Overcoming Barriers to Distance Training and Education

Soomyung Kim Cho and Zane L. Berge

Published in Ed [Education at a Distance - the USDLA Journal] 16(1) Retrievedon February 8, 2002

from http://www.usdla.org/html/journal/JAN02_Issue/article01.html

Abstract

When people within an organization plan for using distance training and education, there are several barriers to their efforts that they are likely to encounter. Consideration of barriers faced by other organizations may help leaders find solutions to reduce or to minimize obstacles in their own organization. Using a content analysis of thirty-two, in-depth case studies of leading organizations, this study begins to explore solutions to the barriers faced by organizations when they use distance education.

Introduction

When an organization plans to implement distance training and education (DE), either as an isolated event or as a continuous effort, instructors, staff, or managers should consider several likely obstacles. With careful analysis of barriers to DE faced by other organizations, leaders may find solutions to reduce or to minimize them in their own organization. With this in mind, through a content analysis of in-depth case studies of leading organizations using distance education, this study begins to explore solutions to the barriers faced by organizations when they use distance education. Thirty-two case studies were analyzed to identify potential barriers and their solutions.

Bunn (2001) separated the questions that arise when planning DE into timeless issues and timely issues. While the culture and the norms of an organization are sorted as timeless issues, technologies or environmental conditions are sorted as timely issues. Yet these issues are interconnected: organizational culture and strategic planning influence the adoption and deployment of technology, and technology issues indicate the need for a more flexible and adaptive organizational culture, norms, and planning (Bunn, 2001; Keast, 1997; Olcott and Wright, 1995; Shrivastava and Souder, 1987).

Current Study

Berge and his colleagues have been studying barriers to distance education (Berge, 1998; Berge and Mrozowski, 1999; Berge and Muilenburg, 2000; Berge and Muilenburg, 2001; Muilenburg and Berge, 2001). Using a factor analytic study, Muilenburg and Berge (2001) grouped identified barriers into 10 clusters or factors. These factors form a comprehensive and useful classification system for the content analysis in this study. The barrier clusters identified were:

1. technical expertise,
2. administrative structure,
3. evaluation/effectiveness,
4. organizational change,
5. social interaction and quality,
6. student support services,
7. threatened by technology,

8. access,

9. faculty compensation and time, and

10. legal issues (see Tables 1 through 9 for a description of each).

Using these factors, the solutions reported here are based on analyses of thirty-two case studies in Schreiber and Berge's (1998) *Distance Training* and Berge's (2001b) *Sustaining Distance Training* (see Appendix A). While the recommendations here are not prescriptive for any particular DE program, planners or administrators can adapt those solutions they find useful to their own organizations.

This paper suggests solutions based on a limited number of case studies originally written for different purposes than the goals for this study. Bear in mind that even the best solution for one organization, can be the worst for another. A thorough analysis of an organization's capability to implement DE and the target learners' needs should be made prior to planning any DE program, with the understanding that the recommendations presented here may need to be modified to fit within the context of a particular organization.

Research Method

The thirty-two case studies were analyzed to identify barriers stated within each case, and also to classify these barriers within the ten factors determined by the Muilenburg and Berge (2001) study. We identified the research questions and target case studies prior to selecting the research method. The following process steps were based on Eisenhardt (1989): crafting instruments and protocols, entering the field, analyzing data (within-case analysis and cross-case pattern search using divergent techniques), shaping hypothesis, enfolding literature, and reaching closure.

The case studies were selected because they described common perspectives in distance training and education, such as organizational technological capability, processes used to implement DE, and barriers and solutions to DE. In order to identify what barriers these organizations faced and what solutions they adopted, two protocols were used. First, each chapter was analyzed to identify barriers and solutions mentioned while sorting them into the ten factors and listing other barriers if they showed different patterns. Secondly, the specific barriers and solutions were reviewed and synthesized with the goal being to find generalizations.

There are two organizations which had two separate cases-one in each of the two books: NYNEX (cases # 2 and #29) and the American Red Cross (cases #3 and #32). These case studies were written from different perspectives and therefore each of the cases was analyzed separately. Barriers, solutions, findings, and recommendations from all of thirty-two case studies are identified, briefly described and summarized below under the ten factors (see tables 1-9).

Findings and Recommendations

Each of the ten factors and solutions has its own significance and the solution to each is essential to implementing the DE program successfully. While there is strong interconnectivity, some of these barriers weigh more heavily than others.

