

ONLINE TRAINING IN AN ONLINE WORLD

Curtis J. Bonk, Ph.D.
President, CourseShare.com
Associate Professor, Indiana University

Co-Sponsored by:
Jones Knowledge, Inc. and CourseShare.com



To view or download this report, go to either:

1. <http://www.PublicationShare.com>
2. <http://www.jonesknowledge.com>
3. <http://www.CourseShare.com/reports.php>

January 2002

“ONLINE TRAINING IN AN ONLINE WORLD”

Copyright January 2002 by Jones Knowledge, Inc. and CourseShare.com

Additional Copies:

You are welcome to download additional copies of the “Online Training in an Online World” report for research or individual use. To download the full text or just the executive summary of this report, go to either:

1. <http://www.PublicationShare.com>
2. <http://www.jonesknowledge.com>
3. <http://www.CourseShare.com/reports.php>

Reprinting of this report in quantities of 50 or more requires permission from either CourseShare.com or Jones Knowledge, Inc. at the addresses listed below.

Attribution:

Excerpted material from this report may be cited in media coverage and other publications. Quotes, references, and graphs should be cited as follows:

Bonk, C. J. (2002). *Online training in an online world*. Bloomington, IN: CourseShare.com.

Acknowledgements:

We deeply appreciate all the people who participated in this study and shared their insights about the world of online training. This manuscript could not have been written without stellar support from Chris Essex, Erin Maher, and Brian Starks. In addition, Justin Bresler, Steven Shapiro, and Frank Forte from Jones Knowledge are thanked for helping shape the direction of this survey. We also recognize the timely and insightful assistance of Barb Halpenny, Carin Neitzel, Polly Rastogi, Pamela Eddy, Emily Hixon, Karen Hallett, Mary Dagley, Andy Jones, Seth White, Mary Harnishfeger, Vanessa Dennen, and Charles Graham.

Questions, Comments, or Requests:

Curt Bonk, President
CourseShare.com
Indiana University Research Park
501 North Morton Street, Suite 213
Bloomington, IN 47404-3730
E-mail: cjbonk@indiana.edu or call 812-855-2282
<http://CourseShare.com>; <http://php.indiana.edu/~cjbonk/>

OR

Steven Shapiro, Vice President, Marketing and Communications
Jones Knowledge, Inc.
9697 East Mineral Avenue
Englewood, Colorado 80112
E-mail: sshapiro@jonesknowledge.com or call 303-784-8271
<http://jonesinternational.edu/>; <http://JonesKnowledge.com>

TABLE OF CONTENTS

TABLE OF CONTENTS	I
LIST OF FIGURES	III
EXECUTIVE SUMMARY	1
BACKGROUND OF RESPONDENTS AND RESPONDENT ORGANIZATIONS (SEE 3.1)	3
TRAINING IN THE ORGANIZATION (SEE 3.2)	5
ONLINE TRAINING IN THE ORGANIZATION (SEE 3.3)	5
ONLINE TRAINING ASSESSMENT IN THE ORGANIZATION (SEE 3.4).....	8
CURRENT ISSUES AND ATTITUDES RELATED TO E-LEARNING (SEE 3.5)	8
USEFULNESS OF WEB-BASED TOOLS FOR TEACHING AND LEARNING (SEE 3.6).....	9
PEDAGOGICAL PRACTICES FOR CORPORATE E-LEARNING (SEE 3.7)	12
FUTURE ONLINE TEACHING SITUATION (SEE 3.8)	13
OBSTACLES RELATED TO WEB-BASED LEARNING (SEE 3.9)	14
SUPPORTS RELATED TO WEB-BASED LEARNING (SEE 3.10)	14
ONLINE COMMUNITIES, SERVICES, AND RESOURCES NEEDED (SEE 3.11).....	16
FINAL COMMENTS FROM RESPONDENTS (SEE 3.12)	17
RECOMMENDATIONS BASED ON FINDINGS (SEE 4.0)	17
1. INTRODUCTION AND OVERVIEW	22
1.1 WHAT IS E-LEARNING?.....	22
1.2 E-LEARNING DECISIONS	24
1.3 REPORTS ON THE E-LEARNING MARKET	26
1.4 PURPOSE OF THE STUDY.....	27
2. METHODS AND DATA	29
2.1 METHODOLOGICAL OVERVIEW	29
2.2 SAMPLING PROCEDURES	29
2.3 LIMITATIONS OF THE STUDY	30
3. FINDINGS	32
3.1 BACKGROUND OF RESPONDENTS AND RESPONDENT ORGANIZATIONS	32
3.2 TRAINING IN THE ORGANIZATION	40
3.3 ONLINE TRAINING IN THE ORGANIZATION.....	43
3.4 ONLINE TRAINING ASSESSMENT IN THE ORGANIZATION	58
3.5 CURRENT ISSUES AND ATTITUDES RELATED TO E-LEARNING.....	65
3.6 USEFULNESS OF WEB-BASED TOOLS FOR TEACHING AND LEARNING	70
3.7 PEDAGOGICAL PRACTICES FOR CORPORATE E-LEARNING.....	82
3.8 FUTURE ONLINE TEACHING SITUATION	93
3.9 OBSTACLES RELATED TO WEB-BASED LEARNING.....	96
3.10 SUPPORTS RELATED TO WEB-BASED LEARNING	101
3.11 ONLINE COMMUNITIES, SERVICES, AND RESOURCES NEEDED.....	110
3.12 FINAL COMMENTS FROM RESPONDENTS	116
4. CONCLUSIONS AND RECOMMENDATIONS	119

4.1 CONCLUSIONS 119
4.2 RECOMMENDATIONS AND FUTURE TRENDS..... 123
5. REFERENCES 131
6. AUTHOR BIOGRAPHY AND COMPANY BACKGROUNDS 142
 ABOUT AUTHOR..... 142
 ABOUT SPONSORS 143

LIST OF FIGURES

Figure 1: Organizational Roles of Respondents in Web-Based Training.....	32
Figure 2: Size of Respondent Organizations	33
Figure 3: Size of Respondent Organizations (Note: Categories are Collapsed).....	34
Figure 4: Focus of Respondent Organizations.....	35
Figure 5: Years Involved in Corporate Training, Knowledge Management, or Related Function.....	36
Figure 6: Age of Respondents	37
Figure 7: Gender of Respondents	38
Figure 8: Job Function(s) of Respondents (Note: Categories are Not Mutually Exclusive).....	39
Figure 9: Educational Attainment of Respondents	40
Figure 10: Percent of Respondent Organizations with a Training Department.....	41
Figure 11: Training Unit Activities Aligned with Key Functions of the Organization....	42
Figure 12: Methods Used to Deliver Training in the Organization.....	43
Figure 13: Comparison of Organizational Commitment and Interest in Learning and Web-based Learning	44
Figure 14: Interest in Web-Based Learning by Industry Type	45
Figure 15: Commitment to Web-Based Learning by Industry Type	46
Figure 16: Organizational Interest in Web Products that Support Classroom-Based Instruction or Fully Deliver Products	47
Figure 17: Reason for Respondent Interest in Web-Based Learning	48
Figure 18: Organization Provides Enough Training, Resources, and Support for Developing and Delivering Web Courses.....	49
Figure 19: Purpose of Web-Based Learning in Organization.....	50
Figure 20: Types of Training Respondent Organizations Offer Online	51
Figure 21: Percent of Web-Based Training Developed In-House	52
Figure 22: Aspects of Web-Based Training Development In-House	53
Figure 23: Percent of Respondent Organizations Outsourcing Aspects of Web-Based Training	56
Figure 24: Aspects of Web-Based Training Outsourced	57
Figure 25: Percent of Respondent Organizations Conducting Formal Evaluations of Web-Based Learning	59
Figure 26: How Respondent Organizations Measure Success of Web-Based Learning According to the Kirkpatrick Model	60
Figure 27: Belief that Organization Owns Online Courses and Materials	66
Figure 28: Organizational Interest in the Use of Learning or Knowledge Objects	68
Figure 29: Percent of Organizations Valuing Online Certificates and Degrees as Much as Those From Traditional Courses.....	69
Figure 30: Course Tools for Online Training	71
Figure 31: Course Tools with Growth Potential.....	73
Figure 32: Student-Oriented Tools for Online Training	74
Figure 33: Student Tools with High Growth Potential.....	75
Figure 34: Instructor-Oriented Tools for Online Training.....	77
Figure 35: Instructor Tools with High Growth Potential.....	78

Figure 36: Web Resources for Online Training.....	79
Figure 37: Web Resources with High Growth Potential.....	81
Figure 38: Instructional Strategies Perceived as Fairly Equally Supported by Online and Traditional Classroom Environments	86
Figure 39: Instructional Strategies Perceived as Better Supported by Online than Traditional Classroom Environments	87
Figure 40: Important Characteristics of Web-Based Learning	90
Figure 41: Activities Learners Would Deem Highly Engaging and Useful	92
Figure 42: Predictions of Instructional Time Spent Training Via the Web in the Next Decade	94
Figure 43: Predictions of Instructional Time Spent Training Via the Web in Next Two Years by Gender	95
Figure 44: Freelance or Adjunct Instructor Web-Based Training	95
Figure 45: Cultural and Organizational Reasons Limiting the Adoption of Web-Based Learning.....	98
Figure 46: Technological Reasons Limiting the Adoption of Web-Based Learning	99
Figure 47: Types of Training Provided to Personnel for Designing and Developing Web-Based Courses	101
Figure 48: Percent of Organizations Where Design and Development Training Leads to Certification.....	102
Figure 49: Location Where Learners Access Web-Based Training	103
Figure 50: Support Resources Provided for E-Learners	104
Figure 51: Organizational Interest or Involvement in Developing Web Courses in Multiple Languages.....	105
Figure 52: Number of Languages Respondent Organizations Currently Offer Web-Based Courses	106
Figure 53: Learner Completion Rate in Web-Based Courses.....	108
Figure 54: Reasons Learners Fail to Complete Web-Based Courses	109
Figure 55: Incentives for Successful Completion of Web-Based Learning	110
Figure 56: Important Features of a Free Course-Sharing Community	112
Figure 57: Web-Based Services, Resources, and Information Useful to Trainers	114

EXECUTIVE SUMMARY

Welcome to the second of a series of survey research reports related to the use of the Internet in teaching and learning. Whereas our initial report addressed the use of the Internet by postsecondary instructors, this one focuses on e-learning in the corporate world and other training settings.

In response to the recent explosion of online training in work-related settings, we conducted a Web-based survey during April and May of 2001 that was completed by 201 respondents. These individuals were asked about their Web-based training practices, experiences, tool preferences, instructional approaches, assessment methods, obstacles, and support structures. Among those completing this survey were corporate trainers, instructional designers, training managers, and Chief Learning Officers. The respondents represented a range of industry types that included information technology, financial services, education, manufacturing, government, consulting, military, and healthcare. Nearly all of them were either users of Web-based training or decision-makers regarding it. In addition, most were active members of training or online learning organizations.

While there was significantly greater interest in e-learning than actual commitment to it, the survey findings confirm that the Web is flourishing as a training delivery mechanism. Due to the recent emergence of this delivery method, however, more than half of the surveyed institutions outsourced aspects of their Web-based training needs. They were more likely to outsource the content and delivery system, than the implementation and evaluation of Web-based training. Respondent organizations tended to rely on blended approaches wherein Web-based training supplemented and, hopefully, enhanced face-to-face instruction (van Dam, 2002). Computer applications, technical skills, and job-related skills were the most common forms of training offered online.

Respondents noted various organizational support and cultural resistance problems that were limiting the adoption of e-learning. Barriers to adoption included perceptions of high cost, extensive instructor preparation time, limited technical support, and a general lack of bandwidth and necessary hardware. Respondents alluded to several types of online tools that could soon experience high demand including tools that fostered interactive feedback, annotations, demonstrations, assessment, and critical and creative thinking.

Whereas most e-learning surveys have explored technological infrastructure problems or have performed price and feature analyses on different types of online delivery platforms (Hall, 2000a, 2000b), this study attempted to understand some of the pedagogical tools and mechanisms that could benefit online trainers and learners. With respect to engaging online learners, terms such as relevance, feedback, goals, interactivity, and choice were deemed important to the respondents. These course characteristics were considered vital to increasing student engagement while decreasing the high rates of online attrition currently

experienced by many of their organizations. Student exploration, case-based learning, and problem-based learning were instructional approaches thought to be as effective in online as in traditional environments. However, instructional approaches such as discussion, lecture, role-play, mentoring, and group collaboration were seen as less applicable to online settings. When respondents were asked about various intrinsic motivational techniques, activities such as job reflections, team projects, and guest mentoring were considered more engaging and useful online than social ice breakers, peer reviews, and displaying learner products online. Given these results, it was clear that some examples of best online practices and success stories were needed. Stories of best practices can illustrate different instructional approaches and techniques to trainers and instructional designers who currently question their applicability.

Projections for the next decade indicate that the supply and demand for Web-based training will continue to escalate. As in our earlier college instructor survey, most respondents anticipated significant increases in Web-based instruction as well as in freelance or adjunct instruction. Additional resources and guides are presently needed to support such endeavors. Respondents also tended to ask for tools that were more collaborative and interactive. Interestingly, they expressed a need to share their online tasks and ideas with each other.

Most respondent organizations sought cost efficiencies and positive return on investment from online training. For instance, they expressed interest in learning objects that could be chunked and reused within their training systems. Many of these same organizations were not completely satisfied with their online tools and associated assessment practices. In fact, most did not conduct formal evaluations of their Web-based learning courses and programs. The evaluations that did occur unfortunately were at the lower end of common evaluation frameworks, focusing on course satisfaction instead of return on investment.

