

The Virtual Conference: Extending Professional Education in Cyberspace

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This paper describes the use of Internet based tools to support professional interaction and education in a format known as the virtual conference. The paper discusses characteristics of the virtual conference and presents data from a case study in which 550 distance educators from 36 countries participated in a three week virtual conference. Results from a participant survey and their comments illustrate that the virtual conference can provide high quality, interactive professional education. The asynchronous and distributed format of most virtual conference activities allows busy professionals to participate anytime/anyplace. However, the virtual conference does not ameliorate the need for participants to expend scarce resources of time on their professional education.

The virtual conference is a professional development activity, modeled upon the face-to-face professional conference. The virtual conference uses telecommunications technologies to reduce the access barriers to participation created by time and distance. This article discusses the features of the virtual conference and presents a case study which documents the process of creation and the outcomes of a three week virtual conference named ICDE95 On-line. The paper concludes with a discussion of the potential and limitations of this type of on-line professional learning activity.

The emergence of the Internet and other new communications media provide cost effective vehicles that enable communication with professionals in most countries of the world. These communication tools provide opportunities for adult educators to develop new ways of learning and teach-

ing. As a tool for professional education, the media challenge educators to develop and test learning activities to determine those that best meet the needs of busy professionals interested in lifelong learning opportunities. The goal of the virtual conference is to support the development of professional learning communities while minimizing the costs and inconvenience to busy professionals.

Defining the Virtual Conference

The virtual conference uses media to support interaction between participants at different geographic locations. To date, most virtual conferences have been modeled after face-to-face conferences, attempting to provide the same sort of intellectual, informational, and social events that define any successful conference. The Oxford Concise dictionary defines virtual as “that is such for practical purposes, though not in name or according to a strict definition.” Thus, the virtual conference is a professional education conference—with some changes in the technology that supports interaction and communication.

Early applications of virtual conference’s imitated, or were modeled upon the face-to-face conference. As we advance in our knowledge and experience, we may find that this “horseless carriage” approach to conceptualizing an activity in terms of the function that it replaces, will be supplanted by an understanding and application of the technology in ways that optimize its unique strengths and attributes.

The Virtual Conference is a structured event usually bounded within a defined period of time. The format of the virtual conference consists of planned learning activities which may take place synchronously, with all participants interacting at the same time, asynchronously with interaction supported 24 hours a day, or through some combination of asynchronous and synchronous activities.

A final defining feature of the virtual conference is the potential for high levels of interpersonal interaction between and amongst the facilitators, presenters, and the distributed participants. Thus, the virtual conference is dependent upon interactive media and is fundamentally different from professional development activities based upon one-way media such as books, video, or television. Many educational theorists have argued that it is only through active interaction between and among learners and teachers that meaningful, situated learning can thrive and a community of learners can be created (Rogoff, 1990; Schonfield, 1989; Resnick, Levine,

& Teasley, 1991). Lipman (1991) identified characteristics of this type of “community of inquiry” and outlines the enhancement to individual learning that results from participation in effective learning communities. Lipman notes that opportunity for interaction underlies all of these characteristics.

The virtual conference seeks to create this sense of community, even though the participants are separated by geographic and temporal distances and their interaction is mediated. Creation of a community of inquiry is especially critical for quality professional education. Cervero (1990) argues that “the educational context must be arranged so that professionals can test, evaluate, and modify their existing schemata so that some resolution can be achieved between the learners’ knowledge structures and the new one being proposed” (Cervero 1990, p. 166). Thus, it is essential for professional learning activities such as the virtual conference to allow for interaction between and amongst participants. This interactive capacity provides opportunity in which the unique contexts and concerns of practice can be shared and solutions developed that meet individual as well as group learning needs.

Developers of virtual conferences attempt to create a stimulating and supportive learning environment without forcing participants to congregate at a particular location or time. Differentiating which human communication needs can be met, at a distance through technology, from those which can only be accomplished in face-to-face interaction is a continuing challenge. The virtual conference is designed both to provide a supportive context in which to develop our interpersonal skills and to enhance our understanding of mediated communication.

