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Participatory Multi-Site Videoconferencing at River Valley Health *

Gibson, K., O'Donnell, S.
July 2008

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Participatory Multi-Site Videoconferencing at River Valley Health

Kerri Gibson & Susan O'Donnell

July 2008

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Canada

This report was prepared for MuVi, a joint research project of the Broadband Visual Communication Strategic Initiative (BVC-SI) of the National Research Council Institute for Information Technology (NRC-IIT) and River Valley Health (RVH) Telehealth in New Brunswick. The views expressed are those of the authors, who welcome feedback.

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1 Executive summary

Participation and engagement are foundational to a successful multi-site videoconference. NRC-IIT is working with River Valley Health (RVH) in New Brunswick to identify and help implement best practices for participatory multi-site videoconferencing (MSV) for non-clinical health administration.

We designed a study to identify the social and technical factors that could improve MSV within the distributed health authority. Five non-clinical administrative and educational groups meeting regularly via MSV were involved in this participatory research study. Surveys were administered to participants, committee chairs participated in a focus group, and brief interviews were conducted with RVH technical support staff. The research is still underway and more activities and data collections are planned.

Our findings from this study suggest that for the most part, participants are pleased with the outcomes of their videoconference events. Overall, participants reported having fairly strong feelings of social connection during the videoconference. However it is a challenge to keep the remote sites involved and engaged. Typically, most participants are located in the only urban site within the health authority and often the participation at other, rural, sites is quite low.

The analysis identified suggestions for improving participation in videoconference events, ways to facilitate communication, and both social and technical areas for RVH staff training. The two highest ranking suggestions are improving the image on the screen, and focusing the camera in on speakers.

Few technical problems were reported during the five MSV data collection events. However, twenty percent of participants did report some issues, mostly problems with the image and audio at other sites.

Interest in training was assessed. Participants were most interested in technical skills training on 1) how to use applications and add-ons to units, 2) how to initiate a call, and 3) trouble-shooting procedures. For social skills training, the most popular choice was training on how to facilitate a group discussion, and others wanted training on how to make appropriate eye contact and how to feel comfortable voicing one's views during a MSV.

In conclusion, the study findings suggest specific ways forward, and areas for intervention, to facilitate the use of best practices for multi-site videoconferencing. To disseminate these findings and address the goal of implementing best practices, our team is currently developing a peer-generated video intervention tool. This tool will help with the communication of best practices to videoconference users. Through their responses, MSV participants have indicated an interest in learning about videoconferencing etiquette, through video, and have identified some specific things to improve their experience – such as focusing the camera on speakers, and maintaining eye contact (two suggestions endorsed by many participants). Starting from this point we have created several pilot videos with a chair of one MSV group that address these two issues. In the next phase of this research project, we will assess the usability and perceived effectiveness of this learning tool as we look toward incorporating it within a larger, multi-faceted intervention within RVH.

2 Introduction

This report is the result of research exploring technical and social aspects of multi-site videoconferencing (MSV) for non-clinical health administration. Our participatory research project has two partners: the National Research Council Institute for Information Technology (NRC-IIT) and River Valley Health (RVH).

Our research project is called MuVi - Multi-site Videoconferencing Best Practices. MuVi is part of the NRC-IIT's Broadband Visual Communication Strategic Initiative, which is exploring synchronous (e.g. videoconferencing) and asynchronous (e.g. video) visual communication among groups of people in multiple locations. The MuVi project is a good fit with this research initiative: it explores how groups communicate by videoconference and attempts to make the communication process more participatory.

The aim of MuVi is to develop best practices for multi-site videoconferencing at River Valley Health. RVH is located in New Brunswick – one of the most rural provinces in Canada. The health authority is comprised of several hospitals, health centres and specialty care programs that provide a broad range of health services to 166,000 citizens. RVH covers a

geographic region of 23,251 kilometers – the largest health region in New Brunswick. The region is approximately 60% rural and 40% urban with 15 communities, including five First Nation communities.

RVH's Telehealth Services serves both clinical and non-clinical activities. The health authority purchased a videoconferencing bridge in 2006 to connect multiple sites. During 2006-2007, users of the network engaged in 1,924 hours of videoconferencing – an increase of 82.5% from 2005-2006 (River Valley Health, 2007). The use of the Telehealth network is still exploding - for example, in 2007-2008, compared to 2006-2007 there was a 62% increase in overall hours – with a 78% increase in non-clinical utilization and a 29% increase in clinical use (River Valley Health, 2008b).

Most of the time, videoconferencing at RVH is used for non-clinical activities, which increased 125% from 2005-2006 to 2006-2007. In the past two years there has been an increase in the number of telehealth rooms across the region, from three in 2001, to 31 in 2007. By early 2007, all five First Nation communities in the health authority area had telehealth sites.

According to recent User Impact Surveys conducted by RVH Telehealth Services, videoconferencing allows communication among RVH professionals who otherwise would not be able to connect. Results from the RVH 2008 User Impact survey indicate that 57% of participants reported saving time because of this medium. Another 53% indicated that having videoconferencing in their facility has given them better access to educational events and training. More than 60% indicated they have become more involved in professional committees and activities because of videoconferencing. Furthermore, *when participants were asked if they would use videoconferencing again, not one participant said no.*

Participants in the RVH survey were asked about the types of training they would like. The top three priorities for technical training were the use of applications with the videoconference system (e.g. laptop), the use of the camera and presets, and how to initiate a videoconference session. For non-technical training the top three priorities were training on videoconference etiquette, delivering an education session through videoconference, and how to be an effective chair and participant during a session.

These results speak to the importance and appreciation of videoconferencing at RVH. The staff of RVH Telehealth Services is very enthusiastic about videoconferencing and has been implementing good practices for RVH videoconference users. The MuVi project arose because of the high use and interest in videoconferencing in the organisation. A project goal is help the organisation identify and implement best practices for participatory multi-site videoconferencing.

This report is based on a study that collected and analyzed "baseline" data for the first phase of the research project. This phase assessed the current functioning of non-clinical health administration groups who meet regularly by multi-site videoconferencing. The second phase of the project includes the development, implementation, and assessment of an intervention that will educate RVH videoconference users on best practices.

There is a paucity of research on multi-site videoconferencing in a non-clinical health setting. This study makes a valuable contribution to the research literature and will build the foundation for the intervention to be implemented in the second phase of the project.

3 Brief literature review

We conducted a comprehensive literature review on participatory multi-site videoconferencing earlier in the MuVi project (Molyneaux et al., 2008). This section reviews some highlights.