In a traditional in-person training situation, registration for the course, paperwork, payment, and travel arrangements (if any)-all the functions that are normally thought of as involving the organization-are completed for the most part, before classes begin. Once instruction starts, the direct interactions that learners have with instructors become paramount. This may not be the case in the distance training and education classroom. Opinions from learners in distance education classes suggests that learners attribute a much broader scope of barriers to the instructor compared to what they would in a traditional setting. For instance, the organization's infrastructure is generally not under the direct control of the instructor. Yet, such operability issues as access, infrastructure, and technical support are an inseparable part of elearning. Thus, often learners do not make as clear a distinction between issues normally under the responsibility of the organization from those under the instructors' control (Keast, 1997; Moore, 1994).

Administrative structure and organizational change are important issues that need to be considered simultaneously. Several of the case studies indicate the primary importance of organizational culture or norms, paired with administrative structure, when an organization implements, or plans to implement DE (Berge, 2001a; Bunn, 2001; Crow & Rariden, 1993; Keast, 1997; Moore, 1997; Olcott & Wright, 1995; Shrivastava & Souder, 1987). The technical infrastructure and technical support are also closely linked with other barriers such as user access, student support, social interaction and quality of learning. It appears that when there is strong support from upper administration, aligned with organizational norms and culture favorable to DE, other barriers will be minimized or reduced in intensity.

Technical Expertise, Support and Infrastructure

An organization cannot successfully implement DE without careful analysis of the characteristics and attributes of its infrastructure. If this analysis shows deficits that will aversely affect the DE program, this research suggests more care in planning for improvements in infrastructure, and making technical expertise and technical support easily available. In addition, several case studies suggested that collaboration with other organizations or outsourcing some or all of the functions discussed above provide an acceptable solution.

TECHNICAL EXPERTISE, SUPPORT, AND INFRASTRUCTURE		
It is difficult to keep up with the fast pace of technological change. Many instructors lack the knowledge and skills to design and teach distance learning courses, yet their organizations lack support staff to assist with technical problems, to develop distance learning course materials, or to provide distance learning training. The technology-enhanced classrooms or laboratories and the infrastructure required to use them may not be available.		
Barriers	Solutions	Cases
Technical support	- Operate or collaborate with learning center - Implement electronic communication tools - Design, develop, and to use an automated instructor controlled system (e.g., Keypads system, One Touch system and the Optel Audio-graphics system) - Provide a backup plan	2, 5, 7, 10, 14, 17, 18, 23, 26, 30, 31
Technical infrastructure	- Maintain technical resources - Utilize site coordinators - Upgrade communication infrastructure - Utilize the intranet - Provide tools to trainer and individuals to allow them more choices - Use vendor-produced materials when the internal infrastructure can not keep pace with the demand from employees	3,4,6,15, 16,17,19, 20,24,26 29,31,32
Technical expertise and staff training	- Host ongoing training for staff, instructors, instructional designers, and site coordinators - Use trainers and consultants experienced in distance training and education to train your staff	3, 7, 16, 17, 19, 21, 26, 28
Support for course development	- Consider outsourcing - Train faculty concerning DE - Use subject matter experts - Simplify scheduling for multiple time zone - Conduct a field-test before releasing a course	2, 4, 5, 11, 17, 24, 26, 28, 29

Table 1. Solutions suggested for factor "Technical Expertise, Support, and Infrastructure"

Administrative Structure

A centralized policy-making, or administrative structure, in the organization is critical to implementing a DE program in a consistent, effective, and efficient manner. This is not to say, however, that executives and managers can function successfully without support

from local staff. Depending upon the delivery system being used, DE programs that use site/remote coordinators can often be improved by the installation of automated systems that reduce the extent of the coordinator's labor and frees them to generally act as liaison or ambassadors with students.

Successful teamwork is a cornerstone of much of the work that occurs in organizations. While there has been a lot written and said about how to *form* a team, relatively little has been documented regarding the support and training of work teams. This is especially true for virtual teamwork. How virtual teams differ regarding learning needs systematic examination.