History of the Virtual Conference

The 1992 Bangkok Project (Anderson & Mason, 1993) was perhaps the first international, virtual conference supported on the Internet. The Bangkok Project relied exclusively upon email and provided a series of six interactive sessions over a three week period. The learning activities consisted of a “first speaker” presenting information and leading a discussion of a relevant topic. This type of presentation-based virtual conference has since been replicated by a number of organizations.

The first virtual conferences were constrained by the software and bandwidth limitations of the technology and were restricted to email mailing lists. Email is the “lowest common denominator” among Internet tools, and offers higher access rates relative to newer, high bandwidth or real

time interaction tools. Email is distributed to many of the most remote regions, including some with very low levels of telecommunications infrastructure. Earlier networks, some of which pre-date the Internet, such as Fido-Net, UUCP and other systems, continue to reliably deliver electronic mail even in many developing countries with little telecommunications infrastructure (Quarterman, 1990).

A variety of email list configurations have been available to support email-based virtual conferences. Email lists may be open to anyone who wishes to subscribe or restricted to members of particular associations or groups. Virtual conferences may preclude activity on regular professional association's mail lists or be established on a short term basis exclusively to support the virtual conference.

A variety of media have been used to support the virtual conference. For example, the Canadian Association for Distance Education added real time audio teleconferencing to their two week email based 1995 Annual Conference. The "Global Lecture Hall" (TM) (multipoint-to-multipoint multimedia interactive videoconference) held in conjunction with The VIth International Conference on Distance Education in Cost Rica in October 1995, included use of M-Bone, CuCeeMe net-based video conferencing and satellite delivered video broadcasting. It is likely that video conferencing, MOOs, and other evolving forms of Internet and broadcast communication technologies will increasingly be used to enhance learning and communication activities during the virtual conference.

Funding the Virtual Conference

Incredible claims, as to the cost effectiveness of Virtual Conferences compared to face-to-face conferences, have been made by proponents of the virtual conference (Anderson & Mason, 1993). Budgets of virtual conferences have usually been provided through sponsorship by professional organizations and generally provided at no charge to participants. The costs of sponsoring a virtual conference are usually limited to those associated with access to Internet tools, or other communication media, and honorariums to speakers. All other organization activities can, and have usually been, undertaken by volunteers—often working as employees of public or private sector education or training organizations. If Internet access is available to the sponsoring organizations, and if presenters and facilitators donate their time and knowledge, then it is possible to run a large scale (500 person plus) virtual conference with a budget of nothing—\$0.00! Re-

cent sponsorship of virtual conferences by scholarly publishers presents a new source of revenue and organizational infrastructure for virtual conference organizers. An excellent example of this relationship between professional development for academics and a scholarly publisher is evident in the many virtual conferences which augment discourse in scholarly journals published by MCB University Press. (<http://www.mcb.co.uk/conf/home.htm>)

It will soon be practical to charge participant fees if the virtual conference is designed to earn funding for the sponsoring organization. Developments in “net cash” and secure credit card transactions on the Internet make it possible to pay for any Internet delivered service (Solinsky, 1995). What is unclear is the amount (if any) which participants are willing to pay for participation in virtual conferences. The International University Consortium was the first to charge a fee (\$25.00 US) for participation in a virtual conference. They attracted 225 registrants, each paying \$25.00 US to a virtual conference in May of 1995. (<http://www.umuc.edu/cmc.html>).