Participation and engagement are key ingredients in knowledge retention. Researchers have found that having the opportunity to see, hear, and interact can increase the retention of knowledge by 90%. Furthermore, some researchers have gone so far to say that videoconference experiences where participants cannot participate are not worthwhile (Greenburg, 2004; Peterson, 2000).

Participation includes observing, communicating or listening to another person or group of persons in a videoconference. Engagement refers to dialogue during or after a videoconference and change on a personal, group or community level, such as learning, becoming empowered, and individual, group or community action.

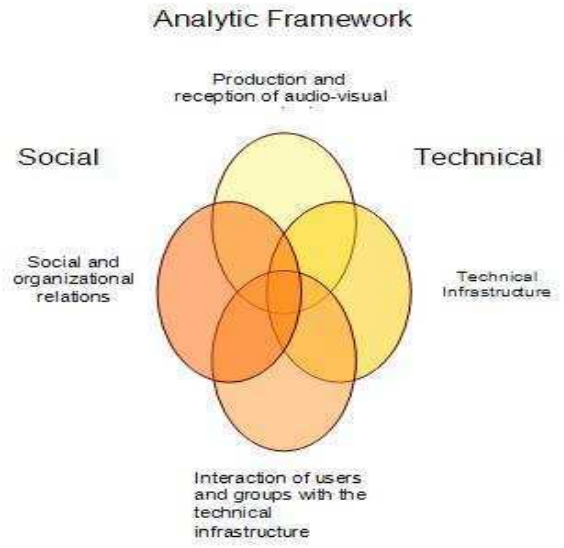
Creating a participatory atmosphere for videoconferencing involves addressing several

factors. Group dynamics, such as trust, are integral to healthy group functioning and vary according to the type of communication used. Videoconferencing has an advantage over audio or text communication as the video allows users to see facial expressions and other important visual cues which can aid in the communication process and the building of trust. However, videoconferencing is not an "in-person" interaction, and sometimes technical problems or other variables (e.g. too many people in a room, not all participants appearing on camera, etc.) can affect group dynamics and trust (Molyneaux et al., 2008).

Other issues that can affect levels of trust include: if participants have never met in-person, if they do not intend to be involved with each other again, and the very climate of videoconferencing - where sometimes talking and providing input seems difficult as gaining floor control can be a challenge (Wainfan & Davis, 2004). The size of the group can also affect the level of participation – people in larger groups, likely to be the case in multi-site videoconferencing, might have less opportunities to interact with each other.

4 The analytic framework

Our analytic framework is a research tool that guides our research on video communications. We developed and validated the framework through several previous studies involving videoconferencing of all different types (e.g. Virtual Classrooms and community development projects).



Within it we have identified four key categories of variables that are worthy of exploration. We based the framework on the premise that certain social and technical variables can either facilitate or hinder the communication process. The identification and examination of these variables in specific studies can help determine issues that need to be addressed. Please see O'Donnell, Molyneaux, and Gibson (2008) for a detailed review of this analytic framework, as only the variables that are of direct interest to this project and report will be discussed below.

Communicating using multi-site videoconferencing can be enabled or constrained by variables in four categories: 1) the technical infrastructure, 2) the interaction of users and groups within the technical infrastructure, 3) production and reception of audio-visual content, and 4) social and organizational relations.

Enablers facilitate engagement and participation. For example, feeling like you are part of a group is likely to make you feel more comfortable communicating with group members. Constraints hinder engagement and participation. Using the same example, if a group member feels excluded or isolated she or he is likely to feel less comfortable voicing their opinions to their committee.

This framework was developed based on a variety of theoretical approaches from multiple social science disciplines. Social informatics, community informatics, and feminist standpoint epistemology are some of the theories that have influenced the development of the analytic framework. Drawing on these theories we value the experiences and perspectives of the users themselves, and so it follows that this project is of a participatory design. This means that the researchers work closely with the partner organisation and the groups participating in this research, to design the research process, disseminate results, and plan for interventions. An account of the challenges and experiences of working with a health authority for this type of participatory research is discussed in Gibson and O'Donnell (2008).

Technical infrastructure. This component of the framework encompasses purely technical variables, such as the technology used and whether it was used alone or with other applications or technologies, the bandwidth, the quality and position of the screens, microphones, and cameras, and other technical variables. For the purpose of this study, information on the technical infrastructure

was gathered by obtaining a technical inventory of the infrastructure and equipment available in the telehealth rooms across the health authority. In addition, some technical information was also gleaned from brief interviews conducted with telehealth support staff.

Interaction of users and groups with the technical infrastructure. This category is comprised of both social and technical variables. Variables in this category that were of direct interest to this project include the levels of comfort with the technologies, the technical skills of participants, the level of technical support available to participants, the perceived ease of use of the technology as well as the perceived usefulness of the technology.

The Technology Acceptance Model (TAM) was put forth by Davis (1986) as a way of explaining and predicting use of information and communication technologies. Davis postulated that users' perceived ease of use of a technology (how easy they find it to use and how well they are able to get it to do what they want) and their perceived usefulness (how much they see the technology as making their job easier for example) both predict the uptake and use of a technology. Perceived usefulness was found to be a more powerful predictor – implying that users are willing to use a technology if they perceive it to be useful, even if it isn't the easiest technology to use.

The TAM has been validated by numerous studies. For this study we used items that have been previously developed for measuring TAM and adapted them for multi-site videoconferencing. We wanted to investigate how the users at RVH perceived the usefulness and ease of use of multi-site videoconferencing.

For example, perceived usefulness of a technology can facilitate communication if participants see the technology as enabling their group to accomplish things more quickly. In contrast, if participants view the technology as hindering their group's performance or think that an in-person meeting might be more appropriate, then communication is likely to suffer.

Other variables explored under this heading include the room size, the position of the furniture, and the lighting and room configuration.

Production and reception of audio-visual content. This category includes both technical and social variables as well. Levels of participation and engagement with the material during the videoconference varies among participants as does the extent to which the organization and structure of the session encourages participation by users.

Social and organizational relations. This category is comprised of only social variables. The main variables we considered in this study included the experiences of different participants and user groups during a multi-site videoconference, based on their location (e.g. urban or remote), their level of engagement with the technology, their feelings of group connection, and the type of event (e.g. administrative or professional development/educational). Other variables of interest include meeting etiquette, group tasks, preference for other modes of interaction (e.g. face to face), and group size.

