a. Less than 5%
- b. 6-10%
- c. Greater than 30%
- d. 11-20%
- e. 21- 30%

109. Is your position paid? Yes No

**Many thanks for your help. To submit your survey responses and to be entered into the draw for the gift certificates, please complete and submit the information below. Please note that Local Volunteer Centre is the Centre that emailed you this survey.**

Organization's name: type in  
Respondent Name: type in  
Email address: type in  
Name of your Volunteer Centre (if member): Type in  
Province of Residence: Drop Box  
Want submission date

## Use of Measures

A number of measures, representing the different constructs in the manager and volunteer models, were drawn from a variety of sources to conduct statistical tests during the second phase of the research. The measures below pertain to questions that were included in the 2003 national manager and traditional volunteer survey. Beginning with the manager survey, measures will be presented along with their reliability coefficients, where appropriate, and source of measurement.<sup>42</sup> Following a presentation of the measures included in the 2003 national manager survey, measures included in the volunteer model are presented<sup>43</sup>.

### *2003 National Manager Survey*

#### *Independent Variable Constructs*

##### *Organizational Environmental Influences*

###### *Soft Data*

The majority of “soft” environmental influences were assessed using the Job Content Questionnaire (JCQ), an instrument that has been widely used in the area of occupational health to measure factors associated with job strain (Karasek et al, 1998, p. 322). Several scales were utilized from this instrument, including items that measure job autonomy or decision latitude, the amount of social support from leaders and co-workers, and level of job stress or psychological demands associated with work and changes in the work environment.

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<sup>42</sup> For measures relating to job stress and work demands, permission and license has been granted to the researcher by Robert Karasek, primary author of the Job Content Questionnaire (JCQ), to include JCQ measures. Please refer to “source” for identification of measurement authorship.

<sup>43</sup> The volunteer survey contained dichotomous survey questions therefore they were not subject to factor or reliability statistical test. For this reason, only measures computed for empirical testing of the volunteer model are presented. Please refer to Chapter 4, table 4 on page 81 for a listing of variables included in the traditional volunteer survey. For a complete listing of variables, please refer to p. 249 of Appendix for the traditional volunteer survey.

*Leadership Support Scale.* Measuring the level of support from supervisor (1 = strongly disagree; 5=strongly agree):

- The person I report to is concerned about the welfare of those under her/him.
- The person I report to pays attention to what I am saying.
- The person I report to is helpful in getting the job done.
- The person I report to is successful in getting people to work together.
- The person I report to provides me with guidance and support.
- The person I report to works hard to ensure that I have the tools I need to do the job.

Reliability: Alpha coefficient for the index was .94

Measurement Source: Job Content Questionnaire (Karasek et al, 1997)

*Co-Worker Support Scale.* Measuring the level of support from co-workers (1=strongly disagree; 5=strongly agree)

- People I work with are competent in doing their jobs.
- People I work with are helpful in getting the job done.
- People I work with have the same work ethic I do.
- People I work with like to do their job the way I do mine.

Reliability: Alpha coefficient for the index was .86

Measurement Source: Job Content Questionnaire (Karasek et al, 1997)

*Job Satisfaction Scale.* Measuring level of job satisfaction For me, this is the best of all possible organizations for which to work (1=not at all satisfied; 5=extremely satisfied).

- Would you advise a friend or relative to take this job?

- How satisfied are you with your job?

Reliability: Alpha coefficient for the index was .86

Measurement Source: Job Content Questionnaire (Karasek et al, 1997)

*Job Autonomy Scale*. Measuring the amount of job decision latitude (1=strongly disagree; 5=strongly agree)

- My job requires me to be creative.
- My job allows me to make a lot of decisions on my own.
- My job requires a high level of skill.
- I get to do a variety of different things on my job.
- I have a lot of say about what happens on my job.
- I have an opportunity to develop my own special abilities.

Reliability: Alpha coefficient for the index was .78

Measurement Source: Job Content Questionnaire (Karasek et al, 1997)

*Job Stress Scale*. measuring psychological work demands (1=strongly disagree; 5=strongly agree):

- My job requires that I work very fast.
- My job requires working very hard.
- I am asked to do an excessive amount of work.

Reliability: Alpha coefficient for the index was .78

Measurement Source: Job Content Questionnaire (Karasek et al, 1997)

*Job-Environment Stress Scale*. Measuring psychological demands associated with competitive changes in the job environment within last 5 years (1=strongly disagree; 5=strongly agree):

- My job is less secure now than it was five years ago.
- I have to work harder than I did five years ago.
- My job is more demanding than it was 5 years ago.
- There are more expectations of me now than 5 years ago.

