Desktop video conferencing in virtual workgroups: anticipation, system evaluation and performance

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Abstract. *This study investigates the applicability of the technology acceptance model (TAM) to the process of adoption of desktop video conferencing (DTVC). In this study, we create virtual office environments using DTVC and then examine how our participants interact with each other using the DTVC medium. Specifically, we examine the effect of users' anticipated system utility on actual system satisfaction, and in turn, system satisfaction on their workgroup performance. As in other applications of the TAM model, we find that those participants that anticipated DTVC in a positive manner were more likely to evaluate it positively after using it and were more likely to perform well during their use of the system.*

Keywords: Desktop video conferencing, emerging information technologies, parameter estimation, technology acceptance model, telecommunications

INTRODUCTION

Time constraints and other competitive factors, such as high travel costs (Press, 1998) and the scarce availability and high cost of specialized human expertise, have created an increased demand for organizations to explore the use of technologies that empower employees to communicate and work in some form of virtual mode (Martin, 1996; Townsend *et al.*, 1998). In this environment, employees are increasingly required to collaborate with co-workers to accomplish organizational projects and tasks (Boyett & Conn, 1992; Davidow & Malone, 1992; Tapscott & Caston, 1993). Communications and information systems developers have begun to recognize this new organizational context and have created a variety of new technologies to help meet the evolving challenges of the new workplace (Wiley, 1993; Negroponte, 1995; Lucas, 1996).

Desktop video conferencing (DTVC) is one of the most promising of these new technologies (Fish *et al*., 1993; Grenier & Metes, 1995; Kraut *et al*., 1998; Salter, 1998). Recent advances in DTVC technology have made true videoconferencing among co-workers an affordable telecommunication option for a broad variety of users and organizations (Townsend, DeMarie & Hendrickson, 1996;Fortune, 1997). Given the organizational imperatives detailed above, one of the most exciting potential uses of this new technology is to facilitate the interaction of co-workers on a common corporate project or task. DTVC provides an important communicative capability to these groups; its enhanced social presence (Fulk *et al*., 1987) combines with a high level of media richness (Daft & Lengel, 1984) to place it closer to face-to-face interactions than other computer-mediated technologies (Sproull & Kiesler, 1986; Kettinger & Grover, 1997).

To realize the full potential of this new technology, organizations must create interactive opportunities that allow geographically dispersed employees to interact as meaningfully as they would in traditional face-to-face environments (Grenier & Metes, 1995; Martin, 1996). If this is possible, then DTVC can provide two primary benefits. First, DTVC will allow co-workers to increase their productive capacity by eliminating downtime associated with travel, and second, it will allow organizations to increase their potential labour pool by transcending geographical barriers to recruitment (DeMarie *et al*., 1997). Thus, the primary goal in the use of this technology is to provide a cost-effective substitute for face-to-face interaction with minimal losses in productivity and utility of collaboration.

In addition to putting DTVC systems in place, organizations must help employees learn to interact effectively in a DTVC environment. Unfortunately, although a substantial amount of research has focused on computer-mediated communication and collaboration (in the sense of electronic mail groups and decision support system groups), very little has yet been directed towards DTVC, particularly with regard to co-workers using DTVC as their primary medium of interaction. As such, we know relatively little about how individuals and workgroups interact using DTVC, or how they respond to its adoption.

Our research builds upon a number of similar models of technology adaptation, to examine the effect that individuals' beliefs have on their attitudes toward DTVC and the effect that these attitudes then have on participants' ability to solve problems in a time-constrained task. In this study, we adapt the technology acceptance model (Davis, 1989) to the DTVC environment and test the model in a laboratory setting. Additionally, we utilize the end-user computing satisfaction instrument (Doll & Torkzadeh, 1988) to assess participants' satisfaction with the DTVC environment. This instrument has been widely used to measure system satisfaction in a large number of computing environments (Torkzadeh & Doll, 1991; Doll *et al*., 1994; Hendrickson *et al*., 1994).