5 The research procedure

Research questions

The main research questions guiding this project are: 1) to what extent are the people in the health administration group in different locations participating and engaging using multi-site videoconferencing? 2) What constitutes "successful" participation and engagement by a health administration group in multiple locations meeting by multi-site videoconferencing? 3) What are the enablers and constraints to successful participation and engagement? 4) How can the design of the broadband audio-visual technologies be improved to facilitate participation and engagement? 5) How can the design of the visual communication process be improved to facilitate participation and engagement?

Method

Participants. The analysis in this report is based on data collected from two components of the overall MuVi project. First, surveys were administered to participants involved in RVH groups who met via multi-site videoconference to engage in non-clinical activities. The second component involved brief technical interviews with telehealth support staff, such as site coordinators, and other key technical and administrative staff.

Group data-collection: Five RVH groups who meet on a regular basis through multi-site videoconferencing were recruited to participate in this study. Three of these groups were

administrative and most of their tasks focused on committee work. The members typically had a specified role for that committee. In addition, two educational groups participated, and these groups focused on professional development for health authority staff. These were open groups where anyone was welcome to attend any session, and there was no official group membership. A more detailed description of the participants is offered in the results section under the profile of participants.

Brief interviews: The RVH telehealth support staff, four site coordinators and the head telehealth support staff completed brief interviews. These site coordinators assume this position in addition to their main administrative role within the organisation. Site coordinators who were at a site that could have potentially participated in the multi-site videoconference data collections were invited to participate, as well as the head telehealth support contact.

Materials. All participants were invited to read and sign a consent form if they chose to participate. Consenting participants were then administered a five-page survey. The survey included demographic questions, items measuring feelings of connection and group dynamics, perceived ease of use of technology, perceived usefulness of technology, and other questions about what could help participation or improve communication between sites [Please refer to the appendix for the complete questionnaire]. The questions on perceived ease of use and perceived usefulness were drawn from items that have previously been used to measure the Technology Acceptance Model (Davis, 1986). Participants were ensured that their survey responses would be anonymous and kept confidential.

Procedure. The authors worked closely with the participating groups throughout the study. Prior to each group's leaders and members consenting to participate in this project, a researcher from the team visited the group, explained the study, answered questions, and observed the group's interactions. Once a group agreed to participate, the group's next scheduled multi-site videoconference session was used to collect data. Group members were only invited to complete a survey if their videoconference had at least 3 sites connected. During the data collection sessions the events were recorded. At each data collection the researcher took notes, introduced the study, invited attendants to participate, and administered the survey to consenting participants. In total, 45 surveys were returned – based on data collected from five groups (three administrative and two educational/ professional development).

In total – five interviews were conducted with Telehealth staff. Brief phone interviews lasting 10 to 15 minutes were conducted with four individuals, an in-person interview with one. Participants were asked about common videoconferencing tasks they engage in, their training needs, common difficulties and problems reported at their site, and similar questions.

6 Research findings

Profile of survey participants

Participants completed the surveys after attending a multi-site videoconference for an educational session (44.4% of participants) or an administrative session (55.6%).

Surveys were available to every participant at every videoconference site. Participants were from four different sites (two different sites within Fredericton Doctor Everett Chalmer's Hospital, and two rural sites, Oromocto and Perth-Andover). Only 17.8% of participants identified as being from a rural site.

The sample included more female participants, approximately 93%, primarily because there were more females than males at all the videoconference events, and in general there are more women in many health professions (e.g. nurses).

English was the first language (88.9%) of most participants, French for 6.7% and other languages for 4.4%. The majority of survey respondents (64.4%) were 36-55 years of age.

The majority of survey respondents in educational events did not identify as members of the group that held the session; however, in administrative groups almost all participants indicated they were group members, with the average length of membership being 20.88 months.

We asked a series of questions to gain a better understanding of how comfortable the survey participants were in general with information and communication technologies (ICT). Overall, their ICT use was on the very low end of a five-point scale, closer to never/rarely (1) than everyday (5). Out of 8 different types of ICT (e.g. cell-phone for pictures and video only, personal website,

Facebook, etc.) respondents indicated that they used chat programs such as MSN most frequently (*M*=2.04), with programs such as Facebook (*M*=1.84) next. Results indicated that participants posted text comments to online videos the least (*M*=1.04). Participants also reported an infrequent use of cell phones for picture or videos (*M*=1.82), video chat (*M*=1.62), watching online video (*M*=1.58), having a blog or personal website (*M*=1.41), and uploading a video to share with others (*M*=1.18).

Technical infrastructure

Information in this section is from interviews conducted with four RVH staff providing telehealth support – three site coordinators and the technical support head contact. They also provided information on the technical infrastructure in RVH hospital sites and telehealth rooms.

The health authority furnishes its 31 telehealth rooms with Tandberg videoconferencing units. RVH uses ISDN networks for videoconferencing. The maximum IDSN bandwidth per site is 384 kbps, with one site having 512 kbps, and another 3mbps - both latter sites are at the Doctor Everett Chalmer's Hospital in Fredericton. IP (Internet Protocol) connections are present on 27 units but ISDN is the mode of service delivery. This IP connection allows remote assistance by support staff to the Tandberg units. The health authority plans to continue with ISDN for the next few years and then migrate to IP.

All except two of the Tandberg units have multi-site capacity; at one of these sites multi-site is available in another telehealth room. Each of the five First Nation communities within the health authority each has multi-site capacity and a telehealth room.

When asked what would help improve multi-site videoconferencing at RVH, one telehealth support person said training users how to improve the social quality of videoconferencing would be beneficial. For example, often individuals are too far from the camera and so other sites cannot read facial expressions or visual cues. The participant elaborated on how some improvement has been made for etiquette; for example now more users mute their microphone when nobody is speaking at their site.

Some of the most commonly cited problems with the videoconferencing included connection problems and peripheral problems (e.g. laptops). For example, some presenters will bring their own personal laptop to an event and then, at times, software and hardware compatibility problems result as the individual is not using the laptop that is supplied by the Telehealth room.

Interaction of users and groups with the technical infrastructure

Videoconferencing experience. A sizeable minority (26.7%) of survey respondents have taken RVH videoconference training, typically offered by site coordinators. Upon a person's first use of the room they are usually invited to participate in one-on-one training with the coordinator. Even greater – at 35.6% - is the number of respondents having seen the RVH etiquette or checklist. However this still means the majority has not received training or seen the checklist. Another 11.1% had received videoconference training elsewhere.