Many respondents were also dissatisfied with the low course completion rates. While lack of time was selected as the chief reason for learner attrition, most institutions simply lacked incentives for online course completion. Common obstacles to Web-based learning included instructor preparation time, bandwidth, cost, and cultural support. Also contributing to the myriad of online course obstacles was the predominance of courses offered in only one language.

In addressing these problems and issues, respondent organizations incorporated various support structures for online learners and trainers. For example, many organizations tended to rely on e-mail support as well as online help and tutorials. Given that most respondents accessed Web-based training from their offices, desktop computers were also a highly strategic investment. In addition to internal support, conferences, workshops, and local experts were utilized for supporting the designers and developers of that training.

As with our earlier study of college faculty, these training and human resource professionals were interested in sharing course resources, consulting the Web for expert teaching answers, and offering their instructional services to others. While their organizations used a wide range of tools and tasks in Web-based training, they pointed to a number of key pedagogical tools that were not yet available or were just emerging. Given such needs, the coming decade should prove interesting for those developing, delivering, or evaluating Web-based training.

Despite the relative lengthiness of this survey, key questions related to online tool development, learner support, and assessment and evaluation were not addressed. Future research will also need to reveal the specific motives and rationale behind different Web-based training initiatives and decisions. For instance, clarity is needed regarding current and projected e-learning funding levels, user satisfaction with particular learner-management and courseware systems, typical ROI calculations, the forms of online instructor training, and the incentive packages and reward structures for online course completion. In-depth studies might also ferret out e-learning differences between industry types as well as between large and more modest-sized organizations.

Key survey findings are summarized below. Greater detail regarding these results is provided in section 3 of this report.

Background of Respondents and Respondent Organizations (see 3.1)

Description of Survey Respondents

- The survey was completed in April and May 2001 by 201 trainers, instructional designers, training managers, and human resource personnel.
- This sample was highly aware of Web-based training issues.
- In terms of Web-based training, 57 percent were both users and decision-makers, while 17 percent were users but not decision-makers and 20 percent were decision-makers but not users. When combined, 94 percent of our sample either used Web-based training or made decisions regarding it.
- Only 6 percent were neither decision-makers nor users of Web-based training.

Size of Respondent Organizations

- Respondents represented a range of institutional sizes. Ten percent worked at organizations of less than 30 people, 11 percent had between 31 and 100 employees, 18 percent between 101 and 500 employees, 10 percent between 501 and 1,000 employees, 27 percent between 1,001-5,000 employees, 6 percent between 5,001 to 10,000 employees, 15 percent between 10,001 and 100,000 employees, and 3 percent had more than 100,000 employees.
-

- When categories were condensed, 21 percent of the survey respondents worked in organizations of 100 or fewer employees, 28 percent worked in organizations of between 101 and 1,000 employees, 33 percent worked in organizations employing 1,001 to 10,000 workers, and 18 percent worked in organizations of over 10,000 employees.
- Whereas nearly half of the respondents were from organizations of less than 1,000 employees, only about one in four worked in organizations of more than 5,000 employees.

Type of Respondent Organizations

- Many types of organizations were represented in this survey. The largest percent of respondents were from the field of education (20 percent). Other respondents worked in areas such as information technology (15 percent), financial services/insurance (13 percent), consulting or contracting (11 percent), industrial/manufacturing (10 percent), or government (7 percent) settings. A few worked in health services (5 percent), military institutions (3 percent), non-profit associations and organizations (2 percent), hospitality (2 percent), transportation (1 percent), and retail management (1 percent). Nearly ten percent were from other types of instructional situations or were not specific about the type of public or private institution they worked in.

Years of Corporate Training, Knowledge Management, or Related Experience

- Most respondents in this sample had backgrounds in corporate training, knowledge management, or related areas. In fact, nearly two-thirds had six or more years of experience.
- More specifically, 2 percent had less than 1 year of experience, 10 percent had 1 to 2 years of experience, 23 percent had 3 to 5 years of experience, 21 percent had 6 to 10 years of experience, 31 percent had 11 to 20 years of experience, and 13 percent had more than 20 years of experience.

Respondent's Age, Gender, Job Function, and Educational Background

- The age of survey respondents was also quite varied. Nearly one-fourth of the participants were under age 36, half were 36 to 50 years old, and slightly more than one-quarter were over age 50.
 - Fifty-two percent of the respondents were females.
 - Most respondents (84 percent) were in formal training or instructional design positions or had similar responsibilities. Almost 50 percent had instructional design or program development responsibilities. Nearly 30 percent were instructors or trainers, 27 percent were training managers, 20 percent were training evaluators, and 14 percent were training directors (note that respondents could select more than one category). Somewhat fewer were knowledge managers (9 percent), human resource personnel (5 percent), Chief Learning Officers (4 percent), or Chief Technology Officers (2 percent). Another fifteen percent of survey respondents were
-

in other job functions such as technical writers, directors of e-learning, quality managers, learning technology consultants, or Chief Executive Officers.

- The pool of respondents was fairly well educated. In terms of highest degree held, 3 percent had high school diplomas, 8 percent obtained some type of professional certification beyond high school, 35 percent possessed bachelor's degrees, 41 percent had master's degrees, 8 percent held advanced degrees or were ABD, and the remaining 5 percent had earned a doctoral degree.

Training in the Organization (see 3.2)

Existence of Training Department

- Eighty percent of respondent organizations had a training department.

Training Aligned with Key Functions?

- More than 70 percent of respondents either agreed or strongly agreed that training activities were aligned with key functions of their organization. However, nearly 20 percent disagreed with this statement and the remaining ten percent were unsure.

Methods to Deliver Training

- Most respondent organizations (98 percent) still relied on conventional instructor-led training.
- Nearly three-fourths of these organizations also used intranet/Internet-based delivery systems for some of its training. In addition, 68 percent employed multimedia programs for aspects of its training, 52 percent videotape, and 46 percent paper-based correspondence courses as part of their training. Seventeen percent utilized other technologies such as satellite-based systems, audiotapes, virtual reality, interactive television, conferences, and print media.

Online Training in the Organization (see 3.3)

Interest in and Commitment to Web-Based Learning

- More than 70 percent of respondents agreed or strongly agreed that their organizations were committed to learning in general. Just 16 percent disagreed or strongly disagreed with that statement and another 14 percent were unsure.
 - Even more, 75 percent indicated that their organizations were committed to e-learning. Just 3 percent strongly disagreed and another 11 percent disagreed with that statement.
 - However, only about 50 percent of respondent organizations were committed to Web-based learning. More interestingly, 30 percent simply
-

did not know if their organization was committed to Web-based learning and another 20 percent either disagreed or strongly disagreed.

- Interest in Web-based learning varied by industry sector. Those industries with high interest included consulting (85 percent), financial services (84 percent), information technology (80 percent), health services (80 percent), and education (75 percent). Organizations with lower interest included industrial/manufacturing (65 percent) and government (50 percent).
- Commitment to Web-based learning had a slightly different pattern. Industries with high commitment included financial services and insurance (64 percent), education (64 percent), information technology (59 percent), and consulting (59 percent). Less commitment was expressed by those in industrial/manufacturing (40 percent), government (39 percent), and health services (30 percent). Some of the industry sectors had less than 20 respondents, however.

Interest in Products that Supported Traditional Instruction or Fully Delivered Web-Based Learning

- Seventy-four percent of respondents indicated that their organization was interested in Web-based products that supported instructor-led (i.e., traditional classroom-based) instruction. Only ten percent were not interested; the balance were unsure.
- Slightly fewer, seventy-one percent, agreed or strongly agreed that their organization was interested in Web-based products to deliver courses entirely online.

Why Interested in Web-Based Learning

- Respondents were primarily interested in Web-based learning because it increased access to learning (86 percent). Two-thirds of respondents noted that growth in employee skills, ability to track learner progress through a learning management system, and increased job performance were key reasons for their interest. Slightly more than half perceived distinct advantages of Web-based learning including the standardization of content and assessment procedures, enhanced interactivity, and learner satisfaction. Employee retention and keeping up with the competition were aspects chosen by approximately one-fourth of respondents. Other responses included cost savings, reduced travel time, greater flexibility in delivery, and the timeliness of such training.

Organizational Support for Web-Based Courses

- Less than one-third of respondents felt that their organization provided enough training, resources, and support for effectively delivering Web-based courses. In fact, 54 percent disagreed, while 15 percent were unsure.
-

Purpose of Web-Based Learning

- Most organizations were using Web-based learning as an alternative to instructor-led courses (66 percent) or as a supplement to traditional instructor-led training courses (53 percent). About one-fourth used it as a follow-up to live instruction. One in five used the Web as the sole source for learning.

Types of Online Training

- The most prevalent skills taught online were computer applications and software skills (64 percent) as well as technical skills (50 percent). The next most popular type of online training concerned job-related skill development (45 percent). Communication skills, computer systems or programming skills, and management or supervisory experience were all offered at roughly 3 in 10 organizations surveyed. Around one-fourth offered online training for personal growth as well as customer service skills. They tended not to use the Web for sales or marketing skills (16 percent) or executive education (13 percent).

In-House Development of Web Training

- Seventeen percent of respondent organizations did not develop any aspects of their Web-based training internally. Another 25 percent of these organizations farmed out at least 75 percent of their Web-based training. Fifteen percent outsourced between half and 75 percent of their Web-based training efforts. At the same time, 42 percent developed more than half of their training internally. Nearly one-fourth generated all their training internally.
- Different aspects of Web-based learning initiatives were developed in-house. Of those organizations developing at least some online training internally, 92 percent were generating online content, 76 percent were involved in the implementation of training, 74 percent were developing evaluation programs and procedures, and 60 percent were creating online delivery systems. These findings differed significantly across the size of respondent organization.
- Numerous limitations with their current courseware systems or tools were noted (e.g., complex, unreliable, slow connections, technological limitations, boring, and lacking in interactivity).
- Tools deemed superior were reliable, scalable, comprehensive, reasonably priced, intuitive, flexible, and fast.

Out-Sourced Web Training

- More than half of the respondents (54 percent) indicated that their organization outsourced at least some Web-based training. Forty percent did not outsource any online training.
 - Nearly 70 percent of organizations were outsourcing at least part of their content development. In addition, 66 percent outsourced the online delivery system, 44 percent outsourced online implementation efforts
-

(e.g., monitoring, instructing, supporting), and 32 percent outsourced the online evaluations.

- Seventy-six percent of organizations with over 1,000 employees outsourced some of their Web-based learning efforts, compared to only 60 percent of organizations with less than 1,000 employees.
- More than 35 different external vendors were mentioned for the development and delivery of Web-based instruction, but no single vendor was used by more than one-fourth of survey respondent organizations.

Online Training Assessment in the Organization (see 3.4)

Measuring the Impact of Online Training

- Nearly 60 percent of survey respondents indicated that their organization failed to conduct formal evaluations of Web-based learning.
- Of those that evaluated online learning, 79 employed simple assessments of student reactions (Kirkpatrick's Level 1), 61 percent measured participant change in knowledge, skill, or attitude (Kirkpatrick's Level 2), 47 percent assessed participant job performance improvement (Kirkpatrick's Level 3), and 30 percent analyzed results such as the return on investment (Kirkpatrick's Level 4).
- Open-ended final comments from respondents about assessment practices indicated that many organizations had just begun to adopt online training tools and associated assessment practices. Those that did assess the impact of online training remained at the lower level of the Kirkpatrick model. In addition, time to competency and time to market were among the methods offered as alternatives to traditional ROI calculations.

Current Issues and Attitudes Related to E-Learning (see 3.5)

Course Ownership and Guidelines

- In stark contrast to our earlier study of college instructors, three-fourths of the survey respondents agreed that their organization owned the courses developed for online instruction. In fact, only 9 percent of the respondents felt that the trainer or instructor owned the online courses, while 17 percent were not sure.
- Forty-seven percent of respondents agreed or strongly agreed that their organization had clear guidelines about the ownership of course materials. However, one-fourth of survey participants were not sure about the ownership policies within their organization and another 28 percent disagreed or strongly disagreed that their organization had clear guidelines.

Reusable Learning Objects

- More than two-thirds of respondents worked in organizations that were interested in the use of learning or knowledge objects in online learning.
-

- Despite the recent emergence of this field, only 14 percent of the respondents worked in organizations that were not interested in learning or knowledge objects. Another 17 percent of respondents not sure if their organization was interested in this area.

Quality of Certificates and Degrees Earned Online

- Thirty-seven percent of respondents worked in organizations that valued online certificates as much as certificates earned in traditional classroom settings. However, 43 percent were not sure how their organization would react to online certificates and the remaining 20 percent worked within organizations that preferred the traditional delivery of certificate programs.
- Somewhat fewer, 27 percent, worked in organizations that valued degrees earned online as much as those earned in traditional classrooms. Once again, over forty percent were unsure how their organization would react. Finally, 36 percent worked in organizations that preferred degrees obtained from traditional face-to-face instruction.