LLTERATURE REVIEW

Because the development of true desktop videoconferencing is a very recent phenomenon, there is little written about DTVC *per se*. Given that the technology is new and has only recently begun to be introduced into the organizational environment, we felt that a primary research need was to examine how people experience the technology at first introduction. Fortunately, there is a fairly significant literature that addresses technology adoption, which provides models that can be fitted to our research context.

The development of models that explain individuals' performance as a function of their interaction with information technologies has generally focused on one of two themes: first, that there is an attitudinal component that determines technology use and performance; and, second, that performance is a function of the fit between the technology and the task being performed (Goodhue, 1995). Each of these research streams has some bearing on our research question, and their relationship to our research will be discussed accordingly.

Fishbein & Ajen (1975) and subsequent research by Bagozzi (1982) provide the foundation upon which attitudinal models of technology use and performance are based. Briefly, this group of models adheres to the theory of reasoned action (TRA) model proposed by Fishbein & Ajen (1975). Adapted to the technology utilization and performance environment, this theory asserts that beliefs about a given information system transform (with system experience) into attitudes about the system, which in turn affect intention to use the system and subsequent performance (Figure 1). This formulation was developed initially by Davis (1989) who called the resulting model the technology acceptance model (TAM).

TAM was almost immediately revised by Davis *et al*., (1989) to reflect a re-analysis of data used to test the original TAM; in the revised model, there is a separation between beliefs and associated intentions that exist prior to actual technology experience and beliefs and intentions that occur after experience with a particular technology. This revision specifically excludes the development of attitudes as an intermediate step between belief and intention (Goodhue & Thompson, 1995), which moves the revised TAM away from a direct interpretation of Fishbein & Ajen (1975). Although the revised TAM lacks the critical attitudinal component of Fishbein & Ajen (1975), it nonetheless functions as an effective model of technology acceptance. Empirical support for the model has been consistently demonstrated (Igbaria *et al*., 1995, 1997; Straub *et al*., 1995; Taylor & Todd, 1995; Chau, 1996; Venkatesh & Davis, 1996; Ghorab, 1997; Doll *et al*., 1998) and it serves its stated function, which is to predict whether or not individuals will use a given information technology.

Although the revised TAM dispenses with the attitudinal mediation between belief and intention, research indicates that experience-based attitudes continue to offer an explanation of individual use and performance with information system technologies. Bagozzi *et al*. (1992) noted that attitudes towards goals of system mastery directly affected individual performance with information systems. Igbaria *et al*. (1997) found that users' system satisfaction (an attitudinal construct consistent with Davis, 1989) was an important factor affecting system usage. Finally, Jackson *et al*. (1997) and King & Xia (1997) reintroduced the experience-based attitude formulation to the model and found that experience-based attitudes towards the system do play a mediating role between prior beliefs and intention to use the system. This return to models incorporating a mediating role for attitudes does not necessarily conflict with the revised TAM (in Davis *et al*., 1989), in that the revised TAM splits the model across the experience dimension. The set of 'beliefs' in the post-experience portion of the model (which

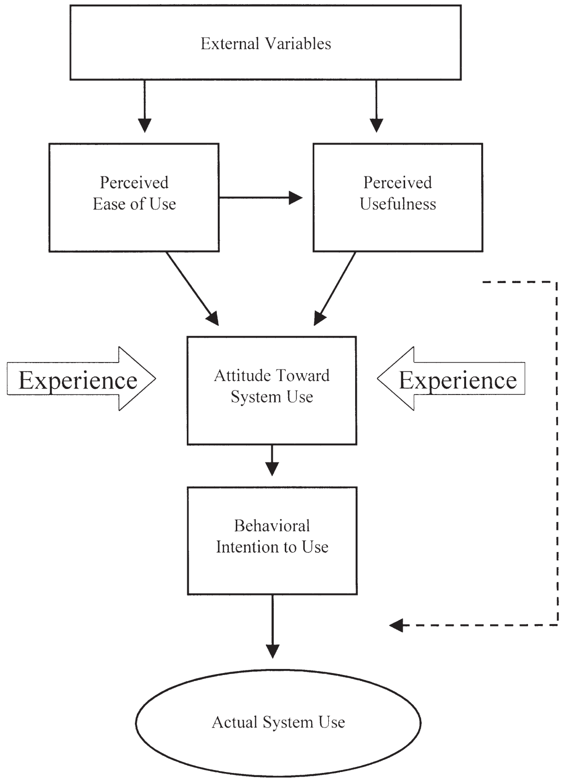

Figure 1. Original Davis (1989), technology acceptance model.

examined the impact of belief on intention for users who had experienced the system) are arguably little different from the post-experience attitudes of the original TAM.