Most (64.4%) reported participating in one to 10 videoconference events during the past six months, with 20% having participated in 11 to 20 events, and only 2.2% in 41 to 50 events. The average number of videoconference events in the past six months was 7.79.

Level of technical support available. RVH technical support is organized as follows: a user encountering difficulty first contacts their site coordinator. A site coordinator that cannot resolve the issue will call the technical support head contact. This individual can typically address the problem from his desktop using remote assistance. However, rarely he may need to go to the site.

The five First Nations communities are not on the same network as RVH. The agreement between the communities and RVH was for RVH to install the telehealth equipment and provide support for it, but the communities were to remain responsible for their own network. Therefore, when technical problems arise, technical support cannot remotely address the problem but must go there in person.

Perceived ease of use of MSV. We asked participants if multi-site videoconferencing (MSV) technology is easy to use - the mean score here was 3.56 on a scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

The mean score for comfort using the remote control was 3.49. The mean score for "I find it easy to get the multi-site videoconferencing technology to do what I want it to do" was 3.19. When asked if using the technology did not require a lot of mental

effort, the mean score was 3.28. In sum, participants perceived MSV to be less easy to use and more useful, as we will see in the next section.

Perceived usefulness of MSV. We asked participants if multi-site videoconferencing is useful for communication – the mean score was 4.40 on the same 1 to 5 scale. Participants said the technology enabled their group to accomplish things more quickly (*M*=4.29) and improved the performance of the group (*M*=3.8)

.

Environmental considerations. Room size and configuration were of concern to some participants; for one of the educational data collections the room was very crowded and not all participants were able to see the videoconference screen or appear on camera. If participants cannot be seen and cannot see others, participation and engagement are directly negatively affected. In addition, during this event the very cramped space meant that individuals could not move freely or have personal space. Also sometimes the position of the furniture was not ideal. For the educational event with far too many people than could be accommodated, chairs were placed in off-screen areas.

Production and reception of audio-visual content

Levels of participation and engagement. Participants overwhelmingly (91.1%) reported actively listening during their videoconference event. The majority (71.1%) spoke with people at their own site during the videoconference, and 60% spoke with people at other sites. Many (48.9%) reported taking notes and few to none reported instant messaging, emailing, or speaking to people on the phone during the event.

Participants were asked about any tasks completed after their last videoconference. More than 40% had thought about what was discussed during the last event and 37.8% had spoken to others about what was discussed.

Session structure and organization. Participants rated the overall session on their opportunity to contribute to it - the mean rating here was 3.73 on a scale from 1 to 5, with 1 Poor and 5 Excellent. The mean rating for organization of the session was 3.71, the mean for overall experience was 3.67 and the mean for performance of the equipment during the session was 3.69. It should be noted that no participants rated the performance of the equipment, organization of the session, or opportunity to contribute as poor – and only 2.2% rated their overall experience as poor.

Social and organizational relations

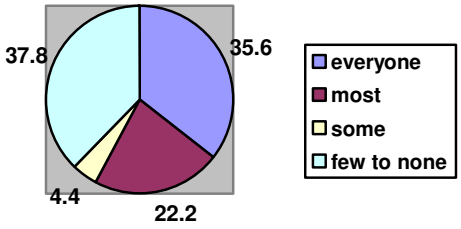
Experiences of group connection differed according to the type of event. An Analysis of Variance (ANOVA) was performed on the data to explore how the two types of events compared on the social variables. The administrative events scored significantly higher ($p<.001$) than educational events on the following items, “My site and the other sites actively communicated with each other,” “I was comfortable sharing ideas and thoughts with people,” “I felt like I belonged to a group,” and finally “I had an impression of personal contact with the people connected at other sites.”

Due to the uneven split between rural (17.8%) versus urban sites, a comparison of the two on all the variables was not appropriate.

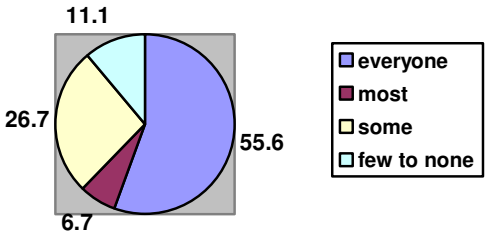
Feelings of group connection. Participants were asked to rate social factors and feelings of connection with other participants, on a scale from 1 to 5, where 1 was Strongly Disagree, and 5 was Strongly Agree. The mean rating on “I felt like I belonged to a group” was 4.27. A healthy environment for discussion seemed to have existed during these events as the mean score was 4.40 for if they were comfortable sharing their ideas and thoughts with people. For the most part, participants indicated that a warm and friendly environment for communication was created; the mean rating was 4.24. Participants were asked if they thought their site and the other sites actively communicated with each other during the multi-site videoconference; the mean response was 4.00. We asked participants whether they thought this event was as successful as an in-person meeting; the mean score was 3.87. The lowest overall mean score (3.73) on the social factors was an impression of personal contact with the people at the other sites.

Familiarity with individuals can affect participation. We asked how well participants knew individuals in the same room as compared to individuals at the other sites. The results are represented in the pie charts below – numbers reflect percentages. Overall, participants were more likely to say they knew everyone at the same site.

Familiarity with people at other sites



Familiarity with people at same site



7 Areas for improvement

Making changes to the environment. The survey asked respondents about whether they thought particular changes in the environment, such as lighting, or improved audio, would improve their multi-site communications. Participants were asked to rate possible changes on a scale from 1 – Strongly Hinder, to 5 – Strongly Facilitate. The two highest ranking changes were focusing the camera on speakers (*M*=3.74) and better image quality on screen (*M*=3.74). Next, improved audio (*M*=3.5) and lighting (*M*=3.5). Lastly, a couple of participants noted that changing the position of the speaker, and the room temperature, would have improved their experience.

Technical problems. A minority (20%) of participants reported experiencing technical problems during their event. Some (6.7%) reported problems with image. Another 6.7% experienced audio problems, and other problems reported included sites freezing. One person indicated difficulty seeing visual cues.

Monitoring possible inequalities. Questioned about possible inequalities experienced during the videoconference, the majority (93.3%) reported not having any. Some participants did note that remote participants were often excluded and some sites were not acknowledged during a videoconference.

Technical skills training. Participants were asked if they would like certain types of technical training. Training on applications and add-ons to the unit was the most popular choice (37.8%), followed by initiating a call (33.3%) and trouble-shooting procedures (31.1%). Some people (28.9%) reported not wanting any type of training. Training was wanted on disconnecting a call (26.7%), use of the remote (24.4%), zooming the camera (15.6%), far-end camera control and camera angle (both 13.3%), and audio and camera adjustments (both 11.1%). Also specified was PowerPoint training for use with the videoconference technology.