Learning Activities

Learning activities, during the virtual conference, have generally been limited to variations on the “presentation theme” which is modeled after the paper presentation format common to scholarly conferences. This type of learning activity consists of an expert providing some type of initial input (usually in text format) followed by questions or discussion related to the presentation. This is a very familiar model of scholarly discourse that is used as the main learning activity at many professional conferences. John Peters defines an “ideal” virtual conference as one that contains

two or three longish articles (3000 words or more); maybe eight or ten shortish articles or letters (500 to 1000 words), ranged across two or three distinct sub-themes, and from each one, four or five reviews and critiques of what has been said (“this was interesting, but...” “Have you read so-and-so; he makes the point that...”). (Peters, 1995)

The presenter model has been used extensively in virtual conference and has resulted in some interesting learning opportunities. However, Paulson documents 16 additional on-line learning activities including debates, nominal techniques, and panel sessions, which could be used to further refine and improve many-to-many learning models during the virtual conference.

Tools Supporting the Virtual Conference

The emerging nature of virtual conferences precludes any definitive description of which media, used in which way, works best to support the virtual conference. Synchronous media such as video and audio teleconferencing and Multi User domains Object Orientated (MOOs) provide a sense of immediacy and spontaneity, but require dispersed participants (often straddling many time zones) to participate at the same time. Asynchronous media such as email, Usenet news groups, and computer conferencing, support interaction at a time convenient to the participants, but may inhibit interaction due to low "human presence" (Short, Williams, & Christie, 1976) and their minimal support of graphics, animation, and sound.

Computer conferencing systems such as Lotus Notes (<http://www.cs.gmu.edu/lotus/links.html>) and First Class (<http://www.softarc.com/>) may be used to add additional functionality to email based virtual conferences. Conferencing systems generally provide superior organizational, retrieval, and archiving support to email-based virtual conferences. However, conferencing systems generally require higher levels of Internet access by participants and enhanced support by the conference organizers who usually must provide password and software clients to all participants. Newer conferencing systems such as HyperNews (<http://union.ncsa.uiuc.edu/HyperNews/get/hypernews.html>) provide conferencing capacity using readily available and easy to use World Wide Web (WWW) interfaces and will probably be the platforms upon which future virtual conferences will be supported. However, WWW access is still problematic in many countries of the world and tradeoffs must be made between the accessibility of email and the enhanced features of WWW.

Evaluating the Virtual Conference

Evaluation of a virtual conference can take many forms and can and should be done on both a qualitative or quantitative level (Caracelli & Greene, 1993). Many of the evaluation techniques commonly used in face-to-face conferences, including participant questionnaires, session evaluation forms, and post conference surveys, can be used to evaluate the virtual conference.

An inherent advantage of the virtual conference, over its face-to-face model, is the self-documenting feature contained in the virtual conference transcript. The nature of the transcript is dependent upon the media used to support the conference. Email and MOO supported virtual conference

leave a text transcript that can be analyzed using qualitative techniques and qualitative analysis software (Muhr, 1991). As mentioned earlier, tools that automatically convert text documents into hypertext format can greatly assist the evaluation process. Virtual conferences that use video or audio teleconferencing can easily be taped for subsequent analysis and evaluation. Thus, the electronic transcript of the virtual conference both documents and opens the virtual conference to analysis and evaluation in ways not normally provided to researchers of face-to-face learning activities. This self-documenting feature promises to provide a resource that should speed refinement, testing and dissemination of knowledge related to the learning processes involved during the virtual conference.

The previous sections outlined some of the general characteristics of the virtual conference. The next sections document how these characteristics were manifested in a medium-sized virtual conference coordinated by the author.

Case Study—ICDE95 On-line On-line

ICDE95 On-line was an on-line virtual conference which ran during June of 1995. The target audience for ICDE95 On-line was professional educators working in the area of distance education. This Virtual Conference was held in conjunction with the XVI World Conference of the International Council for Distance Educators, held in Birmingham, England. The irony of distance educators traveling vast distances to attend international professional development activities amuses both ourselves and our colleagues. ICDE95 On-line was promoted entirely through the Internet using promotional announcements to related discussion groups and through distribution of a Frequently Asked Questions (FAQ) file (<http://www.ualberta.ca/~tanderso/adi/deg/faq.htm>). A total of 554 persons, from 35 countries, subscribed to the conference.

