



## Understanding the Utilization of Interactive Videoconferencing in the K12 Setting

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**Abstract:** This survey and paper explore the factors considered by K12 stakeholders, particularly among K12 “power users”, when selecting potential videoconferencing activities and partners. This is a follow-up to a study conducted by Peter Haydock and Jason Dennison (author) entitled “Assessing the Needs of K-12 Audiences in Synchronous Educational Videoconferencing,” presented at the 20th Annual Conference on Distance Teaching and Learning in 2004.

### Introduction

“Good morning...G’day...Bonjour...Willkommen...” The idea of students in Chicago having a live conversation with an astronaut in Houston, a researcher on the Great Barrier Reef, a classroom of students in Paris or an art historian in Berlin may seem, to many, a novel concept. To others, however, this reflects the new face of education in K12 classrooms across the United States and around the world.

For decades, room-based videoconferencing has been a part of the business environment, and for a period somewhat shorter than that, distance learning—one component of which includes synchronous videoconferencing—has been utilized by the post-secondary community to expand audiences and improve collegial communications. In the early 1990’s, videoconferencing began to appear more widely in the K12 setting, though it was still limited to well-funded districts and, primarily, high schools. The past decade, and specifically, the past five years, have seen a rapid growth in the number of elementary and middle schools adopting the technology following the adoption of *No Child Left Behind* legislation. Museums and other informal settings, similarly, have also adopted videoconferencing as a method of broadening their audience base. However, the research related to how this technology is being fully utilized still consists largely of “anecdotal reports, project descriptions and informal case studies”. (Alberta Education, 3)

This paper is not intended to provide the comprehensive empirical data which many practitioners and researchers (including the author) are seeking, but it is hoped that the findings may be used by classroom teachers, technology staff, administrators and content providers in an effort to foster a better understanding of how a small number of K12 “power users” are implementing videoconferencing in their classrooms. It is also intended to present an opportunity for further discussion between content providers, as a whole, and the K12 community to ensure that opportunities remain available which are of interest and benefit to teachers and their students.

### The Survey

The survey was initiated to provide Cincinnati Museum Center and other content providers with a more accurate picture of who is utilizing interactive videoconferencing in the K-12 setting and what factors influence their decisions. It is also hoped that practitioners in the K-12 setting may also find the information useful in better informing their decision-making.

Questions included basic demographic topics such as respondent role and teaching area (if appropriate), state, grade level(s), free/reduced price lunch participation, community type (rural, suburban, urban), and school/district size. Videoconferencing-specific questions looked at such issues as cost, number of connections per year, content alignment, purpose of videoconferencing (enrichment, extension, student projects, professional development, etc.), connection partners (content providers, other schools, etc.), geographic significance of selecting a partner, and other various factors which might be considered when selecting a partner or videoconferencing topic. Additionally, respondents were asked which videoconferencing resources (listservs, online clearing-houses, and organizations) they have utilized and encouraged to provide the names of partners

whom they would recommend as a source for “outstanding programs”.

In October 2007, the 20-question survey was released online and announced to videoconferencing practitioners via two industry listservs (K12IVC and Ed1VidConf) as well as through an existing mailing list maintained by the author. While each listserv services a large numbers of subscribers, it is not possible to ascertain how many of these subscribers may be represented on both listservs. However, it is believed that as many as 2,000 individuals were contacted directly. The survey was available until December 17, 2007.

## Findings

Responses were received from 67 respondents in 19 states and 3 international locations. It should be noted that respondents could select multiple stakeholder roles, as appropriate. In such cases, the author included the responses in each of the identified stakeholder categories for analysis. Despite this low number of respondents, several patterns did emerge among respondents from each of three stakeholder groups: classroom teachers and library/media coordinators, technology staff (district, regional and state levels), and administrators. Twenty-three (32%) identified themselves as a teachers or library/media coordinators, or some variation of those terms; thirty-five (49%) identified themselves as a technology staff, eight (11%) identified themselves as an administrator; and six (8%) identified themselves as external consultants or another role not included for the purposes of this study (e.g., content providers). This latter category has not been included in the discussion for this paper.

The total of respondents represented all grade levels (K-12) with at least eleven respondents per grade level and as many as seventeen (grades 10-12), with 35 respondents indicating that they had district-wide responsibilities. The breakdown of responses by school setting (urban, suburban or rural) came out as 14.8% urban, 42.6% suburban and 42.6% rural.

An interesting finding was the frequency with which respondents were participating in videoconferencing activities. In unpublished findings from the study conducted by Haydock & Dennison in 2004, the frequency of videoconference usage for respondents in that survey was less than five per year. In this survey, 61.1% of respondents indicated that they participate in ten or more videoconferences per year.