Social skills training. A list of types of social skills training was given to participants and they were asked to check off which type, if any, they would want training in. The highest number – 26.7% - indicated they would not want any social skills training. Next, 22.2% wanted training on how to facilitate a group discussion. Wanting training on how to make appropriate eye contact and how to feel comfortable voicing your views, were both endorsed by 15.6% of participants. Another 11.1% wanted training on cultural sensitivity, and how to actively listen to group members. Some participants would like training on how to know when to speak during a videoconference, as it is an atmosphere where there are interruptions, delays and lags, all hindering communication.

8 Next steps

Peer-generated video intervention for knowledge sharing

The NRC is working with RVH to develop an e-learning tool to share knowledge and engage videoconference users on best practices for participatory multi-site videoconferencing.

We are currently piloting a peer-generated video intervention. Short videos made by peers are effective for communicating among individuals and groups. The visual content helps engage users. The videos will be between one and two minutes long - short enough to be inviting to peers. They will be user-generated by staff members at RVH, in order to ensure the presence of a friendly, familiar, and trustworthy atmosphere will be present.

This intervention will mesh well with the needs and interests of RVH users. In the RVH 2008 User Impact survey, when staff participating in videoconference events were asked about what they would like to learn more about, one of their highest priorities was videoconferencing etiquette.

In response to the needs of participants identified in the User Impact Survey and in this MuVi Survey, we will focus the first few user-generated videos on videoconferencing etiquette, such as zooming in the camera when speaking and making eye contact. The videos will focus on tips from the literature and the data collections thus far on how to increase participation and engagement.

In addition, during the same RVH User Impact Survey, respondents indicated a willingness and interest to learn through short videos; therefore the content and mode of delivery are of interest and welcomed by RVH staff.

Focus group to discuss intervention

We held a focus group with meeting chairs to discuss the results of the survey and discuss the intervention. Several tips for meeting etiquette during a multi-site videoconference were identified from the focus group and from the survey responses.

It was suggested that the chairs or facilitators of the sessions could increase the participation by asking more questions and actively eliciting information and feedback from all sites, not just from the site where the presenter is or where the majority of individuals are.

The concept of rotating chairs has been raised in the literature (Sonnenwald et al, 2002) as a technique to help promote participation. In this study it was brought up as a new possible approach. Another suggestion was to rotate the sites where the chair was present. This way the chair would interact with different people from the committee in in-person interactions, which would help build and sustain relationships among group members and change the power dynamics between sites. In addition, the chair would experience the videoconference from the different sites and have the opportunity to appreciate the perspectives of the different members. Of course there are disadvantages to this suggestion, such as the cost and time involved for the chairs to travel.

One participant put forth the idea of having a brief (e.g. 20-second) introduction at the start of every session, covering who was on the screen and the process for participating in a videoconference. Other responses indicated that knowing when to speak would help facilitate participation. One way videoconference participants accomplish this is by raising their hand or making a signal at the camera when they wish to speak.

Physical and environmental changes were suggested including a change of rooms or a larger room for certain events. At one of the data collection events there were more than forty participants in a room with seating for 16 – a less-than-ideal situation.

Lastly, participants suggested that the person making the presentation or facilitating the event should *not* be responsible for using the technology.

9 Conclusion

Levels of participation in the multi-site videoconferences studied varied across sites. The highest participation and attendance occurred in Fredericton. One reason is that different incentives are offered across sites, for example for one of the educational events lunch and door prizes were provided in Fredericton but not at the other sites. For the groups involved in this study, the committee chairs were all located in Fredericton.

There was variation on other variables as well. Participants at administrative events were more likely to score higher on feelings of connection with the other sites and other participants, than were those at an educational event. This implies a different social dynamic at each event. One potential explanation is that the educational groups are more open while administrative groups are fairly closed with long-standing memberships. Another possibility is that participants were more likely to know each other or know more people, both at their own site and at the other sites, when they were in administrative groups rather than educational groups. The literature is clear that knowing the individuals at the other sites promotes more trust and group communication (Molyneaux et al., 2008).

Our survey results indicated that participants perceive multi-site videoconferencing technology to be useful and advantageous. The data from the RVH User Impact Survey clearly supported the

perceived usefulness of the technology and the overall high level of satisfaction with it.

This study has a user-centered approach which strengthens the research and the intervention which will flow from it. Multiple methods were used to collect data, such as the surveys of users in groups who meet via multi-site videoconferencing, focus groups, brief interviews, and RVH documents.

A study limitation was the low participation rate. Participants were often rushed – attending MSV sessions for their noon-hour and needing to return to their shift as soon as possible once the event was over - and so there was typically a low level of participation. That being said, the participation rate for administrative events was much higher – near 100% in some groups. These administrative groups were well-formed; there is a low turnover of members and everyone is expected to attend each meeting. As well, a researcher met with the group members ahead of the data collection to invite them to participate and inform them about the study.

Future research will be conducted to evaluate the perceived usefulness and effectiveness of the pilot video series intervention on communicating with videoconference participants. The survey that was administered during the first data collection will be re-administered at least two more times to videoconferencing groups in order to re-assess the participatory levels and various technical and social factors of multi-site videoconferencing in this health authority.

In addition, some results from this study point to certain variables which may be related to high scores on social factors – for example, participants from the administrative groups tended to score higher than those from the educational groups. A future analysis will investigate factors related to high social scoring, so that interventions may be geared more towards producing a warm environment for communication.