Reliability: Alpha coefficient for the index was .70

Measurement Source: Job Content Questionnaire (Karasek et al 1997)/Focus Group

Generated wording changes

### *Hard Data*

Annual Budget of the organization:

- Less than \$50,000; \$50,000-\$250,000; \$250,000-\$500,000; \$500,000-\$1,000,000;  
Greater than \$1,000,000

Percentage of Budget Allocated to the Volunteer Program

- Less than 10%; 10-20%; 21-30%; 31-40%; 41-50%; greater than 50%

Percentage of the Budget Allocated to ICT

- Less than 5%; 6-10%; 11-20%; 21-30%; greater than 30%

Position Status

- Paid or unpaid

Volunteer Program Size

- Less than 10; 11-25; 26-50; 51-75; 76-100; Greater than 100

Volunteer Openings

- 5 or fewer; 6-10; 11-15; 16-20; 21-30; 31-40; Greater than 40

Volunteer Enquiries

- Less than 10; 11-25; 26-50; 51-75; 76-100; Greater than 100

#### Volunteer Placements

- None; Less than 10%; 11-25%; 26-50%; 51-75%; Greater than 75%; All of them

#### Organization Mission Type

- Arts and Culture; Environment; Education; Religious; Health; International Aid; Social Services; Sports/Recreation; Other

Measurement Source: Impact of Information and Communications Technology on

Volunteer Management in Canada Survey

#### ICT Changes

In the past five years or as long as you have been with this organization, approximately, how many ICT related changes have occurred in your job (e.g. new computer, software, Internet)?

- No ICT changes; 1 or 2; 3 or 4; about 5; 6-10; >10

Measurement Source: Karasek et al, 1997

#### *Involvement Influences*

*Participation in Organizational Decisions Scale.* Measuring how centralized decision-making is perceived within the internal organization environment.

- In your organization, how frequently do you participate in decisions on the adoption of new policies?
- In your organization, how frequently do you participate in decisions on the adoption of new programs and services?

- In your organization, how frequently do you participate in decisions to hire new staff or contract workers?
- In your organization, how frequently do you participate in decisions regarding the organization budget?

Reliability: Alpha coefficient for the index was .86

Measurement Source: Aitken and Hage (1968) as cited in Price (1972), Handbook of Organizational Measurement, pp. 45-47.

*Involvement in ICT Decisions Scale*. Measuring the level of perceived involvement in ICT organizational decisions.

- With respect to the ICT changes in your job, how much of a sense of ownership do you feel for them?
- In your organization, how frequently do you participate in decisions to use ICT?

Reliability: Alpha coefficient for the index was .67

Measurement Sources: New scale combining measures from Seddon and Kiew (1994) (feelings of ownership over ICT decisions) and Aitken and Hage (1968) as cited in Price (1972), Handbook of Organizational Measurement, pp.45-47 (participation in decisions adapted by researchers to include ICT types)

*Involvement in ICT Training*. Measuring whether the respondent received training from any of the following sources (1=not at all; 5=very much):

- Self-training (ICT training that was self-directed by you)
- Informal training (ICT training provided by colleagues or acquaintances)
- Local Volunteer Centre training
- National Volunteer Centre training

- Professional Association of Volunteer Administrator's training
- College training
- Organizational training
- Vendor training
- Other ICT training

Measurement Sources: Focus Group Generated

*Involvement in Voluntary Sector Network Training Scale.* Measuring training respondent received from any of the following sources (1=not at all; 5=very much):

- Local Volunteer Centre training
- National Volunteer Centre training
- Professional Association training

Reliability: Alpha coefficient for the index was .76

Measurement Sources: Focus Group Generated

*Involvement in VOE.* Measures of involvement in the VOE system from development of the IS to having received training and participating in the evaluation of it (1=not at all; 5=very much):

- To what extent were you involved in the development of the VOE?
- To what extent have you received training on the VOE?
- To what extent have you been involved in evaluating the VOE?

Reliability: Alpha coefficient for the index was .77

Measurement Sources: Focus Group Generated

*Involvement in VOE Scale.* Measures combining involvement in VOE system from development of the IS to having received training and participating in the evaluation of it (1=not at all; 5=very much):

- To what extent were you involved in the development of the VOE?
- To what extent have you received training on the VOE?
- To what extent have you been involved in evaluating the VOE?

Reliability: Alpha coefficient for the index was .77

Measurement Sources: Focus Group Generated

*Involvement of Others in VOE.* Measuring if manager of volunteer resources has involved others in use of the VOE (1=not at all; 5=very much)

- To what extent have you involved others in using the VOE?