The second and smaller stream of model development that addresses technology adoption is one that focuses on the fit between the technology and the user's task. In this framework, the ability of the technology system to improve an individual user's performance is a predictor of adoption of the technology and individual performance (see Goodhue, 1995, 1997, 1998; Goodhue & Thompson, 1995). Although the literature on task-technology fit *per se* is somewhat limited, the task-technology fit construct has been used in a variety of research investigating technology use and adoption (see Gopal *et al*., 1992; Tan & Benbasat, 1993), generally serving as a moderating variable on technology satisfaction, individual performance, etc. In relation to our research, however, the contribution of the task-technology fit model is somewhat more indirect. In the TAM constructions, adoption of technology or technology usage is portrayed as a largely voluntary function, dependent only on the relative affect of the user toward the system (Goodhue & Thompson, 1995). In most organizational settings, however, technology use is a function of job design, not of voluntary adoption. Because of this mandatory interaction with new technologies, the critical issue is not whether or not people will want

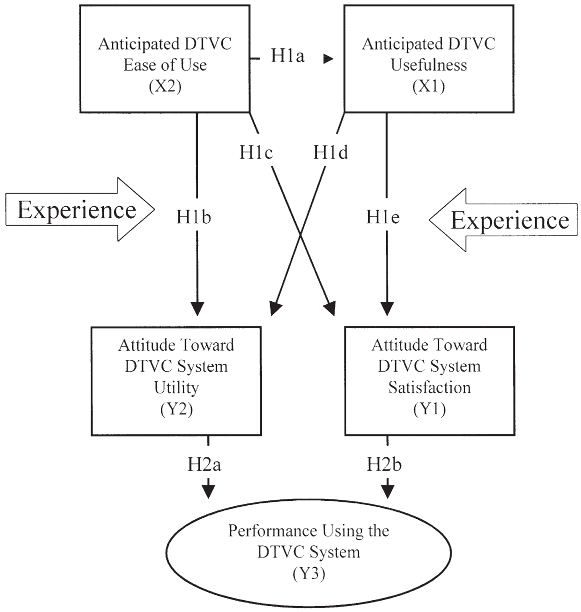

Figure 2. Adaptation of Davis (1989) model (marked with hypotheses).

to use a given technology, but rather, a determination of the factors that differentiate their performance when required to use new systems.

The model used in this study is based primarily on the original TAM, and also includes experience-based attitudes towards the system as mediating constructs. We do not, however, retain a measure of *intention* as our dependent variable; instead, we include *task performance* as the final result of experience-based attitude. In replacing intention in the model, we in no way intend a rejection of the intermediate role of intention *vis-à-vis* performance; rather, given the short time inherent in this study, we assume that intention is manifested in actual performance. This design reflects the importance of performance as a dependent variable in situations where use of new technology is mandated, and represents a different orientation from earlier research using TAM which positioned intention as the dependent variable of interest (Goodhue & Thompson, 1995).

Our final model is presented in Figure 2. In the model, previously held beliefs about the system are modified into attitudes through experience with the system, which in turn affect performance. We chose to use two post-experience attitude measures, based on Doll & Torkzadeh's (1988) end-user satisfaction constructs, rather than the original single attitude measure from Davis (1989). Because our concern is with system experience and short-term performance, we felt that the two Doll & Torkzadeh (1988) measures would give us more specific information about users' post-experience attitudes than the single attitude measure proposed in Davis (1989).