Learning activities. A major goal of the ICDE95 On-line organizers was to demonstrate and develop effective learning activities that support high quality professional learning. Using the descriptions of on-line activities provided by Paulson (1995), six learning activities, six topics relevant to distance educators, and six individuals or teams were selected to facilitate the conference sessions. The selection process was supported entirely by email between the conference coordinator and likely facilitators and speakers. The coordinator had met three of the session facilitators at previous face-to-face conferences, the other three were new email acquaintances.

Each session lasted for seven days and two sessions were held simultaneously. Table 1 lists the name of the session, the session coordinators' name(s) and the number of email interactions posted to each topic.

The session facilitators were challenged to develop the assigned learning activity in such a way that an appropriate amount of interaction and didactic communication was carried on through the seven days of their session. Of course, with an indeterminable number of participants and little experience in facilitating a virtual conference session, it was difficult to judge, in advance, what appropriate levels of interaction might be! The session facilitators generally did an excellent job of both stimulating and restraining the amount of interaction resulting in fairly consistent interaction, at tolerable levels, throughout the three weeks of the conference. An average of 14.6 messages per day were exchanged over the 20 days of the conference.

Table 1
Session Details from ICDE95 On-line

Session Number	Session Title	Session Facilitator	Learning Activity	# of Email Interactions
1	No Interaction, No Education	Charlotte N. Gunawardena	Debate	89
2	World Wide Web	David Woolley & Evans Craig	Dialogue	48
3	Learning Activities for CMC	Morten Paulsen	Global Brainstorm	17
4	Research in Distance Education	Michael Parer	Nominal Technique Workshop	50
5	Learning to Use MOOs	Jeanette McWhorter & Donald Chan	Open House at Real Time Learning Environments	15*
6	Assessing the Virtual Conference	Bill Sugar, Sonny Kirkley & Terry Anderson	Panel Discussion	40
-	Administration	Terry Anderson		38

* Includes only messages posted to the ICDE95 On-line list and not communications entered in the MOO during participants' "virtual site visits."

Tools Supporting ICDE95 On-line

Email. The primary tool used to support ICDE95 On-line was an unmoderated, open Listserv (L-Soft, 1995) mailing list maintained at the University of Alberta. The list was created specifically for the virtual conference. Participants joined the list with no membership or other restrictions through the use of automatic subscription service of Listserv.

Archives. The volume of mail, some of which is not topically or chronologically ordered, creates a need for an archive system to support the virtual conference. An archive should allow participants to easily retrieve, sort and reference previous postings. For email based virtual conferences, individuals can maintain such an archive using their own mail systems. However, the chaotic nature of many personal mailboxes precludes effective searching, sorting, and referencing of past messages and thus, impairs the medium's function as an educational resource. The Listserv email system maintained a weekly log feature that was searchable and retrievable. However, the arcane nature and confusing syntax of the search command language made this service practically unusable.

A much superior archive was created by sending the email messages to the Hypermail (Enterprise Integration Technologies, 1995) program. Hypermail automatically marked up the messages to HTML standard, generated linkages to related messages, provided a sorting feature with date, subject and author keys, and integrated graphics and other Uniform Resource Locators (URL), so that the archive could be read, navigated, and searched using World Wide Web browsers. The archive of ICDE95 On-line is available at <http://www.ualberta.ca/~tanderso/icde95/>. Readers are invited to visit the site and judge for themselves the value of the educational interactions that occurred.

MOOs. Multi-user domains Object Oriented (MOOs) were used to host a series of real time discussions during session five of the conference. Session facilitators at Diversity University (telnet://moo.du.org 8888) created a virtual conference centre in which a series of real-time discussions, presentations, lectures, and poetry readings were held. The MOO session created barriers to some users who lacked the necessary access to a telnet client. The novelty and disorientation of text-based, virtual reality systems also proved a challenging environment for some users. Nonetheless, those who did participate in the MOO sessions found them both entertaining and educational. Besides the formal discussion sessions, the MOO served an im-

portant component of ICDE95 On-line by providing an informal meeting place for participants to exchange personal information and socialize. The MOO created a space for the type of discourse that often occurs outside session rooms and in the pubs at face-to-face conferences.