Usefulness of Web-Based Tools for Teaching and Learning (see 3.6)

Useful Online Course Tools

- The survey respondents were asked to rate the degree of usefulness (i.e., low, medium, or high) for 25 e-learning tools and resources, while also indicating whether they or their organization actually used such tools. The respondents generally felt that most online course tools were highly useful.
 - Commercial courseware was deemed highly useful by 66 percent of respondents and was actually used by 57 percent of their organizations.
 - Other highly popular course tools included online database tools (60 percent rated as highly useful and 66 percent actually used), file uploading and downloading tools (59 percent deemed highly useful and 62 percent actually used), online course evaluations (55 deemed highly useful and 56 percent actually used), and online quizzes and tests (54 percent noted as highly useful and 61 percent actually used).
 - Tools for posting online cases or problems corresponding to course material were rated as highly useful by 39 percent of the survey respondents, while only 34 percent actually used them.
 - In general, the percent of respondents who viewed online course tools as highly useful was lower than the percent that actually used them. Therefore, the development of such tools may not be a high priority for software companies since it does not appear to be an area of high growth.
-

Growth Potential of Online Course Tools

- Growth potential (i.e., the difference between tools rated as highly useful by survey respondents and the percent of those particular individuals actually using them) was highest for online course evaluation tools (20 percent gap) and courseware tools (19 percent gap), and online quiz and testing tools (18 percent).
- Less growth was predicted for software tools for posting cases, questions, and problems (14 percent), file uploading and downloading (14 percent), and online databases (12 percent).

Useful Student-Oriented Tools

- Nearly all student-oriented tools were not employed as widely as respondents would have hoped. Respondent ratings of “highly useful” equaled or surpassed actual use for all tools listed. Hence, this was an area marked for potential growth.
- Learner collaboration tools fared best. Tools for learners to share best practices were rated as highly useful by 60 percent of the respondents, but were actually used by only 46 percent of their organizations. Tools for learner collaboration and teamwork were rated as highly useful by 54 percent and actually used by 41 percent.
- Perceptions of asynchronous discussion tools as highly useful matched their actual use at 42 percent. Real-time chat tools, however, were only deemed highly useful by 30 percent of respondent organizations and actually used by 27 percent of them.
- Learner profile or general background tools were rated as highly useful by 36 percent of respondents and used by just 25 percent of their organizations.

Growth Potential of Student-Oriented Collaborative Tools

- There were fairly substantive differences between perceived usefulness and actual use for student collaboration and sharing tools. Web-based learning tools with high growth potential included those that allowed learners to share best practices (29 percent) and tools for learner online collaboration and partnership (25 percent).
- Modest growth was projected for tools that provided learner profiles (19 percent), real-time forums or synchronous chats (17 percent), and asynchronous discussion forums (15 percent).

Useful Instructor-Oriented Tools

- All instructor-oriented tools were considered highly usable. In fact, high usefulness ratings were higher than actual use ratings for all these tools.
 - Online demonstration tools were viewed as highly useful by 52 percent of respondents. About 47 percent of respondent organizations actually used these tools.
 - Instructor feedback and annotation tools were used by only 33 percent of respondent organizations, but 48 percent deemed them highly useful.
-

- Online critical and creative thinking activities that instructors might incorporate into online courses were perceived as highly useful by 47 percent of survey participants, but only 28 percent of their organizations actually were using them.
- Tools for trainers to share tasks and activities were rated as highly useful by 45 percent of respondents, but were used by only 26 percent of them.
- Trainer profile tools were deemed highly useful by just one-fourth of respondents and a similar percentage actually used them.

Growth Potential of Instructor-Oriented Collaborative Tools

- A measure of potential tool growth was calculated for all tools based on differences between perceived usefulness and actual use. Of all areas surveyed here, the highest growth area was for instructor collaboration and sharing tools. Potential high growth areas included tools for trainers to share tasks and activities (30 percent), online tools for critical and creative thinking (29 percent), instructor feedback, commenting, and annotation tools (28 percent), and online technology demonstration tools (22 percent).
- Modest growth was projected for trainer profile tools (15 percent).

Useful Web-Resources for Online Training

- Web resources were less geared for growth.
- Search engines were used by 83 percent of the respondent organizations for instructional purposes, but only 56 percent found them highly useful.
- Digital libraries and online research guides were also viewed as highly useful by 56 percent of respondents. Sixty-eight percent of them noted that their organization used them in Web-based instruction.
- Web resources specific to training in one's field were deemed highly useful by 54 percent of respondents and were actually used by 58 percent of the organizations surveyed.
- Unlike the high support in our previous survey of college faculty, only forty-six percent of respondents perceived article and journal links as highly useful. Still, 57 percent were actually using such a feature.
- Other online resources with more modest support included online glossaries (41 percent perceived high usefulness, 40 percent actually used them), general training resources (33 percent high usefulness, 45 percent actual use), book recommendations (30 percent high usefulness, 44 percent actual use), Web link recommendations (22 percent high usefulness, 29 percent actual use), and online newsgroups (20 percent high usefulness, 30 percent actual use).

Growth Potential of Web Resources

- Web resources had the lowest perceived growth potential. The only item projected for high growth related to resources specific to training in one's field (21 percent).
 - Modest growth was predicted for online glossaries with Web examples (17 percent).
-

- Lower growth was predicted for general training resources (12 percent), digital libraries and online research guides (11 percent), article and journal link tools (10 percent), Web link suggestion tools (9 percent), book recommendation tools (7 percent), newsgroups (7 percent), and search engines (3 percent).

Pedagogical Practices for Corporate E-Learning (see 3.7)

Instructional Approaches

- Respondents rated 12 approaches to instruction according to whether they were best supported by online or traditional environments or were equally supported by these two environments.
- Respondents slightly favored online environments for exploratory or discovery learning (35 percent versus 15 percent), student-generated content (26 percent versus 18 percent), and case-based activities (18 percent versus 12 percent).
- They slightly favored traditional instructional settings over online ones for problem-based learning (21 percent versus 13 percent) and modeling of the solution process (28 percent versus 12 percent). Guided learning was nearly equally supported in both settings.
- Traditional environments received more support for group problem solving and collaborative tasks (42 percent versus 5 percent), Socratic questioning (44 percent versus 6 percent), role-play and simulations (49 versus 8 percent), discussion (46 versus 4 percent), coaching or mentoring (49 percent versus 5 percent), and lecturing (54 percent versus 4 percent). Still, at least half of the respondents felt that methods such as Socratic questioning and discussion would be equally supported in each type of environment.

Motivational Characteristics of Web-Based Learning

- Respondents rated the importance of 13 motivational principles in Web-based learning situations. Four of these principles were rated as highly important by more than 50 percent of the respondents, including relevant and meaningful materials (88 percent), timely and responsive feedback (78 percent), goal-driven and product-oriented activities (61 percent), and personal growth (51 percent).
 - Motivational principles with more modest support as highly important included flexibility in activities (49 percent), interactive and collaborative activities (47 percent), a sense of variety and novelty in activities (45 percent), engaging in discussion that involves multiple participants (41 percent), and a supportive community of learners (41 percent).
 - Lower still, were work-related incentives (wage increases, rewards, etc.) which 31 percent viewed as highly important, a safe climate with a sense of belongingness (29 percent), and online tension, conflict, and controversy (7 percent).
-

Specific Motivational Techniques

- Respondents also rated twelve specific motivational techniques that they found highly engaging and useful. The two techniques receiving more than 50 percent support from respondents as highly engaging and useful were cases or job reflections (59 percent) and brainstorming or idea sharing (53 percent).
- Group or team projects were considered highly engaging and useful by 41 percent of respondents, while electronic guests or mentors received slightly less support (34 percent) as highly engaging and useful.
- The remaining eight techniques received less than one-third support as highly engaging and useful. These included students leading discussion (32 percent), online symposia and expert panels (29 percent), online voting or polling activities (29 percent), e-mail pals and peer review (28 percent), role-play and debates (26 percent), article discussions and online critiques (26 percent), displaying student final products online (23 percent), and ice breakers and social tasks (17 percent).

Future Online Teaching Situation (see 3.8)**Predicted Online Teaching Situation**

- Of those who anticipated teaching or training during the next decade, online training is predicted to significantly increase. While more than half of the respondents (58 percent) viewed it as taking up 1-25 percent of their training time in the next year, 66 percent felt that it will require at least 26-50 percent of their time in just two years. Within 5 years, nearly 53 percent perceived that Web-based learning would command at least 50 percent of their training and instructional load. Within ten years, 67 percent of respondents felt that their instructional load would be at least 50 percent online.
- By the end of the decade nearly everyone anticipated that they would be training online; at least to some degree.
- Females expected to devote more instructional time to Web-based learning during the next decade than males; the differences were significant during the next two years.

Freelance Instruction

- In parallel to the college instructor survey, only 19 percent of the respondents had been freelance or adjunct instructors on the Web in the past.
 - Over 80 percent, however, were interested in teaching as freelance or adjunct online instructors in the next five years. Such findings indicate that services offered by freelance instructors may explode during the coming decade.
-

Obstacles Related to Web-Based Learning (see 3.9)

Obstacles to Web-Based Learning

- The primary cultural or organizational obstacle to Web-based learning, according to the respondents, was the perception of high cost (44 percent).
- Other serious cultural/organizational inhibitors to Web-based teaching and learning included instructor time to prepare courses (36 percent), resistance to technology (33 percent), the lack of organizational support (32), difficulty measuring ROI (27 percent), and a lack of training on how to use the Web (25 percent).
- One in five survey respondents pointed to a lack of interest as a barrier.
- Factors less problematic than expected included lack of time to learn to use the Web (14 percent) and time required of instructors to deliver online courses (10 percent).
- Forty-one percent of respondents identified bandwidth as the major technological obstacle to Web-based learning in their organization.
- Other technological obstacles included a lack of support for technical problems and assistance with courseware development (36 percent), firewalls (32 percent), a lack of hardware (30 percent), a lack of standards (24 percent), a shortage of equipment and software to display the Web (20 percent), a lack of interactivity (19 percent), and outdated or inadequate software (18 percent).
- Open-ended comments from survey participants were fairly blunt about the cultural and organizational factors limiting the adoption of the Web for training. Some respondents mentioned problems and issues such as a lack of vision, Web access and reliability, lack of time, inadequate funding, generation gaps, system limitations, and administrative bias and ignorance. Overall, survey respondents tended to focus on cultural and organizational inhibitors such as administrative vision and leadership rather than on technological concerns.

Supports Related to Web-Based Learning (see 3.10)

Support for Course Designers and Developers

- Designers and developers of Web-based courses were provided with a variety of training options. Conferences (33 percent) and workshops (31 percent) were the most popular. Slightly fewer respondent organizations provided access to experts or consultants (29 percent). Approximately one-fourth accessed vendors for training. Another fourth utilized Web-based courses for designer and developer training.
 - Only 22 percent of respondents were aware of Web-based training leading to certification of those designing or developing Web-based courses. Sixty-three percent of respondents indicated that online training did not lead to such certification, while another 15 percent simply did not know.
-

A few relied on special university classes, internal specialists, or self-study for professional training.

Support for Learners

- Three-fourths of respondents indicated that learners in their organizations accessed Web-based courses and content through their office computers. Slightly over 20 percent of these organizations relied on employee access from home. Only 2 percent relied on road access, and this related primarily to sales personnel.
- The primary resources organizations provided to support online learners were e-mail (54 percent) and desktop workstations (49 percent). The next most frequent forms of learner online support were online help (38 percent) and online tutorials (33 percent). Both laptop computers and computer labs were resources provided by about 30 percent of the organizations in this survey. Fifteen percent of organizations offered 24-hour phone support. Another 15 percent offered no support whatsoever.

Number of Languages for Online Training

- Thirty-five percent of respondents were aware of their organizations' efforts to develop Web courses in multiple languages. Fifty-three percent of respondents worked at organizations that were not interested or involved in such language support. The remaining twelve percent simply could not answer this question.
- Of the 68 respondents working in organizations attempting to address this issue, nearly 40 percent were still limited to one language format, 13 percent offered courses in 2 different languages, 4 percent in 3 languages, 15 percent in 4-6 languages, 6 percent in 7-10 languages, and nearly 5 percent in more than 10 languages. It was assumed that the eighteen percent who noted that the question did not apply were in the initial planning or development stages regarding this aspect of e-learning.
- Organizations of over 1,000 employees were significantly more likely to be developing multiple language Web-based courses than smaller organizations.

Completion of Web-Based Courses

- Reported course completion rates were fairly dismal. First of all, 55 percent of survey respondents either did not even know their completion rates or simply did not track them.
 - Twenty-two percent of respondents worked in organizations where fewer than one-fourth of all students completed their Web-based courses. Another 14 percent experienced slightly higher success with 26-50 percent of learners completing their online courses. Sixteen percent noted that 50-69 percent of their students successfully completed their online courses.
-

- On the other hand, nearly half of the respondents indicated that at least 70 percent of learners completed their online courses. Only two percent, however, experienced 100 percent completion rates.
- Both lack of time (46 percent) and lack of incentives (29 percent) were key reasons cited as to why learners dropped online courses. While poorly designed courses were mentioned by 17 percent of respondents, only 2 percent indicated that costs inhibited course completion.
- There were numerous other reasons cited for the high attrition rates including employee turnover, scheduling conflicts, lack of relevancy, dropped connections, procrastination, supervisor expectations, and learners acquiring what they needed to know and then dropping the course.

Incentives for Completion

- Part of the online course completion problem appeared attributable to the lack of incentives. In fact, 56 percent of the respondents pointed out that their organization provided no incentives, and of those that did, the most frequent incentive was increased job responsibility (18 percent).
- Other types of incentives included public recognition (15 percent), credits toward a degree or certification (11 percent), increased job security (9 percent), additional salary (8 percent), and promotion (7 percent).
- In open-ended responses, a couple of survey participants alluded to the importance of bonuses and other financial incentives.