Hypotheses

Based upon the preceding literature, particularly the Fishbein & Ajen (1975)/Davis (1989) model, we derived the following hypotheses:

Hypothesis 1a: Workgroups' anticipated ease of DTVC. Use will be positively related to their anticipated DTVC system usefulness.
Hypothesis 1b: Workgroups' anticipated ease of DTVC. Use will be positively related to their post-experience system utility attitudes.
Hypothesis 1c: Workgroups' anticipated ease of DTVC. Use will be positively related to their post-experience DTVC system satisfaction attitudes.
Hypothesis 1d: Workgroups' anticipated DTVC system. Usefulness will be positively related to their post-experience DTVC system utility attitudes.
Hypothesis 1e: Workgroups' anticipated DTVC system. Usefulness will be positively related to their post-experience DTVC system satisfaction attitudes.
Hypothesis 2a: Workgroup performance will be positively related to post-experience DTVC system utility attitudes.
Hypothesis 2b: Workgroup performance will be positively related to post-experience DTVC system satisfaction attitudes.

METHODOLOGY

Research setting

Our research was conducted in a laboratory setting designed to replicate a real office environment; participants were provided an isolated private office with a desk and personal computer. All computers were Pentium-based and used the Intel ProShare desktop videoconferencing system and ISDN phone lines to communicate between desktops. All computers used the Windows 95 operating system and 15-inch video monitors.

The Intel ProShare system consists of a video camera positioned on top of the computer monitor and a small earbud/microphone set for audio communications. The system allows participants to see and talk to each in manner similar to a videophone. The video image produced by the Proshare system was clear with realistic colour tone, although less than broadcast quality in that movement is sometimes less than fluid. In general, the video has a similar look to a broadcast from the space shuttle, which suffers from satellite-signal propagation. The ProShare system also includes software that enables users to share applications running on their computers; for instance, users can share word processor or spreadsheet programs, and both users can actively operate any function within the shared program.

Participants

Participants consisted of 64 undergraduate students at a large southwestern university in the United States. The students were in their junior or senior year of study, in a variety of majors within the general discipline of business. Thirty-five participants were male whereas 33 were female. The mean age of the participants was 34.4. All of the participants had completed basic introductory coursework in personal productivity computer software, i.e. word processing, spreadsheets, elementary database and presentation development. Both in terms of their age and educational background, these participants closely resemble people that would be likely to use DTVC in the workplace (Tapscott & Caston, 1993; Thurow, 1996; Townsend *et al*., 1998). Although the use of student subjects restricts our ability to generalize broadly to the greater business community, it is consistent with a number of TAM (and TAM-related) studies that have used students as subjects in all or part of their research [see Davis, 1989; Adams *et al*., 1992 (re-analysed by Segars & Grover, 1993); Hendrickson *et al*., 1993; Venkatesh & Davis, 1996; Doll *et al*., 1998]. In this study, we felt the use of students in a laboratory setting was justified by our need to carefully control both the introduction of the new technology, as well as the need to control the circumstances of use in our exploration of the model's utility towards these types of technology.

Research design

Several days prior to taking part in the research, all participants were asked to complete a confidential questionnaire designed to assess their preliminary attitudes towards DTVC technology. These questionnaires were brought to the laboratory site and matched with a second post-study questionnaire. Prior to the start of the study, participants were randomly grouped into two-person workgroups and were assigned times in which they would participate in the study.

At the start of the study, participants were told that they would be working in a virtual environment, and were shown how the DTVC system operated and were told what their time limits and task assignment were to be. They were then shown how to operate the DTVC package and were given approximately 10 min to become familiar with system operation.

During the study, participants had full video teleconferencing and a shared text editor on their screen. One member of each workgroup was randomly assigned a calculator, while both members had a pencil and scratch paper. The calculator was assigned to only one member of the group to encourage collaboration between the members of the workgroup (e.g. to complete the math calculations, participants would have to interact to verify their computational accuracy). The participants' first task required them to open a file containing verbal aptitude test questions and work together to answer the questions. They were given 15 min for this portion of their task. At the end of 15 min, participants were told to close the verbal question file, open a math question file and begin answering math questions together. Participants were also given 15 min for this activity. This task was chosen because it represents subject matter and a format that the participants had previous experience with. This was an important consideration because in the workplace DTVC will most probably be employed to empower employees in tasks with which they have some previous face-to-face experience (Townsend *et al*., 1998).