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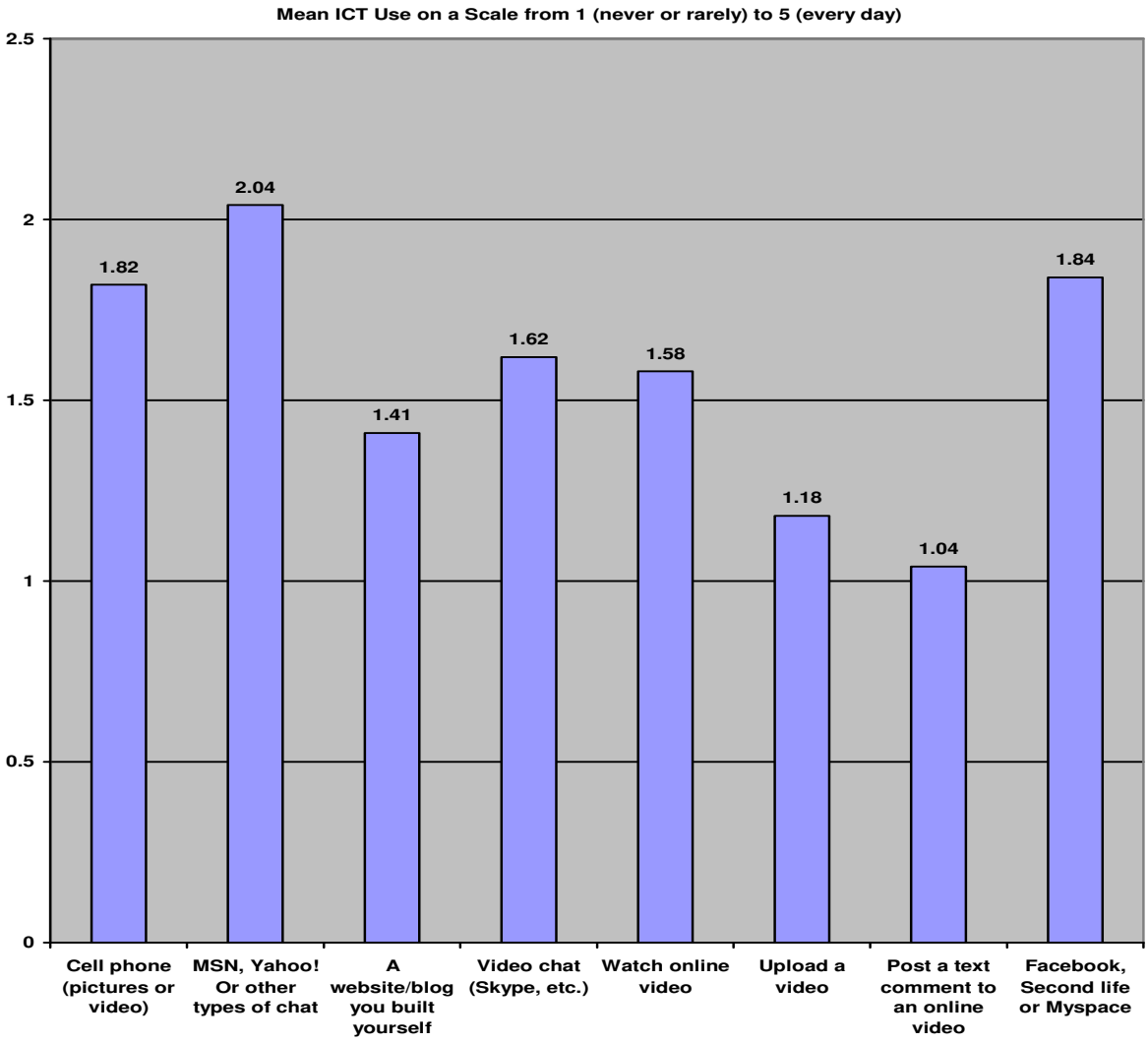
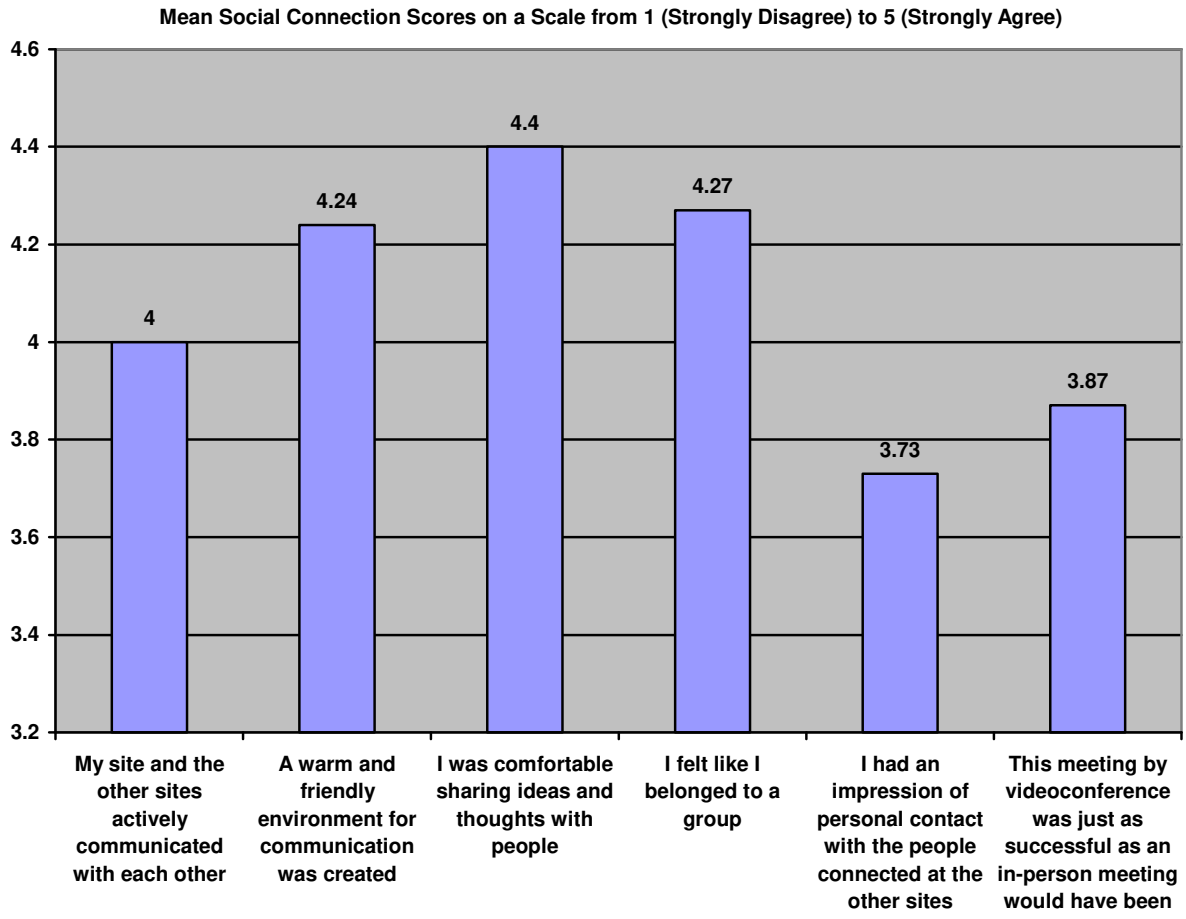