Online Communities, Services, and Resources Needed (see 3.11)

Online Communities for Resource Sharing

- Respondents were asked about tools and resources that would interest them in a free community for the sharing of course resources and instructional ideas. The most popular features of such a community were online articles and newsletters (76 percent), professional links and resources (73 percent), expert advice (70 percent), Web resource sharing tools (70 percent), and courses, catalogs, and products (66 percent).
 - Several instruction-oriented features were also rated highly. For instance, respondents wanted answers to teaching problems (65 percent), tools for sharing stories of instructional experiences (59 percent), opportunities to share pedagogical ideas (55 percent), and pre-rated Web resources intended for corporate trainers (52 percent).
 - Other features with modest support included online trainer profiles (49 percent), online discussion and chat tool options (45 percent), and online book reviews (43 percent).
-

Useful Web-Based Services, Resources, and Information

- There was a myriad of Web-based services, resources, and information that respondents would like to have access to as a trainer or instructor.
- The top rated online service was online course design and development help (including guides, courses, workshops, newsletters, tutorials, and conferences). More than 80 percent of respondents acknowledged the importance of such resources. In addition, 72 percent wanted online teaching help (e.g., courses, guides, tutorials, workshops, conferences, etc.), while 63 percent indicated that online mentoring and tutoring services would be valuable.
- Other popular requests included various technology tools and resources. For instance, most respondents asked for Web-based survey and evaluation resources (75 percent), Web-based simulations and experiments (74 percent), and downloadable trial and demonstration software (72 percent).
- Other Web-based resources that respondents were interested in included online access to job opportunities (51 percent), courseware company listings (54 percent), bookstores (54 percent), conference information (57 percent), freelance teaching possibilities (61 percent), online course listings (63 percent), workshops and institutes (65 percent), and library and research resources (67 percent).
- Given that all these resources received more than 50 percent high support from the respondents, support portals and information resources appear to be ripe for growth. Clearly, trainers want fast and efficient access to information, resources, and instructional technologies.

Final Comments from Respondents (see 3.12)**Final Comments from Respondents**

- Several respondents noted a need for upper management support and vision. Others simply wanted better instructional design support. Still others mentioned the need for more interactive and effective Web-based learning tools.
- There was high interest in the findings of this survey. In fact, eighty-five percent of respondents wanted a copy of the final report.
- There were no problems with the survey other than a few complaints about the overall length.

Recommendations Based on Findings (see 4.0)

Based on these findings, fifteen key recommendations were generated for trainers, training managers, tool developers, and researchers. These recommendations are listed below according to the order in which they are discussed in Part III of this survey report. In addition, a few future trends were noted.

1. **Focused Research (see Section 3.1):** Respondents to this survey represented a wide range of organizations, job functions, and experiences. Future research might target particular industries, sizes of organizations, or job functions. Such research will help with product marketing and tool development efforts.
 2. **Longitudinal Reports (see Section 3.2 and 3.3):** As with other reports, the data reported here clearly showed that the Web is emerging as one of the preferred methods of employee training. Longitudinal research might explore these trends over the coming years or decades. For instance, such research might track attitudes about organizational support structures as well as employee attitudes and achievement related to these new forms of delivering training. It might also longitudinally explore differences between organizational interest and commitment in Web-based learning, as well as the types of online delivery methods utilized and promoted. Additional research might reveal where and when blended approaches are preferred to either fully online approaches or conventional face-to-face training. Other possible longitudinal variables include the reasons various organizations are interested in Web-based training, the types of training offered, and the chief reasons behind outsourcing the development and delivery of Web-based content.
 3. **Evaluation and Assessment (see Section 3.4):** Alternative online assessment measures need to be developed that address employee skills and competencies. Given the findings of this survey, organizations should evaluate the completion rates of their courses as well as the motivational characteristics embedded within them. In addition, time to competency measures might be added to, or in some cases, replace traditional ROI measures. Along with changes in assessment practices, there is a need for comprehensive documents that survey the forms of online assessment and evaluation commonly used. Such documents might also provide case examples of success stories and potential problems in assessment.
 4. **Use of Learning Objects (see Section 3.5 and 3.11):** Organizations should consider how the use of learning objects in instruction relates to their strategic planning, including their knowledge management efforts. Such planning documents are vital since the use of reusable learning objects in online instruction will proliferate during the coming decade. Of course, the growth of this field will depend on the development of effective standards for shareable courseware. Decisions must be made regarding the size and type of objects shared, systems and tools used for sharing, and the ownership and use of learning objects.
 5. **Online Learning Policies and Procedures (see Section 3.5):** Most organizations still need to develop strategic plans related to e-learning. They might develop guidelines as to acceptable levels of student course completion, skill retention, employee satisfaction, and return on investment. In some instances, they will need to develop clear policies regarding the ownership of online course materials and applicable royalties. Organizations with significant training concerns might adopt policies related to instructors and other employees who provide freelance
-

- online instruction for other institutions or organizations. They might also attempt to clearly articulate why certain courseware tools, policies, and expectations have been adopted related to Web-based instruction.
6. **High Growth Tool Development Efforts (see Sections 3.6 and 3.7):** Few online software tools address the diversity of instructional and learning needs mentioned by participants of this survey. High growth areas revealed in this survey included tools for online course evaluation, instructor demonstrations, student task collaboration as well as story telling, trainer task collaboration, learner critical and creative thinking, instructor feedback and annotations, and Web resources specific to one's field. As both this and our previous survey report indicated, there is a dearth of pedagogically interactive and motivating activities within Web-based learning environments. The first organization to develop a suite of pedagogical tools or templates addressing motivation, teamwork, and critical or creative thinking (e.g., tools for debate, role-play, brainstorming, timeline, etc.) will add significant value to the present state of learning management systems and instructional courseware. Finally, as online learning globally extends around the world, tools for language support will be increasingly requested and required.
 7. **Tool Development Partnerships (see Sections 3.6 and 3.7):** Courseware companies might seek partnerships for tool development and testing with universities and institutes that have well-established learning technology, information science, and instructional design departments. In serving as a testbed for emerging tools, technology centers at those universities and institutes can research and showcase product innovations. They might also spearhead significant research grant proposals and help form institutional consortia. With numerous technology, content, and service providers, partnerships among firms and universities can bridge knowledge gaps and provide comprehensive as well as competitive solutions.
 8. **Training the Trainer (see Section 3.6, 3.7, 3.8, and 3.11):** Corporations and other learning organizations need to consider not just the learners but, if facilitators, mentors, or synchronous instructors are utilized, the trainers of those learners. It will be difficult to train in the online world without a new skill set. External supports such as Web resources, online "Train the Trainer" courses and institutes, asynchronous discussion forums and communities, online mentoring, and noted experts and consultants can offer instructional assistance. Internally, intranets can provide rich training resources and alternative avenues of such support. In effect, instructional design support and guidelines can help reduce the tension felt by those teaching online for the first time. Of course, adequate time to learn the new systems and tools is vital. While there are masses of available training resources, the use of Web-based training courses and resources is a growing area for e-learning service companies.
 9. **Freelance Instructors and Designers (see Section 3.8 and 3.11):** Our survey respondents predicted fast growth for freelance instruction. How their instruction,
-

training, and consulting wares are bartered online remains an open issue, however. Already one can list e-learning needs using “request for proposal” forms from THINQ as well as hire experts from an array of disciplines listed online at Hungry Minds University. Other innovative organizations might create tools or systems that foster instructor exchange programs, trainer-to-trainer online mentoring, trainer online job-sharing, instructional resource exchanges, and instructor communities in the area of e-learning. Expert pools and knowledge exchange programs might be common in the near future not only for corporate trainers and instructors but instructional designers as well.

10. **Organizational Promotion (see Sections 3.09 and 3.10):** Employees need to be aware of their online learning options. Marketing new courses with testimonials and up-to-date information will help convince people to take the online course. There should also be incentives for trainers, instructors, and instructional designers for high quality course design and delivery.
 11. **Organizational Support (see Sections 3.09 and 3.10):** An organization must support a range of people within its e-learning initiatives. For instance, online learners need adequate technology access and organizational policies that help them to complete their online course requirements. Instructional designers new to e-learning require training, system support, and perhaps even certification. At the same time, online trainers need new skills as well as access to examples of best pedagogical practices for synchronous and asynchronous delivery systems. Finally, training evaluators need access to data from e-learning courses and events. All these e-learning stakeholders and participants demand attention and support for e-learning success.
 12. **Information Portals (see Section 3.11):** The survey uncovered a need for online resources such as newsletters, information on training institutes, course catalogs, library resources, survey and evaluation tools, and course design guidelines for online training and instruction. As this area emerges, there is a pressing need to make sense of the available courses, course platforms or learner-management systems, Web-based delivery tools, and online resources. While a number of e-learning information portals and reports are emerging, there remain many areas for development, including the documentation of the companies in this area, the sharing of best practices and online documents, and the generation of online trainer ratings.
 13. **Online Communities (see Section 3.11):** The survey results also exposed a need for an online community of instructors and instructional designers. Trainers and instructors want expert advice, answers to teaching problems, stories of online experiences, and mentoring services. While primitive forms of such communities exist, none address all these needs.
 14. **Access to Informed Research (see Section 3.1-3.12):** Studies of Web-based learning in training settings are not as readily available as reports from higher
-

education (Bonk & Wisner, 2000). However, summary reports from higher education, the military, and non-profit institutes can inform people engaged in the development of online training in corporate settings. Corporations and training organizations might also sponsor research and white papers in areas where gaps exist in the literature. Such research might also target perceived e-learning obstacles, assessment practices, or adult motivation to complete online courses. Training departments might partner with universities, consultants, or software development companies in these efforts. Where possible, the results of such research should be shared within the e-learning community.

15. **Other Online Learning Reports (see Section 3.12):** Other than perhaps Brandon-Hall.com and the Masie Center, few firms provide consistent and comprehensive access to e-learning reports and related resources. E-learning reports and white papers can help organizations understand complex terminology, provide vendor guidance, and summarize research and development efforts. The type of tools and content available for Web-based instruction can be confusing. Additional assistance in this area would be welcome.

Future Trends. There are many exciting as well as challenging directions for online training in this online world. While accurate predictions of next steps are difficult, a dozen recently popular trends and topics are briefly discussed at the end of this report including mobile learning, virtual universities, learning objects, electronic books, online standards, knowledge management, online mentoring, and intelligent tutors.

1. INTRODUCTION AND OVERVIEW

Welcome to the second of at least two reports related to instruction on the Internet. The first survey report of 222 college faculty who were early adopters of the Web, “Online Teaching in an Online World” (Bonk, 2001), detailed the online learning needs, experiences, attitudes, obstacles, and tool preferences of college instructors. But online learning is having a parallel, if not more significant, impact in the corporate world (Meister, 1998). Accordingly, the interesting trends and findings revealed in the higher education report prompted numerous questions about the state of online training within corporate and other settings. Would there be similar driving forces, experiences, and preferences for e-learning in business and other training settings? Would there also be a dramatic shift in anticipated time spent teaching online in industry as was found in higher education? What trends would hold and which new ones would emerge? What issues would be most prominent? What types of tools and tasks would distinguish corporate e-learning from that found in higher education?

The aim of this particular report, “Online Training in an Online World,” is to understand the state of online training (i.e., the e-learning attitudes, experiences, obstacles, tool preferences, etc., of corporate trainers and instructors) across a variety of settings and job functions. Whereas our initial survey report focused on the online learning needs and supports of higher education faculty, this second study, “Online Training in an Online World,” addresses similar issues in the corporate workplace. As traditional forms of “training” give way to online “learning solutions” (Report of the Commission on Technology and Adult Learning, 2001), there is a need to explore new forms of instruction, assessment, and certification. In response, 201 trainers, instructional designers, training managers, administrators, and other training personnel were surveyed in this particular study. After detailing the survey results and conclusions, a set of recommendations and projected future trends are proposed related to online learning in the workplace.

1.1 What is E-Learning?

When people such as John Chambers, CEO of Cisco Systems, argue “e-learning is the killer app of the Internet” and its use will “make email look like a rounding error,” people start paying attention (Galagan, 2001). Chambers believes that e-learning will change the way schools and universities teach, the way students approach learning, and the way businesses help keep employee skills up-to-date. Of course, Cisco’s future (i.e., router sales) is greatly impacted by the number of people seeking training and education via the Internet. And the future does indeed look bright for such training! For instance, while only 15 percent of U.S. households had Internet access in 1997, by 2003, nearly 63 percent are projected to have such access (Urda & Weggen, 2000).

E-learning, a recently popular topic,¹ has moved the possibility for training to any Web browser. It allows for student time and place independence, expanded distribution of course materials, greater control over the quality of the learning materials, the shortening of training time, lower travel costs, the tailoring of instruction to individual needs, smaller units of instruction, automatic creation of student activity records and completion logs, easily updated content, and the potential for greater interactivity (Bittner, 2000; Kaeter, 2000; Urdan & Weggen, 2000). E-learning can be delivered in either a self-paced (and primarily asynchronous) format or through a virtual classroom with live (or synchronous) access (CIO Supplement, 2001a). At the same time, it may require more dedicated and disciplined learners as well as those who have the motivation and confidence to succeed (Urdan & Weggen, 2000).

The Report of the Commission on Technology and Adult Learning (2001) defines e-learning as “instructional content or learning experiences delivered or enabled by electronic technology.” That report focused on how e-learning impacted adults. It spoke of “technology-enabled learning designed to increase workers’ knowledge and skills so that they can be more productive, find and keep high-quality jobs, advance in their careers, and have a positive impact on the success of their employees, their families and their communities.” In effect, it is both adult-centered and related to the workplace. In that particular report, the Commission challenged business leaders to utilize e-learning as a means of boosting productivity and performance gains by integrating it within organizational strategies and operations. Of course, state policy and higher education institution initiatives play a vital role in meeting such training needs. A recent report on “The State of E-Learning in the States” from the National Governors Association (2001) detailed a plethora of examples of how states and their respective postsecondary institutions are designing new delivery systems, adding infrastructure, upgrading instructor skills, fostering technology and Internet access, and making key strategic decisions related to e-learning. When these states and institutions are successful, e-learning becomes part of the quick and nimble new economy (Fortune, 2000).