Limiting subjects' time to complete the task was also a critical aspect of the research design as every effort was made to recreate elements of an actual workplace environment. Problem solving within a limited time context is crucial in nearly all workplace settings and specifically acute in today's pressurized business environment. The time limits used were the same ones recommended for individual accomplishment of the tasks assigned, and thus, were designed to be insufficient for collaborative completion of all of the tasks assigned to each group, which ensured performance variability.

Measures

The study used five variables, two independent, two mediating and one dependent. As noted above, two survey questionnaires were used to collect the necessary data. The first survey instrument was completed by individual participants 1–2 days prior to their actual use of the system, after they were given a brief demonstration of the DTVC. The second survey instrument was administered after the participants completed their system training and a set of assigned tasks using the system. In order to minimize the influence of task performance scores on the second questionnaire, participants were not provided with evaluations of their task performance until after the second questionnaire was completed. In all cases, individual responses were averaged for each dyad to form workgroup scores. A brief description of how each variable was measured follows:

(1) X1 – *Anticipated system usefulness*. This independent variable was included on the first survey instrument, and collected prior to the subjects' actual use of the system. This scale is designed to measure pre-experience attitudes as to whether the technology of interest will have workplace utility. It was measured using a six-item scale adapted from Davis's (1989) scale of perceived usefulness. Each item was scored on a seven-point Likert-type scale. This scale has been widely used as a component measure within the broader research context of the technology acceptance model (Davis, 1989; Adams *et al*., 1992; Hendrickson *et al*., 1993). The internal reliability of this scale has been previously reported to range from 0.89 to 0.96 using Cronbach's Alpha and has been shown to be a highly reliable measure of user perceptions.

(2) X2 – *Anticipated ease of use*. This independent variable was included on the first survey instrument, and collected prior to the subjects' actual use of the system. The scale is designed to measure subjects' perceptions as to how difficult it will be to operate the system. It was measured using a six-item scale adapted from Davis's (1989) scale of perceived ease of use. Each item was scored on a seven-point Likert-type scale. This scale has also been utilized extensively in research on users' acceptance of new technologies (Davis, 1989; Adams *et al*., 1992; Hendrickson *et al*., 1993). Researchers have reported internal reliability numbers ranging from 0.90 to 0.94 for this scale and this measure has been previously shown to be a highly reliable indicator of user perceptions of system ease of use (Doll & Torkzadeh, 1988; Torkzadeh & Doll, 1991; Hendrickson *et al*., 1994).

(3) Y1 – *System satisfaction*. This mediating variable was collected on the second survey instrument after the participants had completed the assigned task. The scale measures satisfaction with system content. It was measured using a four-item scale adapted from Doll &

Torkzadeh's (1988) scale on the content of end-user satisfaction. Each item was scored on a six-point Likert-type scale. Prior research utilizing multiple samples across a variety of populations has reported internal consistency statistics generally above 0.90 for the scale (Doll & Torkzadeh, 1988; Hendrickson *et al*., 1994; Doll *et al*., 1998).

(4) Y2 – *System utility*. This mediating variable was collected on the second survey instrument after the participants had completed the assigned task. The scale specifically measures end-user evaluation of system operation. It was measured using an eight-item scale adapted from Doll & Torkzadeh's (1988) scale on the accuracy, format, and ease of use. Each item was scored on a six-point Likert-type scale. Prior research utilizing multiple samples across a variety of populations has reported internal consistency statistics generally above 0.90 for the scale (Doll & Torkzadeh, 1988; Hendrickson *et al*., 1994; Doll *et al*., 1998).

(5) Y3 –*Workgroup performance*. This dependent variable was measured as the total number of correct answers the workgroup produced on the test questions they were given to answer collaboratively using the DTVC.