ADMINISTRATIVE STRUCTURE		
Lack of credibility for distance education within a particular administrative structure, and lack of money can be problematical for distance education. Competing with, or using, new business models can cause difficulties, too. When partnerships are formed among different units within an organization, or among different organizations, lack of agreement concerning such issues as revenue sharing, regulations, tuition and fees, as well as scheduling, FTEs, and issuance of credits can become obstacles to distance education.		
Barriers	Solutions	Cases
Organizational structure	- Adopt a centralized structure, or a hub-and-spoke structure, designed to enhance consistency in management of the DE program and training	2, 13, 20, 22, 24, 27, 30, 32
Financial support and cost reduction	- Conduct a cost analysis and provide report or briefings periodically - Design and develop a cost-saving, technologically-enhanced classroom, such as an instructor-controlled electronic classroom (e.g., for "lean broadcasting," the labor costs of instructors may be reduced, and also this may reduce the need for other technical staff) - Negotiate with local telephone company to reduce telephone charges	2, 3, 7, 17, 20, 21, 24, 27, 29, 31
Staffing and team building	- Utilize experienced professionals, including site coordinators - Install the remote control equipment and to provide training, checklists, and backup procedures to site coordinators - Establish a DE team, including outside consultants - In cases involving more than one culture, cross-cultural awareness is needed, and probably in-person meetings are necessary to address communication/cultural problems - Use the defined process for the selection, hiring, and training of instructors depending on the region of the world where staffing is being done	8, 9, 11, 17, 19, 20, 23, 32
Marketing and sustaining the program	- Provide constant and similar messages via multiple channels, such as management and team briefings, high quality catalogs, a video of site	4, 5, 24, 27

	information and resources - Distribute an organizational newsletter, flyers and wall posters - If special infrastructure is built, remember that planned maintenance and resources are needed to sustain the network over its lifetime - Host an open house for the program - Reassign or reuse existing media where cost effective, rather then installing new systems without considering existing ones	
Vendor management	- Select vendors by using open system and open standard - Evaluate vendor performance regularly.	18, 27

Table 2. Solutions suggested for the factor "Administrative Structure"

Organizational Change

In the few case studies where organizational norms already embraced distance education, organization culture would not be as difficult an obstacle to overcome as in those organizations that do not have such favorable norms. In general, the factors of organizational change and technical expertise, support and infrastructure are the most frequent and influential barriers encountered. This analysis determines the most effective way to change the organizational culture is to educate and find a champion among the corporate executives, and thus begin the change process.

ORGANIZATIONAL CHANGE		
Most organizations are resistant to change. Without a shared vision for distance learning, a strategic plan, and key players within the organization who are knowledgeable and supportive of distance learning, implementing a distance learning program is a slow and difficult process. Difficulty in convincing stakeholders of the benefits of distance learning, the often slow pace of implementation, or the lack of an identifiable business need are all barriers to distance education.		
Barriers	Solutions	Cases
Organizational support to have a shared vision and infrastructure	- Conduct strategic planning and announce the DE policy - Solidify the initiative with management and demonstrate support from corporate executives - Convince and solicit support from the corporate executive through educating them	3, 6, 7, 11, 14, 25, 27, 30
Organizational learning culture against DE and constructivist learning.	- Have a forum, workshop, or seminar for staff and managers to facilitate their understanding about DE and to hear their expectations about DE - When using teaching methods or styles that have not been used in the organization in the past, provide a "bridge" to the new methods and	3, 10, 14, 15, 16, 19, 23

	processes	
Planning and delivering DE programs	- Articulate the mission of the online distance education program. - Build infrastructure - Provide operating guidelines and standards - Develop templates, processes, and systems to enhance the quality - Pay special attention to realistic expectations for distance education in a non-Western culture	9, 22, 23, 24, 32

Table 3. Solutions suggested for the factor "Organizational Change"

Evaluation/Effectiveness

Obtaining learners' opinions about the DE program and evaluating learners' achievement are important in evaluating the efficacy of a DE program. Preparation to collect feedback and evaluation data needs to be considered carefully. Given that the nature of DE is physical separation among instructors and learners, both formative and summative evaluation should be conducted to increase the opportunity for feedback from learners. This may mean using some medium other than the primary delivery system for the class, such as using email or web-based forms for the evaluation of a video or an audio conferencing class.

EVALUATION/EFFECTIVENESS		
There is concern over a lack of research supporting the effectiveness of distance learning as well as a lack of effective evaluation methods for distance learning courses and programs.		
Barriers	Solutions	Cases
Evaluation of courses and programs	- Plan the collection of information, feedback, and evaluation before, during and after the program - Host a seminar with students and DE team to get feedback about program	3, 4, 5, 6, 8, 17, 24, 25, 29
Assessing and tracking learners' achievement	- Conduct both formative and summative evaluation	13, 18, 20, 27, 28

Table 4. Solutions suggested for the factor "Evaluation/Effectiveness"

Social Interaction and Quality

Interaction among students and between students and the instructor, and a high quality of content and instruction, are desired features of all courses (Mowen and Parks, 1997; Schrum and Berge, 1998). In order to maximize learners' interaction during a DE course, the instructor, and instructional designer if involved in the process, needs to be very familiar with the characteristics of the delivery system being used. Based on the thorough understanding and competence with these tools, they can plan high quality interactive learning experiences. The record of learners' interaction in DE settings is an essential source for evaluating learners' achievement, participation in a course, as well as evaluating their reaction to course itself.