According corporate learning guru Jeanne Meister (1998), President and Founder of the Corporate University Xchange (CUX), e-learning tools and practices will continue to grow in importance during the coming decade. There are many reasons why e-learning is entering the workplace. Firms view it as a new way to deliver instruction, boost worker productivity, broaden training opportunities, reduce costs, eliminate instructors, stay competitive, improve motivation and morale, and implement strategic initiatives. Travel costs are supposedly reduced since training is now locally available for off-site personnel, instructors are not held to certain geographic boundaries, and more students can view presentations simultaneously (Hall, 2000b). There are also cost savings from fewer hours away from the workplace and lower internal training expenses. And after the events of September 11, 2001, there is a distinct psychological advantage in attending training virtually, instead of physically, given the pervasive fears of travel and hassles of additional security precautions (Tedeschi, 2001).

¹ In this report, e-learning, Web-based training, Web-based learning, and online learning are used somewhat interchangeably since they refer to the similar activities, including, but not necessarily limited to, both synchronous and asynchronous training on the Internet.

In addition, some analysts believe that the belt tightening of the current economy will force many firms to adopt e-learning as a means of reducing travel costs (Welber, 2001). And while technology spending is down, there are indications that existing training dollars will increasingly shift from live instruction to the Web. As this occurs, e-learning becomes more than a fad, but a way to deliver value to a company.

Despite the advantages stated above, some organizations are admittedly slow to adopt the Web for their training needs. Part of the reason for their hesitation is the variability in system features, product support, functionality, infrastructure requirements, and pricing. In addition, e-learning is a broad term that vendors too often define according to their individual needs and product capabilities. The vagueness of the term fuels questions about what is an effective e-learning strategy or program. Questions abound regarding how top management can lead and support new visions of learning. Goals need to be set regarding what percent of training should now be conducted online. Decisions must be made about e-learning vendors and specific technology platforms. Impacting these decisions are obvious questions about the implementation and sustainability of available learning management systems.

Even when these issues are resolved, online trainers and instructors still face the difficult dilemma of how to motivate employees to take and complete online courses given their hectic lifestyles as well as how to help employees transfer what they learn back to the workplace (Fortune, 2000). To assist them in these efforts, trainers need effective assessment and evaluation techniques. Of course, in the midst of these serious questions and issues, some simply want to know if and when human instructors can be replaced.

1.2 E-Learning Decisions

Sometimes the question is not about replacing human-taught courses with online self-directed content. Instead, the issue is how to blend the two or when to implement a human touch within the online course (Fortune, 2000). Just how can an organization integrate collaborative opportunities and live mentoring with rich Internet resources? How might combining e-mail, chats, online discussion, and other communication tools with instructors, mentors, and other students impact the training environment? And just how motivational is the climate of online instruction? In terms of motivation, will employees perceive e-learning as electronic page turning or as a fun and engaging learning opportunity?

Learner engagement may be the most vital issue to address when adopting e-learning. In fact, Bill Wiggenhorn, former President of Motorola University, recently claimed that a crucial part of the success of e-learning at Motorola was the support and mentoring provided to learners. "If you just throw a program at them, with no support, only 10 percent complete it. But if you give them technical support, online assistance, coaching, or mentoring, and an environment where they can concentrate, then that makes all the difference" (Fortune, 2000). He further notes that Motorola more than doubled the completion rate of one class when there were three or more interactions with the

instructor during the coursework. Documentation of such success is important since the current 12 days per year of mandatory training for each professional at Motorola is predicted to grow to 32 days by the year 2015.

What other types of support might online learners need? Companies might provide employees with wireless access to online courses to extend the reach of a course. As companies become increasingly global, they might also provide multiple language support for their online classes. Organizations might acquire e-learning systems that contain electronic tutors that can explain, visualize, or virtually depict unclear concepts or procedures (Report of the Commission on Technology and Adult Learning, 2001). They might also attempt to use chunks of knowledge from one course or program in another so as to boost student understanding of a topic and add cost efficiencies in content creation and delivery. Management of those reusable training components is already central to one's competitive edge. As ideas about learning objects become more accepted and utilized, there will be new methods of learner assessment as well as unique opportunities for certification and training (Report of the Commission on Technology and Adult Learning, 2001). In addition, companies will increasingly face thorny decisions about how their knowledge management systems link to their e-learning initiatives.

Recent business buzzwords, such as "e-learning," "learning organizations," and "communities of practice," indicate that the management of learning is growing in importance. Chief Learning Officers (CLOs) and Chief Knowledge Officers (CKOs) are often charged with overseeing a company's learning programs and new initiatives (Baldwin & Danielson, 2001; Fortune, 2000). Baldwin and Danielson's (2000) interviews of ten leading CLOs in America, for instance, illustrated the diversity of this position as well as the need to be strategic and produce a tangible return on any investment in learning. At a more tactical level, with the rise and fall of so many e-learning vendors in the present market, CLOs and training directors are faced with tough decisions about what million dollar learning management system (LMS) to install as well as what prepackaged content they might acquire. Can they turn e-learning into a profit center for the organization rather than a cost center? What types of content will employees and management find most popular and beneficial? For instance, should investments in e-learning target leadership, professional development, personal development, work teams, communications, sales, customer service, and other soft skills, or should these monies be spent on technical training and computer programming? Just what are the next steps?

Of course, many e-learning critics question whether management can actually document savings due to e-learning initiatives. They also doubt whether e-learning vendors will provide adequate support. And some wonder if e-learning is shown to be effective, whether CLOs and CKOs will attempt to facilitate the sharing of knowledge instead of continuing to reward the hoarding of it (CIO Advertising Supplement, 2001b).

Clearly, there are a plethora of questions surrounding this new training delivery mechanism. Are course completion rates higher or lower than in conventional classroom

training environments? What types of new assessments will be valued and increasingly common? And how will success be rewarded?

To help determine whether an organization should adopt e-learning, Terri Anderson (2002) extensively detailed a set of questions related to five critical e-learning success factors. These factors included assessing or evaluating corporate culture and readiness for e-learning, specific content and programs, internal capabilities or infrastructure, cost options of the initiative, and the targeted clients or employees. She argued that evaluating these five Cs—culture, content, capability, cost, and clients—would help organizations acknowledge and address a wide range of e-learning issues confronting them.

Despite many questions and concerns, e-learning has quickly impacted corporate training in a variety of ways. It has altered training goals and expectations. It has also created a mechanism to develop and implement programs when and where needed. Fortunately, our survey targeted training personnel who were more likely than others to have interests and experiences in online training. This final report is intended to provide insights into the future directions of online training as well as to identify the gaps in tool and courseware development efforts.

1.3 Reports on the E-Learning Market

Education in the United States is estimated to be an industry worth around \$800 billion (Devaney, 2001; Urdan & Weggen, 2000). Of that figure, some \$54 billion was budgeted for formal training in U.S. corporations in 2000 (TRAINING Magazine Staff, 2000). Equally impressive, some cite figures that the total dollar value of all e-learning products and services amounted to about \$7 billion in 2000, and will grow to over \$40 billion by the year 2005 (National Governors Association, 2001). International Data Corporation (IDC) notes that while e-learning was only about \$550 million market in the U.S. in 1998, it is expected to climb to \$11.4 billion by 2003 (Fortune, 2000). Numerous white papers and reports discuss new economic markets and opportunities for e-learning (Upitis, 1999). While the current sluggishness in the economy has, naturally, reduced venture capital and associated market projections (Red Herring, 2002), many e-learning tools and systems continue to emerge (Barron, 2001). Globally, the e-learning industry comprises nearly 5,000 suppliers, with no single vendor holding more than 5 percent of the total market (Report of the Commission on Technology and Adult Learning, 2001).

In terms of e-learning courseware and content providers, there are hundreds of options, thereby making it difficult to determine the right system for an organization (Hall, 2000a, 2000b). According to Brandon Hall, implementation of a learning management system (LMS) system averaged over 115,000 learners in 2000 compared to only about 40,000 learners in 1997. And such efforts are costly! An LMS system serving 20,000 users might cost a half million for the software plus \$50,000 to \$100,000 for delivery and implementation efforts (Eklund, 2001). Nevertheless, there are predictions that 60 percent of all companies will soon have an LMS platform in place. An LMS is now deemed vital to the management of corporate training and intellectual capital.

At the same time, there has been an explosion of corporate universities. In just 13 years, these have grown from 400 to 1,800. Jeanne Meister predicts that the number of corporate universities will exceed traditional ones by 2010 (Fortune, 2000). With these trends, there are movements away from single event-based live training, to continuous and collaborative learning where learners share best practices and ideas (Meister, 1998).

The Report of the Commission on Technology and Adult Learning (2001) cites statistics related to the need for more skills and knowledge to compete in the new economy. Fully 85 percent of new jobs will require at least a high school education compared to just 65 percent a decade earlier. The need for more education at all levels combined with extremely hectic lifestyles has forced individuals, companies, and governments to deal with e-learning issues perhaps faster than any other educational innovation of the past two centuries.

1.4 Purpose of the Study

This study explores many issues and dilemmas in e-learning. For instance, it documents the instructional approaches that favor either online or traditional environments. It also provides information related to the principles of motivation deemed effective in online training as well as specific techniques that might be utilized. Naturally, currently available Web-based learning tools set limits on such instructional activities. Consequently, respondents were asked about their e-learning tool preferences and current situations. The survey also inquires about the use of learning objects, the content areas best suited for online training, the technological and cultural obstacles limiting the adoption of e-learning, the forms of support offered to online learners as well as developers of that instruction, and many other issues. There seem to be limitless opportunities to exploit the Web in corporate and other training settings. To help those in the midst of difficult e-learning decisions, this survey report documents some of these opportunities and challenges.

Whereas our earlier report of higher education focused on pedagogical ideas and experiences, the corporate world has different concerns and terminology. For instance, while higher education assumes that online learning is instructor led and typically asynchronous, e-learning in the corporate world has often become synonymous with self-paced asynchronous instruction, most often without instructor presence, or synchronous instruction with an instructor. Such differences between e-learning in higher education instruction and corporate training confound the use of this term. In fact, many favorable calculations of return on investment are based on the absence of a live instructor. This situation begs many questions. For instance, why do most vendors assume that e-learning denotes a form of learning void of human guidance (Massie, 2002)? How does one know that learning has taken place online if there is no instructor to verify the results? What are the symbiotic roles of Web-based learning technologies and online instructors as technical skills fall into obsolescence (Oblinger & Maruyama, 1996)? And will soft skills require more online advice and mentoring than technical skill training?

The present study attempts to determine the current state of e-learning in corporate and other training settings. What are student completion rates? How are online courses being delivered? What types of courses are typically delivered online? What levels of assessment are employed in different e-learning settings? And what supports and resources are available to e-learners and trainers?

While other e-learning surveys look at specific technology system choices, this particular study is more comprehensive. For instance, it attempts to understand trainer attitudes, experiences, preferences, and online support structures as well as prevalent pedagogical tools and practices. Hopefully, this report will assist in the design of better e-learning tools and systems as well as e-learning teaching methods. Like the recent comparative analysis of e-learning publishers from Lguide (2001), this report can also serve as a barometer for corporations considering online courses and programs. It is also intended as a guidepost for trainers and instructors first encountering online training in this online world.

This report, co-sponsored by Jones Knowledge, Inc. and CourseShare.com, is based on a survey of 201 training and human resource professionals. This survey report is intended to inform corporate executives, trainers, instructional designers, and e-learning companies of the benefits and challenges of using Web-based learning tools in corporate and various other training settings. It also offers suggestions about the types of tools, activities, resources, and support structures that might enhance online training. Just why are different firms and organizations interested in placing their training on the Web and how are they allocating resources to support it?

This survey report provides descriptive information about the types of online learning formats and tools currently found in corporate settings. It has many key goals, including:

1. To assess corporate interest in and commitment to e-learning.
2. To identify the e-learning resources and tools that trainers use as well as desire.
3. To document pedagogical practices and motivational techniques supported by e-learning within different training environments.
4. To detail the typical cultural and technological obstacles to e-learning.
5. To reveal the support structures for online learners, trainers, and course designers.
6. To point to future trends and directions in e-learning.

In addition to these goals, this study documents how e-learning personnel are being trained and supported as well as the incentives and supports provided to e-learners in the workplace. It also details the types of online tools and activities that trainers, instructors, and instructional designers prefer as well as employ. Furthermore, this survey explores the current technological limitations of e-learning in corporate training environments. It addresses perceptions of controversial online learning issues such as course ownership, online program accreditation, knowledge object sharing, online teaching and learning opportunities, and the general commitment to e-learning. The conclusions are intended to assist those deliberating on important e-learning policies or purchasing decisions as well as those teaching in or developing materials for online environments. The findings are also aimed at e-learning companies developing tools for online teaching and learning.

2. METHODS AND DATA

2.1 Methodological Overview

As with any research technique utilizing technology, online surveys have numerous advantages and disadvantages. On the positive side, online surveys tools such as SurveyShare, Infopoll, and Zoomerang speed up data collection and analysis processes. Web-based surveys are also often easier to complete than comparable paper-based questionnaires (Kaye & Johnson, 1999; Medlin, Roy, & Chai, 1999). E-mail surveys can also extend the reach of survey research to a diverse set of respondents while maintaining their anonymity (Sheehan & Hoy, 1999). At the same time, however, slow Internet connection speeds, lengthy procedures, unclear instructions, novel Internet tools, unsolicited respondents, and a general lack of time all negatively impact online surveys (Bosnjak & Tuten, 2001; Solomon, 2001). Moreover, e-mail solicitations tend to have many undeliverable addressees as well as respondents who are offended by perceptions of aggressive e-mail solicitation (Sheehan & Hoy, 1999).