ANALYSIS AND RESULTS

Means, standard deviations, correlations and coefficient alphas were computed for each measure (see Table 1) and path analysis was performed to determine whether hypothesized relationships existed (see Table 2). The internal consistency of each scale utilized is within

Table 1. Descriptive statistics and correlation matrix

Variable	Mean	Standard deviation	Coefficient Alpha		
System effectiveness (y1)	4.27	0.85	0.92		
System satisfaction (y2)	4.84	0.48	0.93		
Performance (y3)	16.91	3.66	NA		
Anticipated system utility (×1)	5.09	0.89	0.96		
Anticipated ease of use (×2)	5.61	0.56	0.93		
	y1	y2	y3	×1	×2
System satisfaction (y1)	*r* = 1.00				
	P = 0.00				
System utility (y2)	0.79	1.00			
	0.01	0.00			
Performance (y3)	–0.42	–0.14	1.00		
	0.01	0.41	0.00		
Anticipated system utility (×1)	0.53	0.48	–0.41	1.00	
	0.01	0.01	0.01	0.00	
Anticipated Ease of Use (× 2)	0.42	0.54	–0.02	0.30	1.00
	0.01	0.01	0.87	0.08	0.00

Table 2. Results of path analysis hypotheses testing

Hypothesis	Path description	Estimate	T	Confirmed?
Hypothesis 1a	*Anticipated ease of DTVC use* to *anticipated DTVC system* usefulness	0.30	1.73	No
Hypothesis 1b	*Anticipated ease of DTVC use* to *attitudes towards DTVC system utility*	0.44	2.96[a]	Yes
Hypothesis 1c	*Anticipated ease of DTVC use* to *attitudes towards DTVC system satisfaction*	0.29	1.87	No
Hypothesis 1d	*Anticipated DTVC system usefulness* to *attitudes towards DTVC system utility*	0.35	2.37[a]	Yes
Hypothesis 1e	*Anticipated ease of DTVC use* to *attitudes towards DTVC system satisfaction*	0.44	2.88[a]	Yes
Hypothesis 2a	*DTVC system utility* to *workgroup performance*	0.48	2.87[a]	Yes
Hypothesis 2b	*DTVC system satisfaction to workgroup performance*	–0.80	–4.74[a]	Partially

[a] T significant at $P < 0.05$.

acceptable limits for their use and consistent with results from prior research demonstrating the internal reliability of each scale (Doll & Torkzadeh, 1988; Davis, 1989; Galletta & Lederer, 1989; Adams *et al*., 1992; Hendrickson *et al*., 1993, 1994).

As shown in Table 2, hypotheses H1b, H1d and H1e all have significant positive path coefficients and thus, are supported by our analysis. The subjects' *Anticipated ease of use* and usefulness contributed to a positive post-experience attitude towards the overall perception of *System utility*. *Anticipated system usefulness* also contributed to a positive post-experience attitude towards overall *System satisfaction*.

Hypotheses H1a and H1c were not supported by our analysis; although their path coefficient is positive, the T-values of these paths are not significant. The *Anticipated ease of use* construct, although positive in direction, failed to exhibit statistically significant support for an affirmative affect on *Anticipated system usefulness* or post-experience attitudes towards overall *System satisfaction*.

Hypothesis H2a is also supported by the analysis. Workgroup performance was found to positively relate to post-experience *System utility* attitudes. H2b is not directly supported. Our analysis yielded a significant path coefficient; however, the relationship between *System satisfaction* and *Workgroup performance* was in fact negative when it was hypothesized to be positive.

DISCUSSION

As we expected, subjects' anticipatory attitudes about how the system would work had a significant effect upon their perceptions of *System utility* and overall *System satisfaction*. We also anticipated, and found, that there would be a significant relationship between subjects' perception of *System utility* and *Workgroup performance*. What we had not anticipated was the negative relationship between *System satisfaction* and *Workgroup performance*.

While any comments on the negative impact that users' perceived system satisfaction had on their workgroup's performance is conjectural, we feel that some qualitative insights may be useful in helping to explain this phenomenon. After the each workgroup's participation in the experiment, we debriefed them to find out whether or not they had experienced any hardware or software problems, as well as to answer any questions they may have had about the experiment.

Some of the most enthusiastic participants indicated that they had thoroughly enjoyed the experience, and told us that they had experimented with moving their image around, refocusing their camera, etc. None of this activity was associated with effective task performance, but it may well have led to or been associated with perceptions of greater *System satisfaction*. Thus, in a short-term context such as this, more enthusiastic users may well have been enjoying the system to the detriment of their performance. Similar results have been observed in research in related areas (see Storck, 1995).