*Personal Background Characteristic Influences*

*Gender.*

- Male; Female

*Age.*

- Under 25; 25-34; 35-44; 45-54; 55-64; Over 65

*Education.*

- Some high school; Post secondary diploma; High school diploma; Some post secondary; Some university; University degree

*Years in Position.*

- Less than 5 years; 6-10 years; 11-15 years; Greater than 15 years

*Years of previous experience in this and other similar positions.*

- Less than 5 years; 6-10 years; 11-15 years; Greater than 15 years

*Hours worked per week.*

- Less than 5; 6-10 years; 11-15 years; 16-20; 21-30; 31-40; Greater than 40 hours

*Percentage of time using ICT at work.*

- I do not use ICT; 11-25%; 26-50%; 51-75%; I use ICT more than 75% of the time

*Percentage of time using ICT at home.*

- I do not use ICT; 11-25%; 26-50%; 51-75%; I use ICT more than 75% of the time

*Self-Efficacy Scale.* Measuring perceived capability to make use of ICT in the volunteer program (1=Extremely Weak; 5= Extremely Strong):

- My ability to use off-the-shelf software packages is...
- My ability to use specialized software packages is...
- My ability to use ICT is...
- MY ability to use and understand user documentation is...
- My ability to prepare effective user documentation for an information system is...
- My ability to evaluate ICT performance and make needed adjustments after implementation is...

Reliability: Alpha coefficient for the index was .84

Measurement Source: Anonymous

*ICT (VOE) Efficacy Scale.* Measuring perceived capability of the VOE application (1=Not at All; 5=Very Much)

- To what extent do you understand the VOE and what it can do to assist you with your job?

- To what extent could you get along without the use of the VOE? (Reverse Code)
- To what extent does the VOE assist you in performing your job better?
- To what extent does the VOE meet your information processing needs (i.e. matching volunteers to available positions)?

Reliability: Alpha coefficient for the index was .74

Measurement Source: Job Content Questionnaire (Franz and Robey, 1986)

### *Expectation of Benefits Construct*

*Perceived Usefulness of ICT Scale.* Measuring perceptions of attitudes of managers of volunteer resources toward ICT systems in general. For me personally, in my job, I feel ICT is...

- |               |   |   |   |   |   |             |
|---------------|---|---|---|---|---|-------------|
| • Unimportant | 1 | 2 | 3 | 4 | 5 | Important   |
| • Irrelevant  | 1 | 2 | 3 | 4 | 5 | Relevant    |
| • Trivial     | 1 | 2 | 3 | 4 | 5 | Fundamental |
| • Interesting | 1 | 2 | 3 | 4 | 5 | Boring      |
| • Appealing   | 1 | 2 | 3 | 4 | 5 | Unappealing |
| • Mundane     | 1 | 2 | 3 | 4 | 5 | Fascinating |

Reliability: Alpha coefficient for the index was .82

Measurement Source: Seddon and Kiew, 1994

*Perceived Usefulness of the VOE Scale.* Measuring attitudes of managers of volunteer resources toward the use of the VOE in their job (1=not at all; 5=very much):

- To what extent do you understand the VOE and what it can do to assist you with your job?
- To what extent do you actually use the VOE compared to your original expectations?
- To what extent does the VOE assist you in performing your job better?

Reliability: Alpha coefficient for the index was .77

Measurement Source: Franz and Robey, 1986, p. 353.

#### *ICT System Quality Construct*

*ICT System Quality Scale*. Measuring the perceived quality of ICT systems available in the work environment (1=strongly disagree; 5=strongly agree):

- I can control the pace of my work when I work with our ICT system.
- Our ICT system rarely breaks down or stops working.
- The ICT system I use is rarely overloaded.
- After breakdowns our ICT system is quickly back in service.

Reliability: Alpha coefficient for the index was .72

Measurement Source: Job Content Questionnaire (Karasek et al, 1997)

*ICT System Capacity Scale*. Measuring perceived capacity of ICT systems available in the work environment to facilitate work (1=strongly disagree; 5=strongly agree):

- I often have to wait long intervals before the ICT system can process my work.
- Our ICT system often cannot handle specific circumstances or materials.
- In order to get my work done with our ICT system, I am forced to rely on other people (ICT/IS support, staff from other departments, others with ICT skills).

- There are so many other users on the ICT system that it slows down my work.

Reliability: Alpha coefficient for the index was .72

Measurement Source: Job Content Questionnaire (Karasek et al, 1997)

*ICT Ease of Learning*. Single item measuring how easy to learn ICT systems in the volunteer program are (1=strongly disagree; 5 strongly agree):

- It is easy to learn the ICT systems I work with.

*VOE Ease of Use*. Measuring system interaction perceptions (1=not at all; 5=very much):

- To what extent is the VOE troublesome for you to use or difficult to operate or to interact with?
- To what extent would you like this system to be modified or redesigned all over again?

Reliability: Alpha coefficient for the index was .64

Measurement Source: Job Content Questionnaire (Franz and Robey, 1986)

### *Dependent Variables*

#### *ICT Use Construct*

##### *Website Usage*

- Does your organization have an Internet Web site? Yes; No
- If organization has an Internet Web site, which of the following are features of your organization's Web site: Our Web site contains...
  - Level One: Information about the volunteer program. May also include downloadable forms, listserv, or calendar.