Given these issues, it was important to find a reputable electronic database of human resource personnel, corporate trainers, instructional designers, training managers, etc., for this survey. Unlike the higher education survey we had conducted six months previously, there was no readily accessible online community of corporate trainers with extensive online training experience. Hence, as detailed in the next section, we relied on e-mail lists maintained by a leader in corporate training and online learning solicitations.

2.2 Sampling Procedures

Our respondent sampling was conducted in two phases. After crafting an e-mail message in April 2001, it was sent for distribution to e-PostDirect, the List Manager for Bill Communications, now VNU Business Media. That e-mail message was sent to 5,000 individuals from e-PostDirect's Training and Human Resource database of over 60,000 names. Importantly, this database included names from magazines and conferences such as Presentations, Successful Meetings, Online Learning, Training, Training Directors' Forum, and Creative Training Techniques.

While this database was large and somewhat focused, the response rate was lower than expected. Unfortunately, the list manager did not allow for personalized email cover letters, follow-up reminders, prenotification of the intent to survey, and other factors shown to increase response rates (Solomon, 2001). In addition, these were both opt-in, permission-based e-mail lists. According to Branstetter (2001), the response rate of an opt-in e-mail list averages between 2 to 8 percent. The response here was slightly lower with only 50 individuals or a mere 1 percent response rate, completing the survey. Hence, there was a need for a more targeted solicitation as well as some incentives.

In May 2001, a second invitation went to an additional 5,000 names, 2,500 from subscribers to Training Magazine and 2,500 subscribers to Online Learning Magazine. In

addition, four randomly selected survey respondents were sent gift certificates ranging from \$50 to \$100. Invited participants received a refined e-mail solicitation with the same incentives for completion. Over 150 completed surveys resulted from this solicitation or about a 3 percent response rate.

The combined survey solicitations in April and May 2001 resulted in 201 completed surveys from a diverse set of training respondents. While the sampling was heavily weighted with subscribers to Training and Online Learning Magazines, at least most respondents were interested in training and/or online learning. In fact, the survey data revealed that nearly 80 percent of our respondents read magazines or journals related to e-learning and nearly all read training related publications.

2.3 Limitations of the Study

As with most online surveys, the present project had several limitations that may have constrained the results and generalizability of the study:

- **Web Experienced or Interested Sample:** First of all, the sample was derived from listings of e-PostDirect; using participant lists from such conferences as Online Learning and Training Directors' Forum. Selection of this database may have biased the sample with more Web-savvy and interested respondents, thereby inflating the positive tone of the results reported here. The use of other email name listings may have provided different results.
 - **Web Technology in a State of Flux:** Tools for teaching and learning on the Web are constantly changing. As a result, it is difficult to generalize many of the findings of this survey.
 - **Low Response Rate:** As with many e-mail surveys, the response rate was extremely low (Cho & LaRose, 1999). The online survey instrument was relatively lengthy, effectively lowering the response rate and perhaps causing some inaccurate or skipped responses.
 - **Many Potential Technology-Related Problems:** While online research is faster and less costly than traditional methods, there are many potential measurement problems and issues (Solomon, 2001). For instance, people taking Web-based surveys might split their attention across different activities and applications. They might also walk away from the survey and return minutes, hours, or days later, or ask others to respond to the survey for them (Miller, 2001). Web browsers can also distort items such as rating scales that alter or skew the distance between scale points. At the same time, long surveys usually require tedious scrolling that may be hindered by Internet bandwidth of both the user and the provider as well as limited attention spans of the survey participants. In addition, unlike our earlier higher education survey, this particular survey did not require a key code, password, or other security clearance features.
-

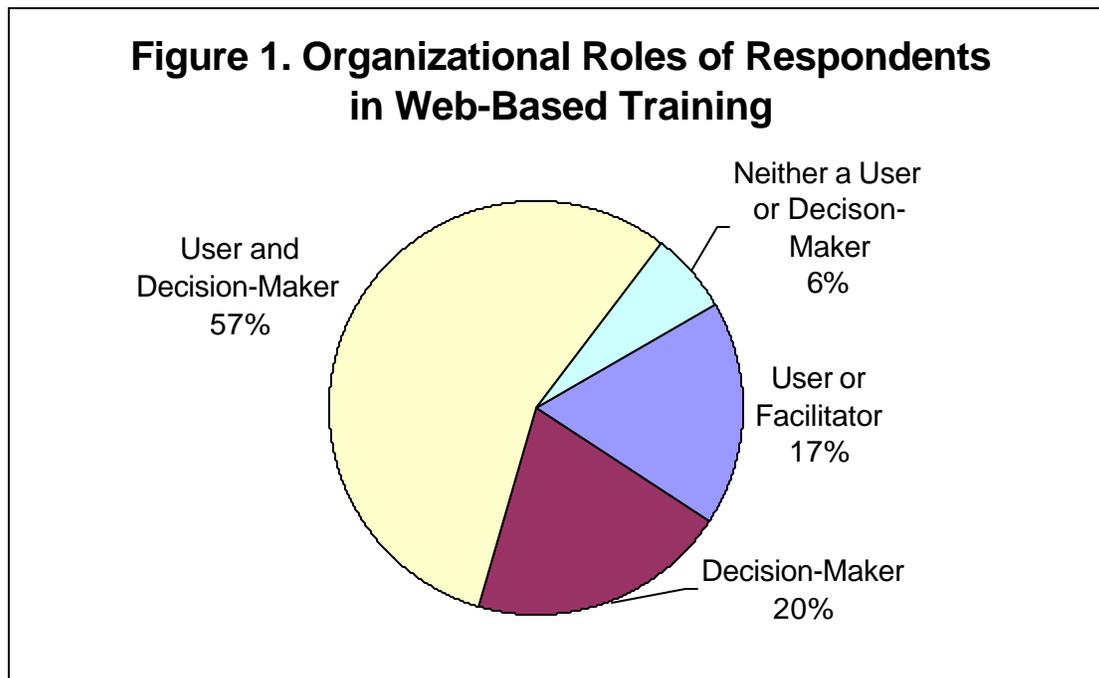
- **Broad Respondent Backgrounds:** This survey report included many learning, training, and human resource professionals with widely varied job functions including training directors, instructional designers, Chief Learning Officers, media producers, training consultants, corporate presidents, and systems administrators. As a result, it is difficult to generalize the findings reported here to a particular job function or position.
- **Several Key Issues Not Addressed:** In an effort to keep the survey at a manageable length, the online training survey did not address several key issues such as the specific ways online learning was assessed, how return on investment of e-learning was calculated, the levels of corporate funding for e-learning, the pros and cons of different learning management systems, the specific courses and certificates offered online, the forms of online training for instructors, and the types of technical support provided for learners and trainers working online. It was hoped that future studies would address such issues.

Despite these limitations, we believe there are a multitude of useful, interesting, and timely results emanating from this survey. In addition, many of the above limitations have equally debatable advantages. For example, the Web-savvy nature of many of our respondents likely provided more pertinent information and suggestions than would have been obtained from those without such interests or prior experiences.

3. FINDINGS

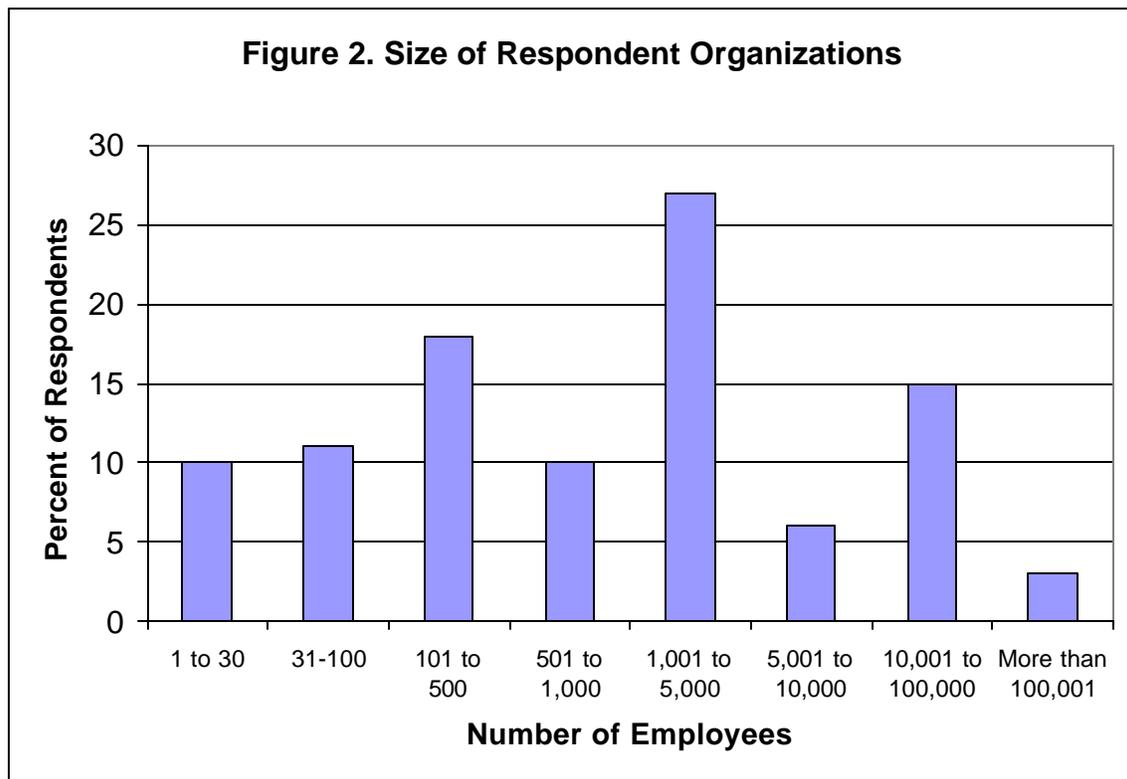
3.1 Background of Respondents and Respondent Organizations

Description of Survey Respondents. Nearly 94 percent of our sample was composed of individuals who were directly involved in either using or overseeing the implementation of Web-based training initiatives (see Figure 1). Only about 6 percent of the respondents were not currently involved in Web-based training either as a facilitator/user or decision-maker. Slightly more individuals indicated that they were solely decision-makers (20 percent) as opposed to users but not decision-makers (17 percent), but over half of the respondents characterized themselves as both users and decision-makers. This high percent of e-learning involvement among our respondents lends credibility to the sample. In addition, several of the respondents who were neither decisions makers nor users, were aware that their organization was currently evaluating proposals for Web-based training.

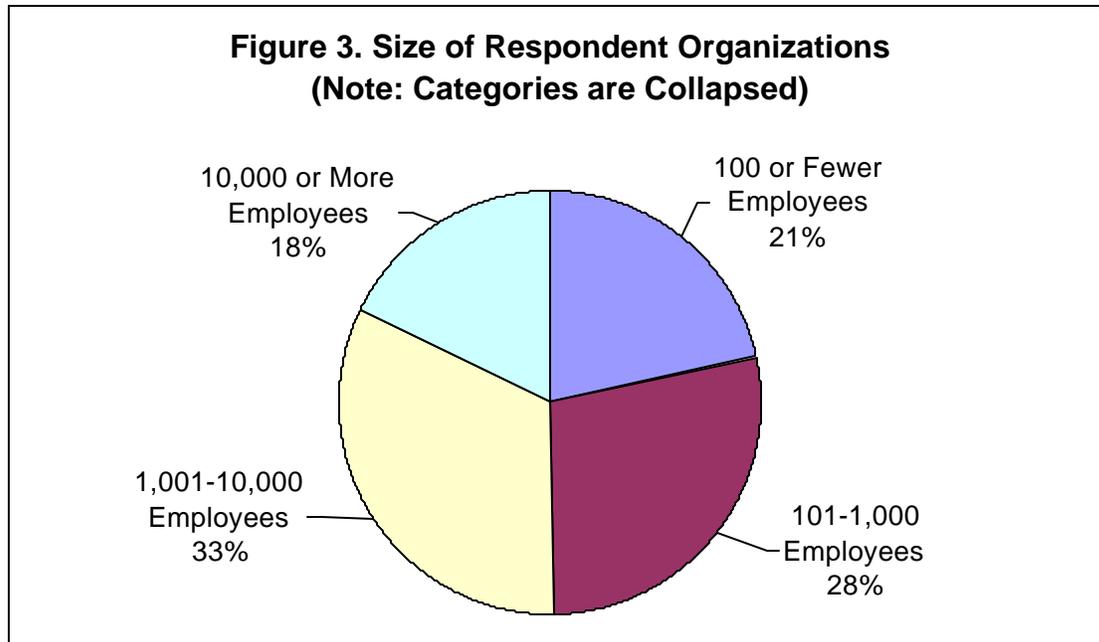


Size of Respondent Organizations. In terms of sheer size of employees, this survey investigated a broad spectrum of organizations. As shown in Figure 2, more than one-fourth of the respondents were employed in organizations with between 1,001 and 5,000 employees. Many were employed at small firms and start-up companies. For instance, 10 percent of them worked at places with 30 or less employees and another 10 percent worked at places with between 31 and 100 employees. Nearly half were employed at firms with less than 1,000 people, whereas only 3 percent came from large organizations of over 100,000 employees.