The limited time constraint, which was an essential component of the research, may also have contributed to the negative relation between *System satisfaction* and *Work group performance*. As stated earlier, co-workers are often required to act with limited time and information; thus, a time constraint in our experimental setting simulates many work situations. However, in applied settings, collaborators who choose to experiment or 'play' extensively with a system, may also choose to expend extra time and effort (outside of normal working hours) to meet task goals and deadlines. In the experimental setting, allocating personal time to offset time lost learning/playing with the system was not an option. Therefore, in applied settings, system 'play' may not have the same undesirable effect on performance as in our experimental setting.

As in all exploratory research, this study has some limitations. Our research focused on a task activity with a very limited time constraint; future research should explore the relationship between system evaluation and performance when participants are given a longer time frame for interaction and task completion. Had our workgroups been allowed to work together for longer periods of time, we might not have seen the negative relationship between *System satisfaction* and *Work group performance*.

Finally, the experimental setting in this study does not lend itself well to investigating longitudinal aspects of subjects' behaviour. Research based in a field setting may be necessary to explore long-term effects of advanced communication technologies. Several questions remain unanswered; over what time period do system users continue to enjoy DTVC to the detriment of performance? At what point does the novelty subside? When it does subside, do resulting performance levels equal or exceed those previously achieved in face-to-face interactions?

Managerial implications

The positive relationship between both measures of preliminary DTVC attitudes and eventual system evaluation may have important ramifications in an applied setting. Working to enhance subjects' anticipatory perceptions about their pending virtual experience may significantly increase users' satisfaction and performance, as well as make the transition to the virtual environment significantly smoother. Organizations that are planning to introduce DTVC technologies will probably want to consider an extensive training programme that not only teaches employees to use the DTVC system, but also underscores how the system will enhance their productivity and make them more effective organizational participants.

Additionally, as the negative relationship between *System satisfaction* and *Workgroup productivity* suggests that employees who like DTVC are engaging in playful experimentation with the system, then this too should be built into the training experience. Employees should be given adequate time and encouragement to explore the system's potential beyond the immediate task environment and to develop their own personal styles of interaction.

CONCLUSION

The social experience of virtual collaboration is radically changing the workplace, and should prove to be an important topic for organizational research. As these new technologies become more pervasive, new research should examine larger groups and established work teams, along with alternative ways to enhance group interactions. The present study, though primarily exploratory in nature, provides a first look at virtual collaboration in a DTVC environment, and as such, provides a foundation for a potentially large stream of research to follow.

We think it is particularly significant that the technology acceptance model appears to be a viable predictor of acceptance of complex process technologies such as DTVC. TAM had originally been developed to predict technology acceptance and utilization in discrete, product-oriented systems (e.g. databases, spreadsheets, etc.). In DTVC, the experience of the technology is heavily moderated by the social experience of the users, and it is evaluated not only by how easy it is to use, but also by how well it satisfies a complex and abstract web of social expectations. Based upon our data and our discussions with our subjects, we believe that our participants may have made implicit evaluations about the social utility of the DTVC technology when it was demonstrated for them, and that their pre-experience attitudes were partially shaped by these evaluations. The subjects' post-experience assessment of DTVC may well have been a function of the explicit qualities of DTVC (i.e. ease of use and utility) as well as an implicit evaluation of how well it met their anticipated 'social' utility.

Based on this interpretation, we think that it would be propitious in future research to modify TAM to include measures of social utility, in addition to the traditional utility and ease of use measures. DTVC, along with a host of other computer-mediated communication systems, is tasked to convey not only traditional forms of information, but a myriad of social communications as well. As such, modifying TAM with explicit measures of social capacity would make TAM a much more sensitive predictor of communication technology acceptance. Measures for many of the dimensions associated with social utility have been developed in research using media richness theory (MRT); merging TAM and MRT should create a hybrid model with a very significant utility towards predicting acceptance and use of a range of communication technologies.

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