## Uses of Videoconferencing

Videoconferencing is being utilized for a wide variety of purposes in the K12 setting. Respondents were able to select from among multiple options, including an “Other” category, see [Fig. 1]. The category of “Extension” activities received the largest number of tallies with 70.2% of respondents indicating that they have used videoconferencing for co-curricular activities. “Professional development” was the second most frequent use for videoconferencing (66.7%) followed by Enrichment (61.4%), “Student Projects” (50.9%), “AP Courses” (21.1%), “College Courses” (7.0%), and “Meetings” (5.3%).

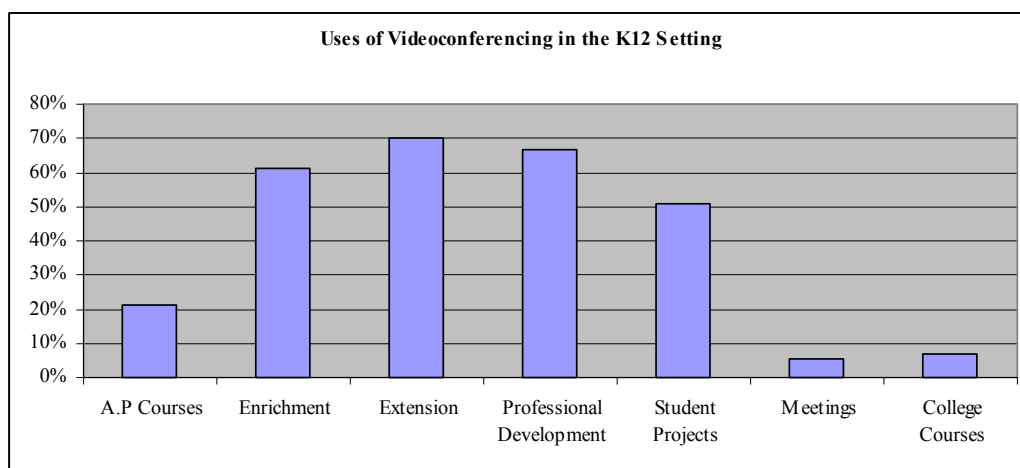


Figure 1: Uses of videoconferencing in the K12 setting range from administrative to extra-curricular.

## Videoconferencing Partner Types

The type and location of remote videoconferencing partners is quite diverse, see [Fig. 2]. Only six out of 67 respondents indicated that “Geographic Location” was a factor in their decision-making process. 73.7% of respondents indicated that they connected with other K12 classrooms, 56.1% connected with universities or zoos/aquaria, 50.9% with museums, 47.4% with government agencies, 31.6% with community organizations and 29.8% with other partners not classified.

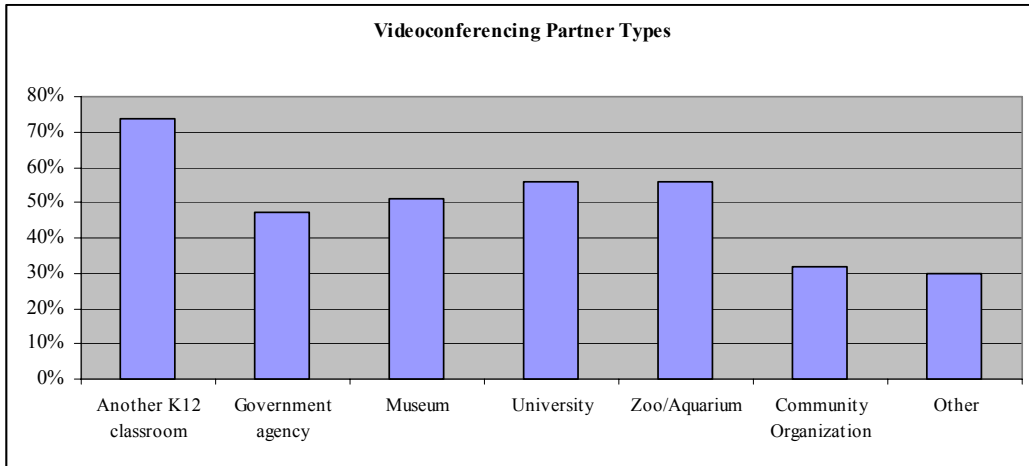


Figure 2: Videoconferencing partners originate from a wide variety of settings including government, informal and formal education organizations.

### Factors Considered in Selecting a Videoconference Partner

Of particular interest to content providers and other organizations who are originating content are the factors being used by various stakeholders when selecting a videoconference partner, see [Fig. 3]. Cost was an important factor for all three groups, and the number one factor for technology coordinators. Scheduling availability (top factor for teachers, tied for top factor with administrators) and alignment with content standards were also important considerations, with teacher recommendations and geographic location of the partner being less significant in the decision-making process.