There is still a great deal of discussion whether DE is as effective as the "traditional, in-person classroom." This comparison is always difficult because there are many confounding variables. Both in-person and technologically-mediated teaching and learning can be effective, depending more upon the instructional design and instructional methods than on the delivery system per se. It would be a better use of time to match the characteristics of the various media, (including in-person where possible), to the learning goals for the instruction.

SOCIAL INTERACTION AND QUALITY		
Participants in distance learning courses can feel isolated due to lack of person-to-person contact. Some educators and students are uncomfortable with the use of student-centered and collaborative learning activities on philosophical grounds, or because these methods are usually a change from the traditional social structure of the classroom. There are concerns about the quality of distance learning courses or programs, the possible lack of prerequisite skills and knowledge of students, and student learning. The outcomes of student learning in distance education, as well as the testing and assessment of student outcomes are concerns.		
Barriers	Solutions	Cases
Lack of learner interaction and communication	- to encourage learners' participation and increase the interactions among learners, it often helps for instructors and instructional designers to participate with learners in their social and task interactions, and to elicit feedback from learners - For an IVT class, to include off air group activities and to design a viewer response system to increase interactions - Humanize relationships; show that people care - Consider offering courses for faculty and students in which the goals are for participants to adjust from classroom-based to distance learning	5, 7, 8, 9, 20,23,24

Table 5. Solutions suggested for the factor "Social Interaction and Quality"

Student Support Services

While this barrier may pertain more to educational settings than to corporate and non-profit organizations, planning for the learning resources for the course is important regardless of the setting. A well-organized administrative structure is the recommended solution for the most effective student support. Other solutions suggested in these case studies include online registration, and management support systems.

STUDENT SUPPORT SERVICES		
Provision of student services such as advisement, library services, admissions and financial aid is a critical facet of any distance learning program. There are also concerns about how to monitor the identity of distance learning students.		
Barriers	Solutions	Cases
Student advice; library access; administrative assistance	- Staff the distance program with liaisons between the students and the organization - Design a web page to provide information regarding registration, admission, class information, help desk tips, etc. - Purchase database systems for	2, 5, 17, 18, 24, 31

	communication use and for online library	

Table 6. Solutions suggested for the factor "Student support services"

Some individuals are **threatened by technology** changes, and increases in the use of technology. These changes have caused changes in the competency requirements for the labor force. Some instructors are concerned they will be replaced by technology mediated learning products or that they will not be able to perform adequately in the technology-enhanced classroom. Thus, there is some resistance that comes from the concern. Providing instructor training in DE technology and teaching methods, especially before an instructor teaches a DE course for the first time, can reduce these fears.

THREATENED BY TECHNOLOGY		
Some people fear that an increase in the use of distance learning technologies may decrease the need for teaching faculty. Feeling intimidated by technology may also threaten an instructor's sense of competence or authority. Either or both of these psychological factors may lead a person to feel that their job security is threatened.		
Barriers	Solutions	Cases
Adapting existing instructors and reducing their fear over DE	Consider having the existing instructors teach the converted courses Consider creating a position that functions to ease others through the distance learning changes and is a combination of project manager, salesperson, instructor, and developer. It may serve as a good opportunity for instructors to learn other functions and ultimately improves teamwork with others. Develop train-the-trainer session specifically for learning how to use DE tools Consider including non-computer activities such as paper-base note taking. For the learners or instructors who have a fear of using technology, this familiar activity helps them to "learn content (how to use a DE tools)," with their more comfortable learning method Consider how to use visual aids and simple games for teaching courseware. Employees often are not experience in using the system that will be used for their learning. So, the first job should be to familiarize them with these systems.	2, 7, 11

Table 7. Solutions suggested for the factor "Threatened by Technology"

Access

Access is often related to the availability of technical infrastructure and support. Selecting a simple and robust delivery technology (Collins and Berge, 2000), then supporting users' technical problems promptly can minimize user access problems.