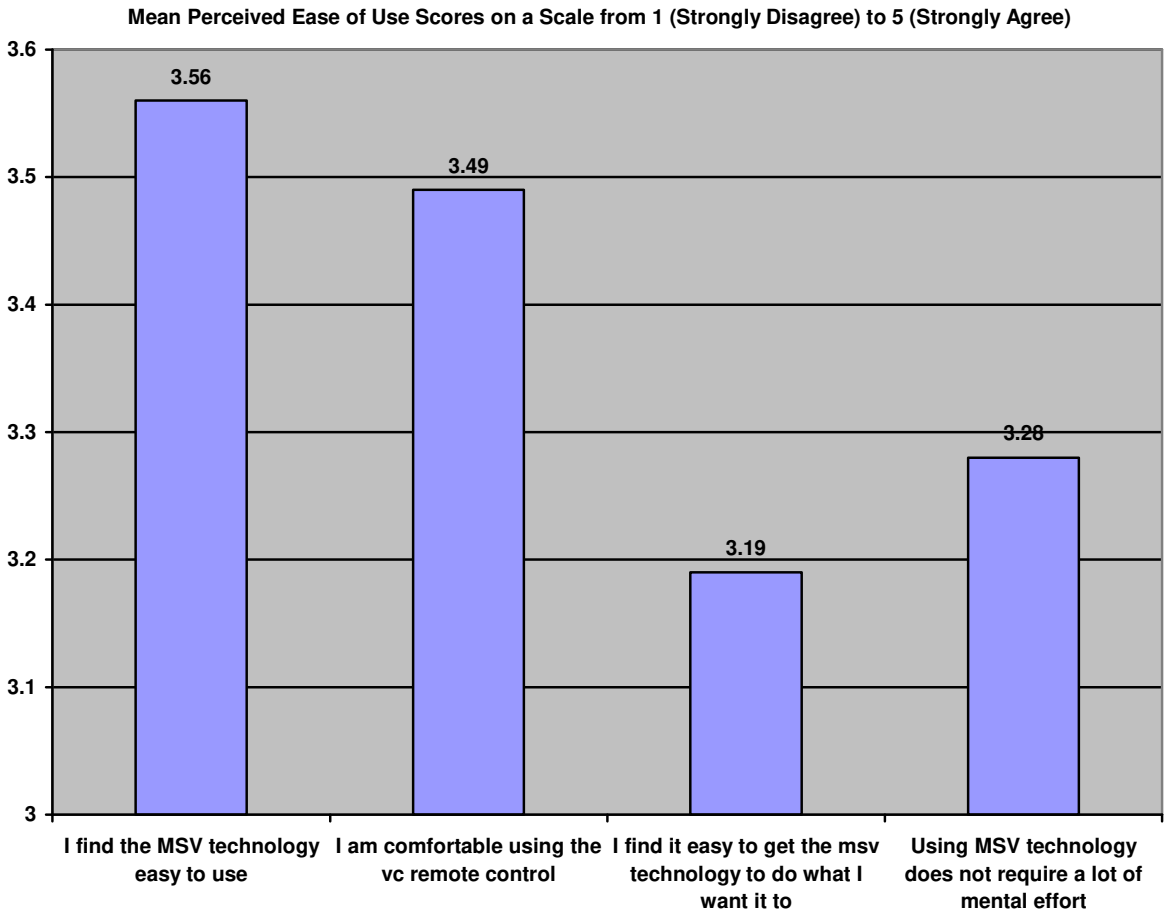
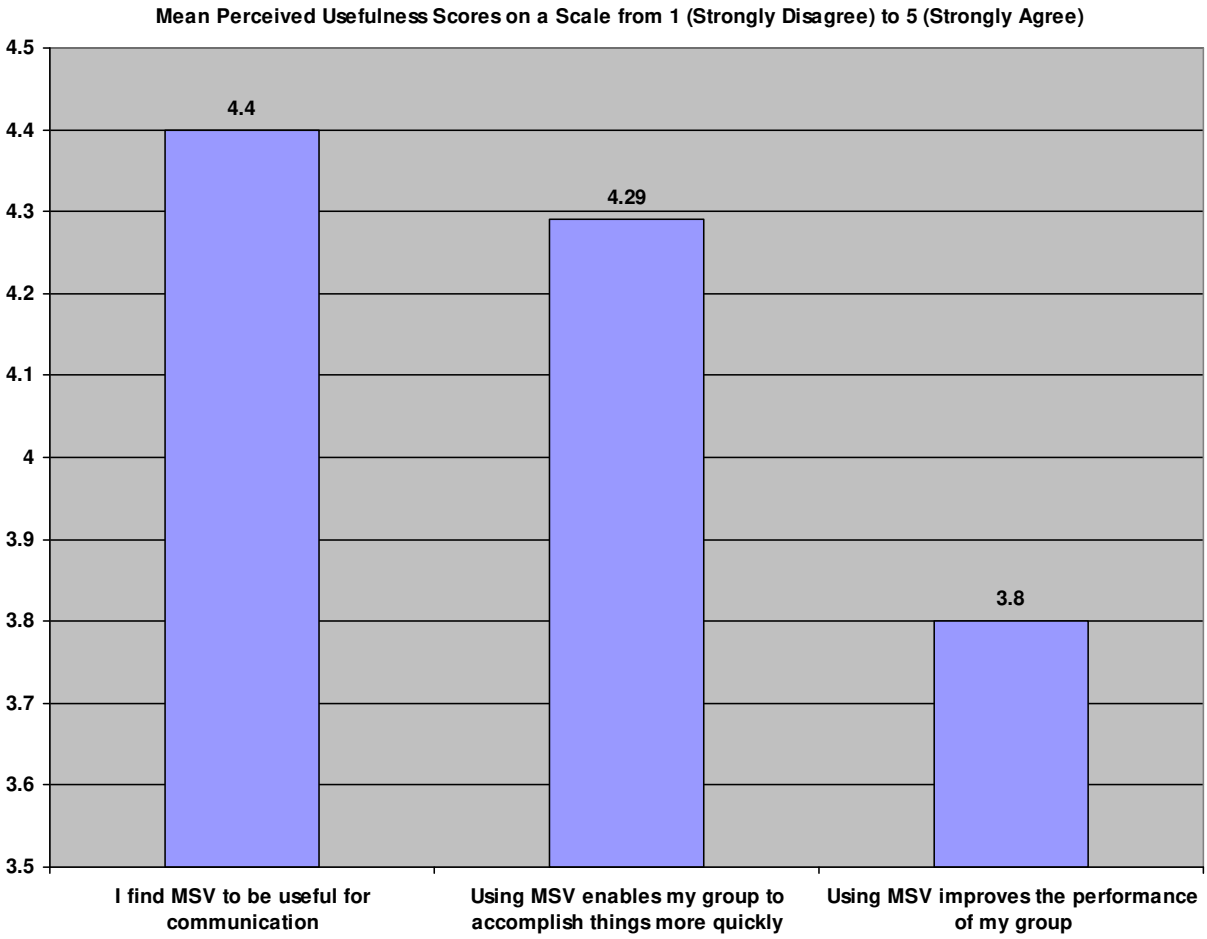
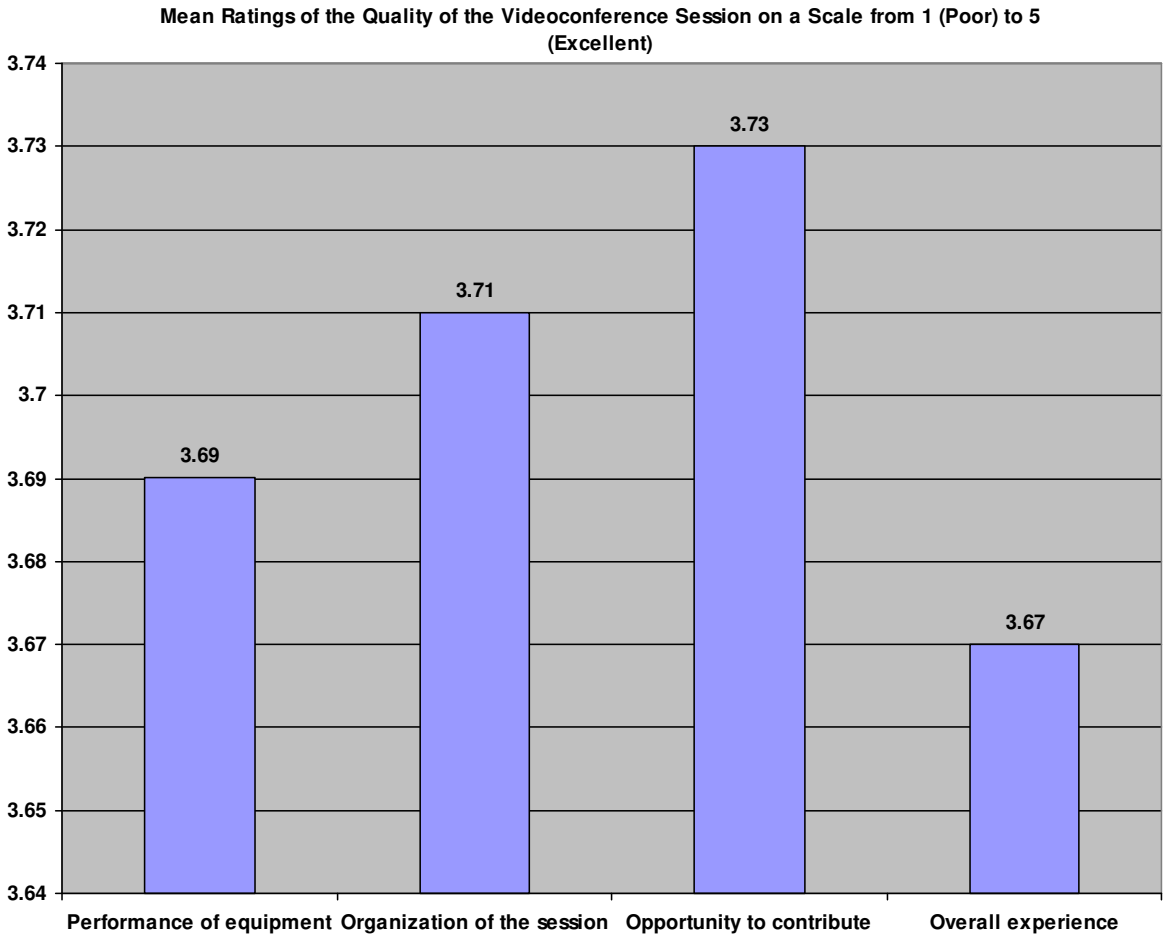
Appendix