- Level Two: Information about the volunteer program PLUS interactive features such as online transactions, applications or satisfaction surveys
- Level 3: a and b above PLUS databases that can be accessed remotely over a network (Internet or Intranet) by our agency
- Level 4: a, b, and c above PLUS databases that can be accessed remotely over a network by other organizations we are affiliated with.

Measurement Source: Adapted from Langford and Harrison (2001) and Les and Layne (2001) stages of e-government.

*E-mail Use*. Scales were determined through factor analysis. Two factors were identified:

- Type 1: Organizational related uses (1=not at all; 5=very much); combines sharing information management, staff and colleagues as well as tasks with others (Reliability: Alpha coefficient was .70; Measurement Source: focus group).
- Type 2: Volunteer management related uses (1=not at all; 5=very much); combines sharing information with volunteers, personal recognition and communicating with volunteers about schedule items (Reliability: Alpha coefficient was .88; Measurement Source: focus group generated).

*VOE Usage*.

- Yes; No

*VOE System Satisfaction*. Single item measuring overall satisfaction with the VOE (1=very dissatisfied; 5=very satisfied):

- Overall, how satisfied are you with the VOE?

*Online Recruitment System Use*:

- Yes; No

*Network.*

- I use the Internet (external type of network) in the volunteer program.
- I use an Intranet.
- I use both the Internet and an Intranet in the volunteer program.

Source: Focus Group Generated

*ICT Effectiveness Construct*

*ICT Impact.* Scale measuring managers of volunteer resources' perceptions of the impacts of ICT on the volunteer program (0=not at all; 1=small extent; 2=moderate extent; 3=large extent). To what extent has the use of ICT in the volunteer program resulted in the following:

- Reduced cost
- Increased productivity
- Improved overall efficiency
- Improved service quality
- Increased significance of the volunteer program

Reliability: Alpha coefficient for the index was .86

Measurement Source: Personal interview generated.

*VOE System Impact.* Scale measuring the ability of the system to perform the task of recruitment of volunteers (1=extremely ineffective or inefficient or not at all; 5 = extremely efficient or effective or very much):

- How efficient is the VOE in terms of saving you time or other resources?
- How effective is the VOE in bringing in volunteers?

Reliability: Alpha coefficient for the index was .90

Measurement Source: Seddon and Yip (1992) as cited in Seddon and Kiew (1994)

### *Traditional Volunteer Model*

#### *Independent Variables*

##### *Pre-Disposition to Accept ICT*

###### *Gender.*

- Male; Female

###### *Age.*

- Under 25; 25-34; 35-44; 45-54; 55-64; Over 65

*Volunteer Motivation.* Dichotomous measure computed if motivation is for a cause the volunteer believes in or if they are personally affected by the cause ( $1 = \text{yes}$  ;  $0 = \text{no}$ )

###### *Prior Experience.*

- Years using computers

##### *Work Influences*

###### *Task type.*

- Volunteer Work involves computer tasks yes; no

###### *Position preference.*

- Preference for flexible volunteer hours: yes; no

##### *Psychological/Physical Influences*

*Barriers to ICT Use.* Measure indicating the number of barriers the volunteer perceived from a minimum score of 0 to a maximum score of 6. Barriers included lack of

knowledge about ICT, time to use ICT, money to purchase ICT, training to use ICT, organization does not use ICT, other.

### *Mediating Variables*

*ICT Efficacy Expectations.* Measure of perceived usefulness of ICT in volunteering (virtual volunteering) (1 = ICT use in volunteering is not useful in volunteering; 2 = not useful in our organization; 3 = may have promise or have known other virtual volunteers so I would consider it; 4 = have performed virtual volunteer work successfully and would perform again).

*Self Efficacy.* Measure of perceived computer skills (0 = no skill, 1= poor, 2= fair, 3=good and 4=excellent skills).

### *Dependent Variables*

#### *ICT Use*

*ICT Use in Volunteerism (VfVp).* Measures specific use of ICT by the volunteer to find (Vf) and perform (Vp) current volunteer position. Scale where Type 1 = 1 where the volunteer uses traditional methods to find work and performs it traditionally; Type 2 = 2 where the volunteer uses virtual methods to find work but performs it traditionally; Type 3 = 3 where the volunteer uses traditional methods to find work but performs it virtually; and Type 4 = 4 where the volunteer uses virtual methods to find and perform volunteer work.

*Volunteer Uses for ICT.* Measures general use of ICT by the volunteer for business/professional, personal/family, volunteering, and other areas of use (1 = one type of use, 2 =, two types, 3 = three types and 4 = all four types of use of ICT by the volunteer.