Among the “Other” factors identified by respondents were: grade appropriateness, length of program, connection type (ISDN, IP or Internet2), level of interactivity, the reputation of the provider and topic availability.

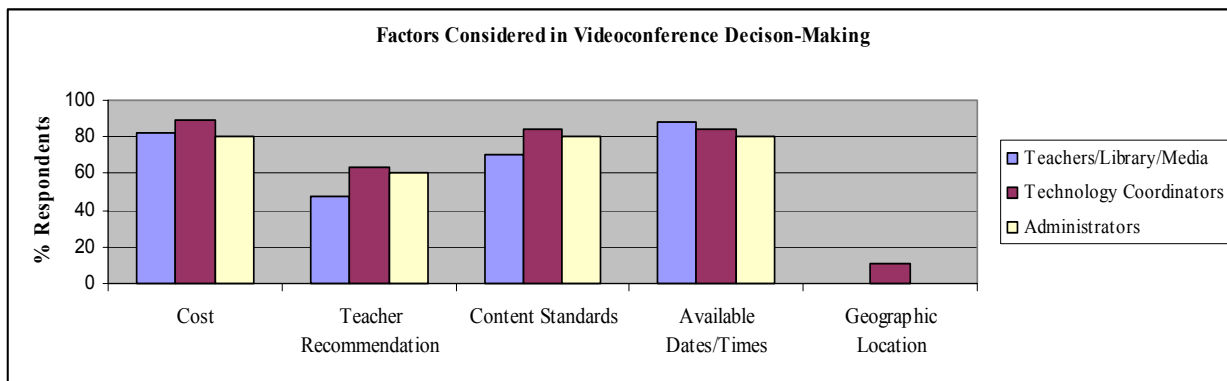


Figure 3: The three stakeholder groups in the K12 setting each display a different set of priorities when selecting videoconference partners.

### Conclusions

In 1929, John Dewey wrote, “The school must present life—life as real and vital to the child as that which he carries on in the home, in the neighborhood, or on the playground (Dewey 1997).” In today’s classroom, we often find teachers presenting information about dinosaurs, Native Americans, evolution and international affairs from textbooks. Static images, rambling text and lecture are often ‘par for the course’ in dealing with these issues, especially beyond the elementary or middle grades. Textbooks are not “real” to students, neither are static images nor lecture from a teacher who is an expert in grammar one day and paleontology the next. What interactive videoconferencing is able to provide to both teachers and students is a context which is “real”—being able to connect to an actual paleontologist or anthropologist, to an astronaut or environmental scientist, or even to a 13 year-old student in Kabul, Afghanistan. These are the experiences that Dewey calls the “process of living and not the preparation of future living,” which he claims can never be estimated with any certainty.

Peter Haydock and I argued in 2004 that best-practice videoconferencing “engages students with questioning, activities and opportunities for feedback and dialogue with the presenter.” This the findings of Greenberg that “[s]upplementary materials, coordination with remote locations, remote in-class instructors supporting overall pedagogical goals, creative design of virtual field trips, and gearing learning objectives to the medium” are all necessary aspects of a successful interactive experience (Greenberg 2004).

However, two major conflicts have been identified both anecdotally and through this survey: cost and alignment with content standards.

- An informal look at the top content providers in the United States found the median program cost for a 45-60 minute videoconference at \$115, though only 24.6% of respondents to this survey indicated they would be willing to pay that much for a program.
- Only 10.5% of respondents to this survey indicated that geographic location was a factor in selecting a videoconference partner, but 71.9% wanted programs aligned with their state's standards.

As K12 schools, museums and other informal learning institutions continue to expand their implementation of interactive videoconferencing, it will become imperative for the stakeholders to revisit their approach to designing an instructional strategy which reflects the evolving needs of teachers and students, and which takes full advantage of the available technology. By examining the key factors considered in the decision-making process inside the K12 setting, it will be possible to find a means of sustaining programming and expanding available offerings to the many new schools adopting videoconferencing each year.

## References

- Alberta Education. (2005). *Videoconferencing in Kindergarten-to-Grade 12 settings: A review of the literature*. Edmonton, AB: Canadian Association of Distance Education Research.
- Dewey, J. (1997). My pedagogic creed. In D.J. Flinders & S.J. Thornton (Eds.), *The curriculum studies reader* (pp. 17-23). New York: Routledge.
- Greenberg, A. (February 2004). *Navigating the sea of research on video conferencing-based distance education: A platform for understanding research into the technology's effectiveness and value*. Wainhouse Research. Retrieved May 29, 2004, from <http://www.wainhouse.com/files/papers/wr-navseadistedu.pdf>.
- Haydock, P. & Dennison, J. (2004). Assessing the needs of the K-12 audience in synchronous educational videoconferencing. *Proceedings of the 20th Annual Conference on Distance Teaching and Learning*. Madison, WI.