Evaluating ICDE95 On-line

ICDE95 On-line was evaluated quantitatively through an author developed email survey and qualitatively through an on-line evaluation session (session 6) and through analysis of the transcripts.

Email survey results. The email survey was distributed in two ways. The survey was emailed to all 554 delegates through the conference mailing list. The response rate was extremely low—only 9 survey forms were returned. One could speculate that many users had stopped reading or were behind in their reading of conference messages on the final day of a 20 day conference. Another explanation might be that the anonymity of the response medium was not guaranteed and that respondents were reluctant to complete a mail survey to which their name and email address would be attached. Finally, the low return might indicate a lack of involvement and commitment to the conference itself. One could speculate what the return rate on paper-based evaluation forms at face-to-face conferences might be if the organizers did not sit with open hands at the exits of the final session! Nonetheless, this low return rate raises serious questions regarding both the commitment of the participants and the process necessary to ensure effective evaluation.

The participants could also complete the survey on-line using a WWW developed form. (<http://www.ualberta.ca/~tanderso/icde95/evalform.htm>). This survey method was completed by 28 participants. The combined total was 37 surveys completed and the results presented below are based upon this sample.

The survey consisted of one section on overall perceptions of the virtual conference and six sub-sections, each dealing with one of the conference sessions.

Generally participant comments were very positive with 94% of the respondents indicating the overall conference organization was excellent, good, or OK. The themes selected for the six sessions were judged by 95% of the respondents as excellent, good, or OK. Only 5% of the respondents felt the quality of the messages was disappointing and 11% were disappointed with the quantity of messages. The length of each session (one

week) was judged to be “about right” by 81% of the respondents and the length of the full conference (3 weeks) was judged to be “about right” by 67% of the respondents. Interestingly, 19% felt the overall length was “too long” while an almost equal number (14%) felt it was “too short.” Forty percent of the respondents felt that the conference format would have been improved if only a single session was operating at any given time. This confirmed the author’s perception that the two sessions running simultaneously on the same mail distribution list led to confusion and a degree of information overload for the participants.

The perceptions of the six sessions were also highly positive. The “overall value of the session” was rated highest for the debate format and lowest for the nominal discussion technique. All sessions had average ratings above 3 on a 5 point scale where 5 equals excellent. The debate activity seemed to work especially well (Gunawardena, Lowe, & Anderson, 1995) by forcing participants to defend their positions and by creating opportunity and license for participants to challenge the ideas of others.

Transcript Analysis

The virtual conference can be evaluated by analysis of the transcripts. Of the 250 messages that were exchanged, none were completely off topic and only one was mistakenly posted to the whole conference, when it was intended for private distribution. This lack of “garbage” messages in an unmoderated mail list was quite remarkable. Given that promotion for the conference took place almost exclusively on the Internet, it is perhaps of little surprise that most participants seemed to be sophisticated email and email list users.

Many participants expressed satisfaction with the level of discourse during the conference. This was perhaps best illustrated by the following observation entered into the conference by Bryan Barnett of the University of Washington at Seattle, Washington USA. “My thanks and compliments to all. For its conciseness, sophistication, and clarity, this debate outshines anything I have lately experienced in any conference for which I paid good money, traveled long distances and endured fancy hotels.”

The sixth and final session of the virtual conference consisted of a panel session in which three experienced virtual conference organizers discussed virtual conferences and led a discussion amongst delegates. This session focused delegates’ attention upon the process in which they were engaged, stimulating reflection in practice (Schon, 1987). A common theme that emerged during this final session was a sense that a great deal

of valuable learning had taken place during the five previous sessions, despite problems with information overload. One participant commented “it felt it was all too fast, I haven’t had time to read all of the messages, let alone digest them in the time allocated.”