Mean ICT Use on a Scale from 1 (never or rarely) to 5 (every day)
2.5
2
1.5
1
0.5
0
1.82
2.04
1.41
1.62
1.58
1.18
1.04
1.84
Cell phone (pictures or video)
MSN, Yahoo! Or other types of chat
A website/blog you built yourself
Video chat (Skype, etc.)
Watch online video
Upload a video
Post a text comment to an online video
Facebook, Second life or Myspace


Mean Social Connection Scores on a Scale from 1 (Strongly Disagree) to 5 (Strongly Agree)
4.6
4.4
4.2
4
3.8
3.6
3.4
3.2
4
4.24
4.4
4.27
3.73
3.87
My site and the other sites actively communicated with each other
A warm and friendly environment for communication was created
I was comfortable sharing ideas and thoughts with people
I felt like I belonged to a group
I had an impression of personal contact with the people connected at the other sites
This meeting by videoconference was just as successful as an in-person meeting would have been


Mean Perceived Ease of Use Scores on a Scale from 1 (Strongly Disagree) to 5 (Strongly Agree)
3.6
3.5
3.4
3.3
3.2
3.1
3
3.56
3.49
3.19
3.28
I find the MSV technology easy to use
I am comfortable using the vc remote control
I find it easy to get the msv technology to do what I want it to
Using MSV technology does not require a lot of mental effort


Mean Perceived Usefulness Scores on a Scale from 1 (Strongly Disagree) to 5 (Strongly Agree)
4.5
4.4
4.3
4.2
4.1
4
3.9
3.8
3.7
3.6
3.5
4.4
4.29
3.8
I find MSV to be useful for communication
Using MSV enables my group to accomplish things more quickly
Using MSV improves the performance of my group


Mean Ratings of the Quality of the Videoconference Session on a Scale from 1 (Poor) to 5 (Excellent)
3.74
3.73
3.72
3.71
3.7
3.69
3.68
3.67
3.66
3.65
3.64
3.69
3.71
3.73
3.67
Performance of equipment
Organization of the session
Opportunity to contribute
Overall experience