FACULTY COMPENSATION AND TIME		
In all stages of design, development, and evaluation, distance education courses almost always require a greater time commitment than the same instructional objectives or goals when using an in-person classroom. Therefore, faculty compensation, incentives, workload, and release time become important issues if the system in use assumes traditional, in-person classrooms. Lack of grants to fund distance learning projects is also a problem.		
Barriers	Solutions	Cases
Instructors are resistant to DE	Develop incentives and rewards for faculty participating in the DE program Create a detailed instructor guide Develop train-the-trainer session Conduct detailed evaluation feedback with participants	1, 9

Table 8. Solutions suggested for the factor "Faculty Compensation and Time"

Faculty compensation and time

The suggestions from this study are that an instructor should be encouraged to participate in planning and designing the DE program, as well as doing the instruction. This means that an instructor must play multiple roles and must be trained to use all the necessary instructional tools. The fastest way to improve the quality of DE is to improve the instructional design of the course to carefully match objectives to outcomes. It also means that adequate rewards and enough time to prepare the instruction must be allowed.

ACCESS		
Many students lack access or there are concerns over equal access to courses offered via newer technologies such as Web-based instruction. Instructors also lack access to the necessary equipment and courses.		
Barriers	Solutions	Cases
Reducing users' technical problems regarding access to courses	- Select the simplest courseware to meet the course goals - Work with the best hardware vendors - Provide access both with internet connection to the server and via direct dial to the server	2, 4

Table 9. Solutions suggested for the factor "Access"

Legal Issues

None of case studies mentioned legal barriers. This may imply that the authors of these case studies might not see legal issues as an essential barrier. It may be that many of the legal issues have been solved by the stage of maturity these businesses had reached when the case studies were written.

Further Research

The majority of the barriers and solutions identified from the case studies reported in both *Distance Training* and *Sustaining Distance Training* involve "Administrative Structure," "Organizational Change," and "Technical Expertise, Support and Infrastructure." While this may suggest that these are perceived to be the most prominent barriers, this may, indeed, not be the case. All the barriers

mentioned in this study should be considered when planning and implementing distance education.

While DE has a broad target population worldwide, only one case study (case #9) addressed the issue of intercultural awareness in the development of a DE program. Clearly, this area needs more attention.

Finally, since the cases studied described corporate settings, this research should be extended to other settings such as education at primary, secondary and tertiary levels where perspectives could be explored from the point of view of both teachers and learners.

References

Berge, Z.L. (1998). Barriers to online teaching in post-secondary institutions. *Online Journal of Distance education Administration*. 1(2). Summer. [Online.] http://www.westga.edu/~distance/Berge12.html

Berge, Z.L. (2001a). A framework for sustaining distance training. In Berge, Z. L. (Ed.), *Sustaining Distance Training: Integrating Learning Technologies into the Fabric of the Enterprise* (pp.13-30). San Francisco: Jossey-Bass.

Berge, Z.L. (2001b). *Sustaining Distance Training: Integrating Learning Technologies into the Fabric of the Enterprise*. San Francisco: Jossey-Bass.

Berge, Z.L. and Mrozowski, S. (1999) Barriers to Online Teaching in Elementary, Secondary, And Teacher Education. *Canadian Journal of Educational Communication*, 27(2): 59-72.

Berge, Z.L. and Muilenburg, L.Y. (2000, June). Barriers to distance education as perceived by managers and administrators. In Melanie Clay (Ed.) *Distance Learning Administration Annual 2000*. Callaway Gardens, GA. [Online.] [Accessed April 18, 2001.] http://www.gl.umbc.edu/~berge/man_admin.html

Berge, Z.L. and Muilenburg, L.Y. (2001). Obstacles faced at various stages of capability regarding distance education in institutions of higher learning. *Tech Trends* 46(4): pp. 40-45.

Bunn, M.D. (2001). Timeless and Timely Issues in Distance Education Planning. *The American Journal of Distance Education*, 15(1): 55-68.

Collins, M.P. and Berge, Z.L. (2000, November/December). Technological minimalism. *The Technology Source*. [Online.] [Accessed November 1, 2000]. http://horizon.unc.edu/TS/commentary/2000-11.asp

Crow, G.B. & R.L. Rariden. (1993). Advancing the academic information infrastructure. *Journal of Research on Computing in Education*. 25(4): 464-473.

Eisenhardt, K.M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4):532-550.

Keast, D.A. (1997). Toward an effective model for implementing Distance Education programs. *The American Journal of Distance Education*, 15(2): 7-22.