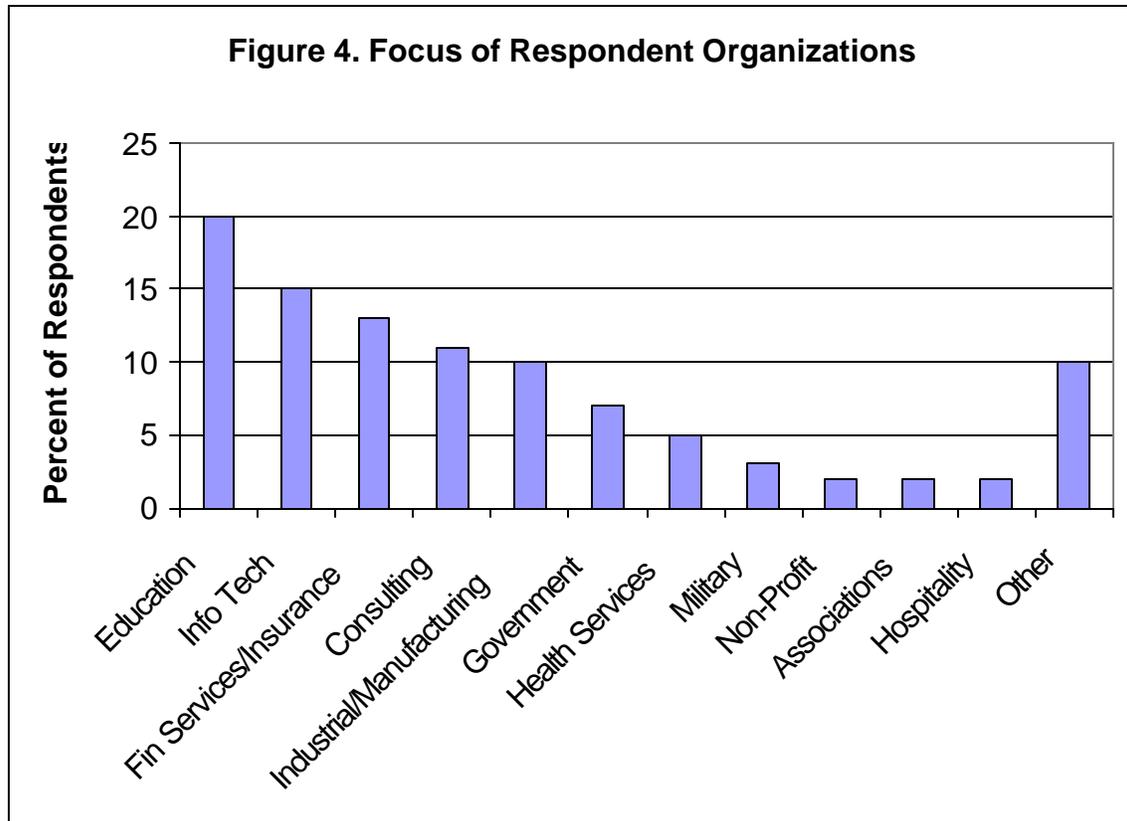
Why is this important? Bob Burke (2000) contends that e-learning levels the playing field by providing greater access to employee training and education, which is perhaps the most critical component of business performance. According to Burke, small businesses are employing e-learning since it is less expensive than other forms of training and education. While learners can sign on when convenient, the courses they take online are current and specific to their needs. Moreover, the courses are most often self-paced and private. Finally, Burke argues that e-learning sharpens employee computer skills. Hence, it was crucial that our sample represented both smaller and larger organizations since e-learning benefits were likely recognized in different ways by our respondents.



As displayed in Figure 3, the organizational size of the respondents appeared more balanced when collapsing some of the categories. For instance, while 21 percent of the respondents worked in organizations with 100 or fewer employees, 18 percent were employed by organizations with over 10,000 workers (as indicated, only 2.5 percent were from companies with over 100,000 employees). Most respondents however fell in the middle, with 28 percent working for organizations with between 101 and 1,000 employees and 33 percent working for organizations employing between 1,001 and 10,000 workers. Such balance lends additional credibility and generalizability to the results.



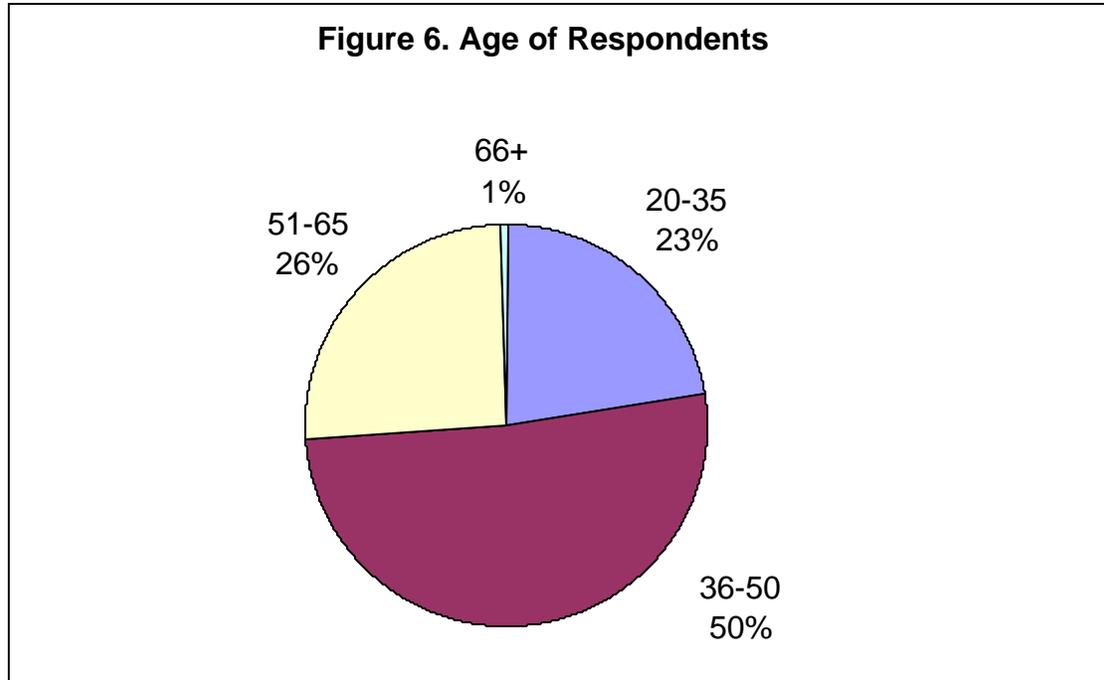
Type of Organization. Now that we know the size of organization, it is also important to understand the type of organization the responses were drawn from. As expected, our respondents represented many different industry types. Figure 4 shows that the largest percent of respondents were from the field of education (20 percent). Other industry types included information technology (15 percent), financial services/insurance (13 percent), consulting or contracting (11 percent), industrial/manufacturing (10 percent), government (7 percent), health services (5 percent), and the military (3 percent). Hospitality, associations, and non-profit organizations each accounted for 2 percent of the respondents, while transportation and retail areas were just 1 percent each. Nearly 10 percent of respondents noted that they were from a category not listed, though it was difficult to determine what other industry areas they might have represented.



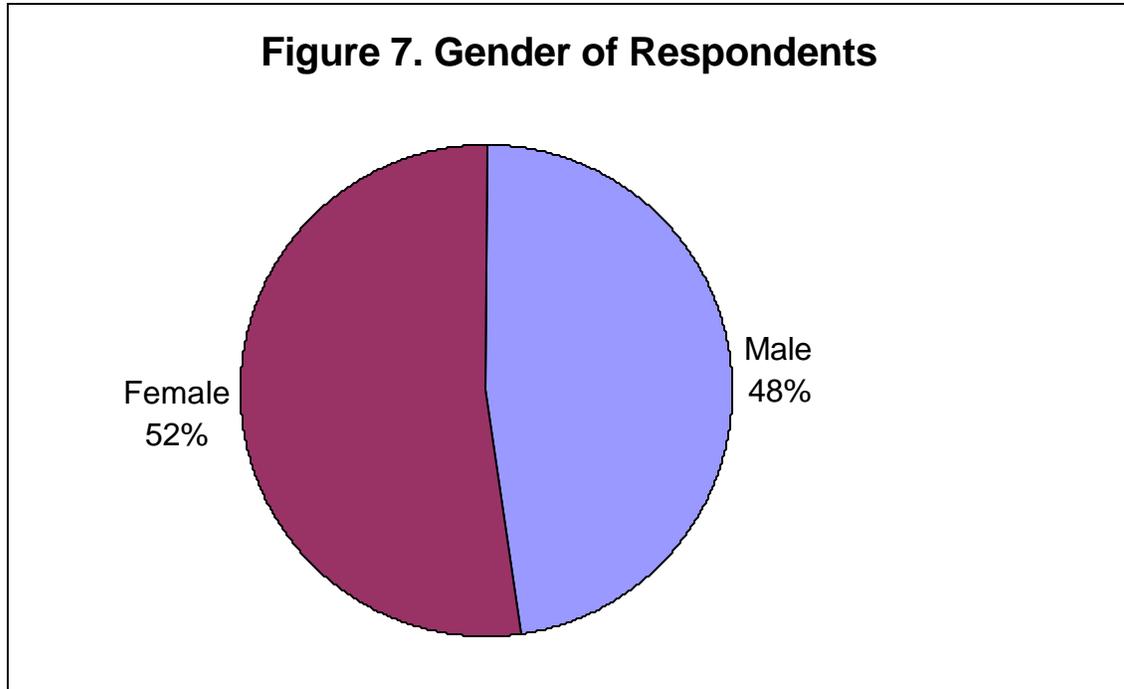
Years of Corporate Training Experience. In addition to a wide range of industry types, our survey tapped people with varying amounts of experience in corporate training, knowledge management, or related functions. On average, most respondents had a good deal of experience (see Figure 5). The majority of survey respondents (52 percent) had between 6 and 20 years of experience, and another 13 percent had over 20 years of experience in corporate training. Importantly, less than 2 percent indicated that this question was not applicable to them and only 2 percent of respondents had less than a year of corporate training or knowledge management experiences. Clearly, our sample had significant, though wide-ranging, backgrounds in corporate training, knowledge management, and related areas.



Age of Respondents. While many respondents were interested in online learning technology, they did not fit the conventional image of information technology workers as twenty-something newcomers. Figure 6 reveals that a majority of the respondents (almost all of whom were Web-based training decision-makers or users) were actually between the ages of 36 and 50. Another 27 percent were even older, though only 1 percent were over the age of 65. Only 23 percent of the respondents were younger than 36. However, this was vastly higher than our survey in higher education where only 7 percent were in this younger age group. Of course, the younger respondents were more likely than older respondents to have received at least some of their college training via the Web.



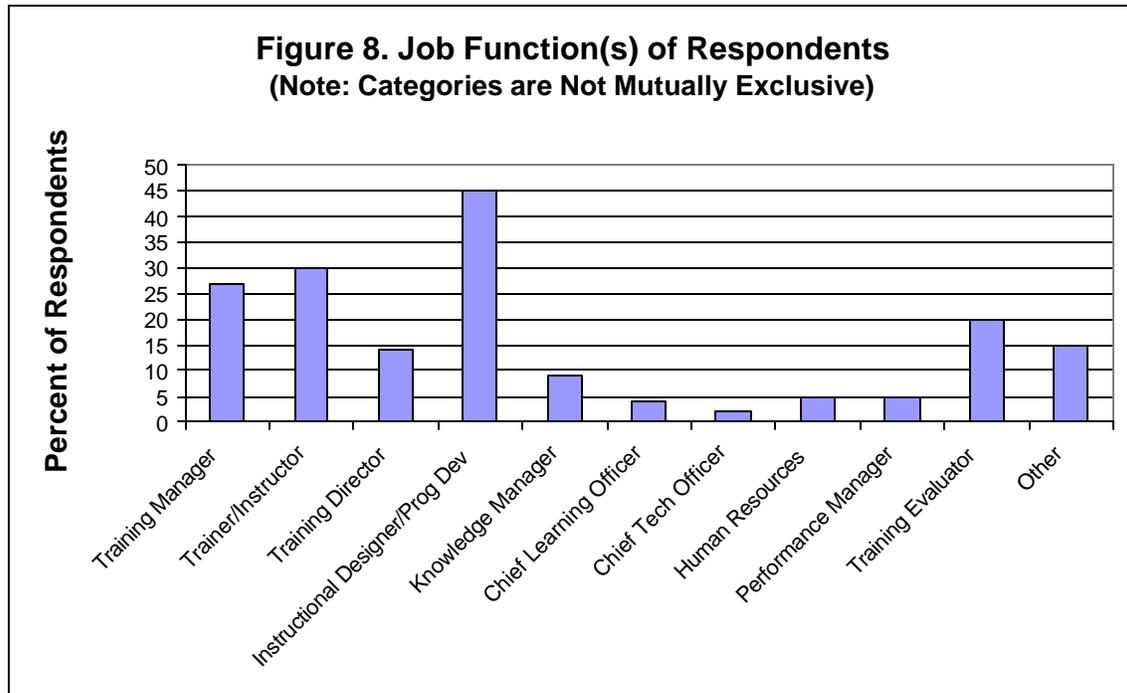
Gender of Respondents. Given consistent reports of the past few decades that females have less experience and lower confidence in computer technology (Shashaani, 1994), it was comforting to find that a slight majority of respondents to this survey were women. As shown in Figure 7, just over half of the respondents were female, with the remaining 48 percent male. However, this gender difference could be due to the greater interest among females in completing the survey or in their larger representation within the ranks of corporate trainers, managers, and instructional designers that comprised our study. Still, these numbers were encouraging.