Conclusion

Case studies, such as ICDE95 On-line, illustrate that effective professional development can occur using the virtual conference. The virtual conference is much cheaper to organize, and participate in, than the face-to-face professional conference. Participant comments and ratings indicate that most participants felt that significant learning opportunities were provided during the virtual conference. Comments emailed to the author indicated that there were wide variations in the amount of time committed by participants to the virtual conference. Virtual conference delegates have the freedom to shift the time devoted to the conference to mesh with individual time availability. Nonetheless, participants must make time available to the conference if effective learning is to result. Time-on-task has been shown to be a significant predictor of learning outcomes in classrooms (Karweit, 1984; Walberg, 1988) and it is likely that a strong correlation exists between learning and the amount of time delegates devote to the virtual conference. One delegate described the dilemma and her solution “I have at times felt overwhelmed by the amount of conference mail, but I have decided that I am ‘at’ a conference and I am setting aside the time necessary to read the messages every day.” She went on to itemize the benefits of the virtual conference.

For me this virtual conference means that I can attend—I would be unable to get the funding to attend the “real” conference. It means that I have a permanent record of all dialogue, to which I can easily refer at a later date. It means that I can choose when, during the day, I want to “attend” a session. It means that I can listen to practitioners and experts in my field discussing the new developments that I am interested in and hope eventually to implement myself. (Keighren, Dundee University).

The virtual conference is emerging as a powerful new professional development tool of the Information Age. Like most technologically based innovations, adoption of the virtual conference impedes some components of the human condition while simultaneously improving others. The virtual conference produces knowledge while it consumes time. Shortage of dis-

posable time continues to be the greatest limitation of the “anytime/any place” educational paradigm. “Anytime” seems to imply (usually incorrectly) that there exists a time into which professional development activities can easily fall. For many, the demands of profession, family and community provide little extra time at ANY hour—no matter how convenient or malleable the time scheduling may become. The physical relocation that normally occurs during a face-to-face conference provides a spatial separation from day to day pressures and commitments. This separation can provide the face-to-face conference delegate with increased amounts of available time to absorb new information, individually reflect and socially interact. The virtual conference delegate must extract time from an already limited and constrained pool.

The convergence and conflict between virtual and real time demands on professional time is emerging even at the face-to-face conference. For example, organizers of the EduCom95 conference in Portland, Oregon provided delegates with over 40 terminals through which they could interact with the now “virtual” world occurring at their home workplace. Delegates had easy opportunity to read their personal email, view activities on the WWW, and otherwise use the same net-based tools that they use at home. Thus, delegates were forced to divide their time and attention between the activities of the face-to-face conference and those occurring at home. This reversal of roles illustrates the convergence of time management concerns and the demands on time, when we begin to work and learn in both the real and the virtual world.

The new media, and especially networked-based applications, produce ever increasing opportunities for education, vocation, and entertainment activities. Each new application must compete for the limited and fixed amount of time that is available in a 24 hour day. The economist Herbert Simon noted “What information consumes is rather obvious: It consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention, and a need to allocate that attention efficiently among the overabundance of information sources that might consume it,” Simon’s study (cited in Varian, 1995, p. 200)

Professional education and learning in the “Information Age” continue to make demands on the participants’ time—regardless of the media, location, or format. The virtual conference provides a means of eliminating the cost and unproductive time associated with travel and renting meeting space and accommodations. However, the virtual conference cannot create more time for busy practitioners. Professionals interested in lifelong learning must become skilled managers of their precious and limited amounts of

time so as to maximize learning and social interaction. The virtual conference is a valuable tool that can overcome many of the barriers of cost and access that inhibit participation in professional learning opportunities. However, like most other technological fixes, the virtual conference is no panacea.

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