Miles, M.B. & A.M. Huberman. (1994). *An Expanded Sourcebook: Qualitative Data Analysis*.Thousand Oaks, California: SAGE.

Moore, M. (1994). Tips for the manager setting up a distance education program. *The American Journal of Distance Education*, 8(3): 1-5.

Moore, M. (1997). Quality in Distance Education: Four cases. *The American Journal of Distance Education*, 11(3): 1-7.

Mowen, A.J. and Parks, S.C. (1997). Competitive marketing of distance education: A model for placing quality within a strategic planning context. *The American Journal of Distance Education*, 11(3):27-39.

Muilenburg, L.Y. and Berge, Z.L. (2001). Barriers to distance education: A factor analytic study. *The American Journal of Distance Education*, 11(2): 39-54.

Olcott, D. and Wright, S.J. (1995). An Institutional support framework for increasing faculty participation in postsecondary distance education. *The American Journal of Distance Education*, 9(3): 5-17

Schreiber, D.A. and Z.L. Berge. (1998). *Distance Training: How innovative organizations are using technology to maximize learning and meet business objectives*. San Francisco: Jossey-Bass.

Schrum, L. & Berge, Z.L. (1998). Creating Student Interaction within the Educational Experience--A Challenge for Online Teachers. *Canadian Journal of Educational Communication*. 26(3), pp. 133-144.

Shrivastava, P. and Souder, W.E. (1987). The Strategic management of technological innovations: A review and a model. *Journal of Management Studies*, 24(1): 25-40.

Appendix A. Cases Analyzed

Source for cases 1-15: Schreiber, D.A. and Z.L. Berge. (1998). *Distance Training: How innovative organizations are using technology to maximize learning and meet business objectives*. San Francisco: Jossey-Bass.	
Case #	Organization
1	The home improvement industry
2	NYNEX
3	The American Red Cross Biomedical Services
4	The Mortgage Bankers Association of America
5	The California Department of Rehabilitation
6	The Unisys Corporation
7	The Federal Aviation Administration
8	The Department of Health and Human Services
9	Malaysia's Virtual University
10	The Texas Natural Resource Conservation Commission
11	Columbia/HCA Healthcare Corporation
12	The Columbus Center
13	The IDL Group Inc.
14	H.B. Zachry company
15	The U.S. Navy's Bureau of Medicine and Surgery
Source for cases 16-32: Berge, Z. L. (2001b). *Sustaining Distance Training: Integrating Learning Technologies into the Fabric of the Enterprise*. San Francisco: Jossey-Bass.	
Case #	Organization
16	The U.S. Army Intelligence Center
17	SBC's Regional Telecom Training Centers
18	MCI Worldcom
19	The U.S. General Accounting Office
20	Rèseau Interaction Network
21	The IRS
22	The UAW-DaimlerChrysler National Training Center
23	First Union
24	Ford Motor Company Dealerships
25	Nortel Networks
26	Cap Gemini Ernst & Young
27	Hewlett-Packard's Regional Training Center
28	Public Health
29	NYNEX
30	The U.S. Postal Service
31	TeleEducation NB
32	The American Red Cross

About the Authors

Soomyung Kim Cho received an M.A. in linguistics from Hankuk University of Foreign Studies, Korea. While working as a researcher to develop an automated translation machine within a multi-university consortium, she worked as an adjunct faculty in several colleges in Seoul, Korea. Since 1999, she has studied instructional system development at UMBC, with a concentration in distance education. Her emerging interest is to identify the criteria to evaluate organizational technological capability in organizations using distance training and education. In addition, she is interested developing better ways to analyze computer-mediated-communication and in how to promote learners' cognitive skills in distance education settings. She can be contacted at soomyung@hotmail.com.

Zane L. Berge, Ph.D.is currently Director of Training Systems, Instructional Systems Development Graduate Program at the University of Maryland System, UMBC Campus. His scholarship in the field of computer-mediated communication and distance

education includes numerous articles, chapters, workshops, and presentations. Notably are Berge's books, co-edited with Collins. First, in 1995, was a three volume set, *Computer-Mediated Communication and the Online Classroom*, that encompasses higher and distance education. Following that was a four volume set of books, *Wired Together: Computer-Mediated Communication in the K-12 Classroom*. More recently, he and Schreiber edited, *Distance Training* (1998). Dr. Berge's newest book is *Sustaining Distance Training*, (Jossey-Bass, 2001). He consults internationally in distance education and can be contacted at berge@umbc.edu or UMBC, 1000 Hilltop Circle, Baltimore, MD 21250.