Job Title or Function. Given Tom Kelly's, Vice President of the Internet Learning Solutions Group at Cisco Systems, statement that "Putting trainers in charge of e-learning is like putting postal workers in charge of email" (Galagan, 2001), it was deemed important to ask respondents about their primary job function.² As shown in Figure 8, most of the respondents had a role in instructional design or training and instruction. In fact, 84 percent were in training (i.e., trainers, training directors, training managers, or training evaluators) or instructional design positions. Nearly half of the respondents (45 percent) were instructional designers or program developers. This is not too surprising given the earlier reported findings that a large percentage of the survey respondents were readers of *Online Learning and Training Magazines*. Similarly, nearly 30 percent were instructors or trainers, while 27 percent were training managers and 20 percent were training evaluators. Another 14 percent were training directors.

What other types of corporate personnel responded to this survey? Nine percent of the respondents indicated that they were knowledge managers, while just 5 percent were in the human resource area and another 5 percent were performance managers. Even fewer, 4 percent, were Chief Learning Officers (CLOs), while a mere 2 percent were Chief Technology Officers (CTOs). Finally, 15 percent pointed out that their title was not listed among the survey options. Among the selections not listed were quality managers or analysts (2 percent of respondents), Chief Executive Officers (1 percent), managers or directors of e-learning (1 percent), and, at less than 1 percent each, Web developers, project managers, learning technology consultants, technical writers, and loss control managers.

² Note: respondents were allowed to select more than one job function or category.



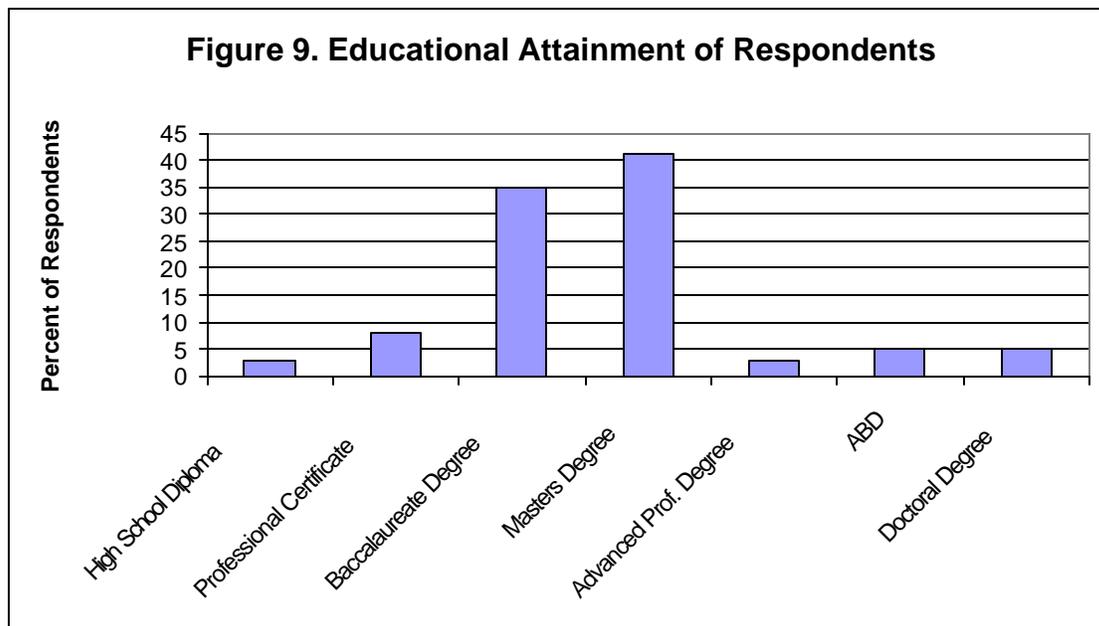
When the data were analyzed for gender differences in occupations, it was determined that 60 percent of the instructional designers and 52 percent of the trainers/instructors completing the survey were female. However, females comprised only 44 percent of the training managers and 48 percent of the CEOs, CTOs, or training directors. While this was not the focus of the study, it was interesting that females were more represented in teaching, training, and instructional design positions than in management or high-level administrative posts.

After this question, respondents were asked to list their exact job title. Some of the more common job titles included Web-based systems administrator, training specialist, training consultant, project manager, manager of instructional design, instructional designer, educational consultant, training consultant, human resources manager, training coordinator, instructional technologist, and president. Other less frequent occupations included quality manager, media producer, national sales trainer, principal engineer, course developer, curriculum designer, director of continuing education, information architect, and corporate education director. Therefore, while the primary focus of most respondents was on training, instructional design, and managing information, there was some diversity here.

In recategorizing the titles provided, it was clear that our respondents were from many job areas. For instance, approximately 26 percent were trainers, educators, or instructors, 13 percent were instructional designers or instructional technologists, 20 percent were listed as managers of some area (e.g., training, IT programs, instructional design, or quality assurance), 19 percent had director level titles (e.g., Director of Corporate Education, Director of e-Learning, or Director of Professional Development), 13 percent

were high ranking officials or administrators (e.g., CEO, President, CLO, CTO), and 9 percent were consultants.

Educational Background. As perhaps indicated by the range of job titles, our sample had varied levels of educational attainment (see Figure 9). While just 3 percent had not advanced beyond the level of a high school diploma, survey respondents with professional certification were around 8 percent. In addition, respondents with bachelor's or master's degrees as their highest degree were 35 and 41 percent, respectively. Those with advanced professional degrees or ABD were around 8 percent, while respondents holding a doctoral degree represented slightly over 5 percent of the sample. Clearly, the respondents to this survey had extensive training in various higher education settings. In fact, more than half of the respondents had advanced graduate training. Could it be that e-learning was attracting those with such backgrounds or might it be requiring additional training? This is among many areas requiring further inquiry.

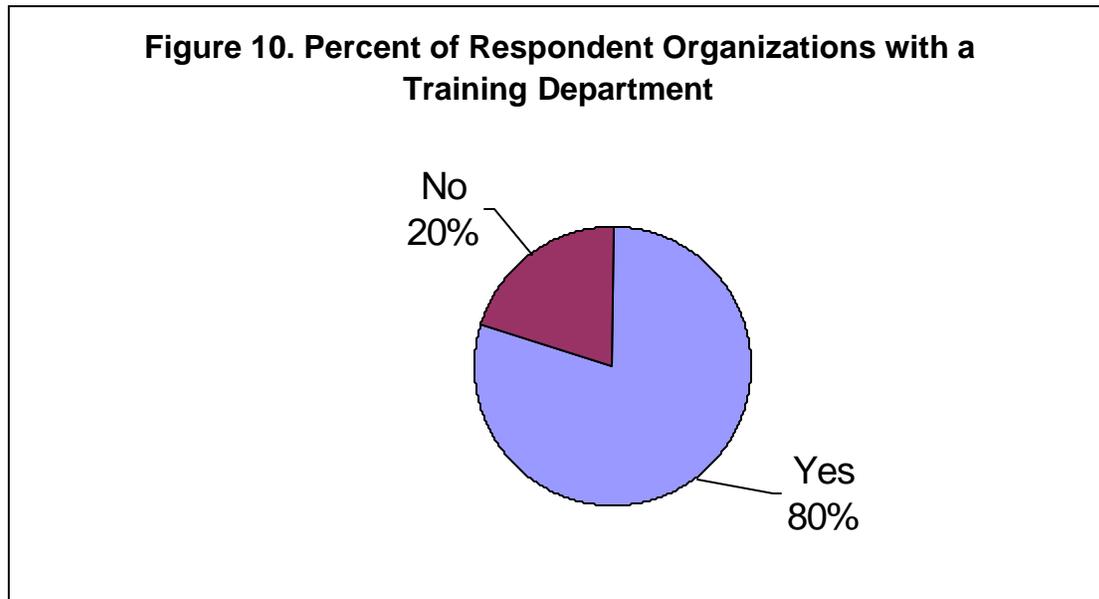


3.2 Training in the Organization

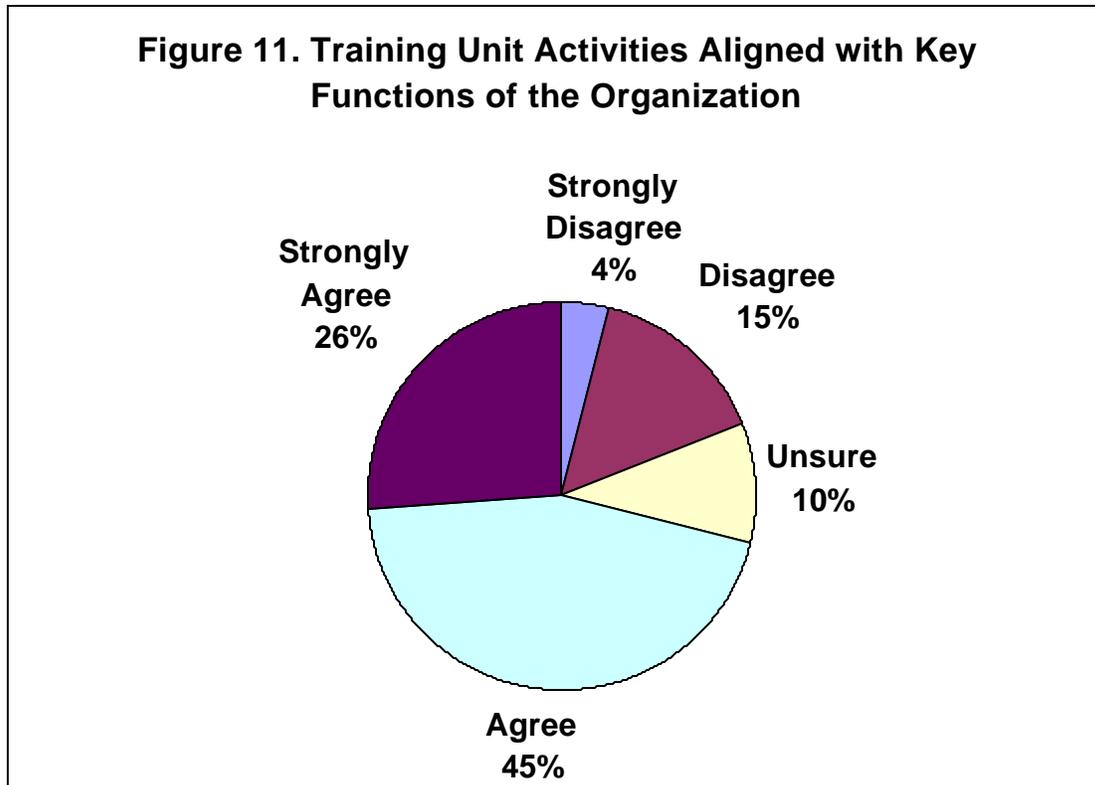
Before determining current corporate e-learning practices, experiences, and attitudes, it was important to find out whether respondent organizations typically had a training department. We also inquired about their current methods for delivering employee training.

Training Department. E-learning policies, experiences, budgets, and attitudes will likely be influenced by whether the organization has a designated training department. When asked whether their organization had a training department (which was inclusive of organizational development and human performance technology), nearly 80 percent responded positively (see Figure 10). Of course, such training departments likely varied

tremendously in size and scope. In addition, it cannot be assumed that all training departments were interested or involved in Web-based training.



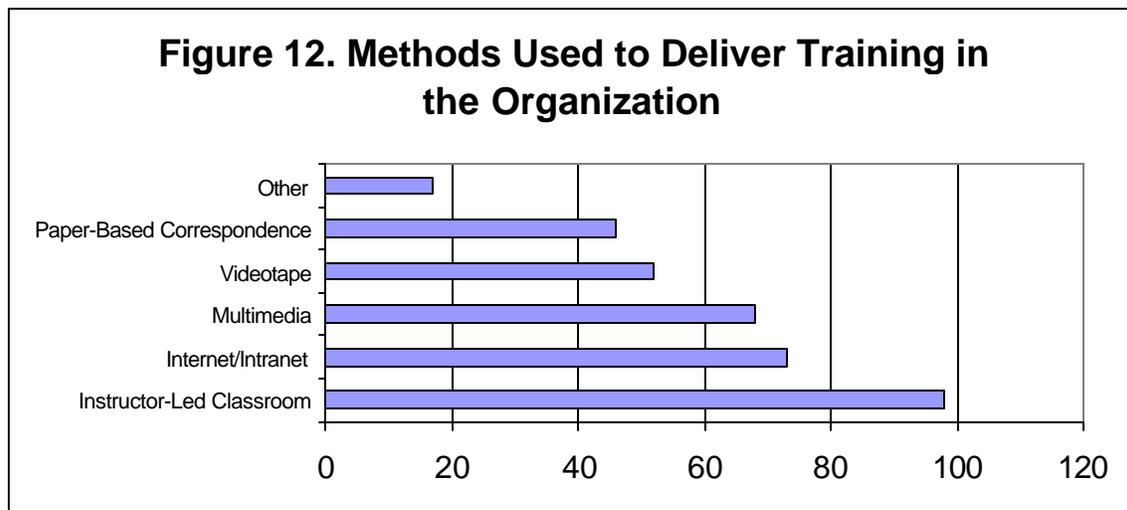
Training Aligned with Key Functions. Since most respondent organizations had a training department, it was important to know whether the mission of that department was respected and understood. When asked about whether the activities of the training department were aligned with key functions of the organization, more than 70 percent agreed or strongly agreed with that statement and another 10 percent were unsure (see Figure 11). Nearly one in five respondents, therefore, disagreed with this statement. This finding helps establish that most respondent training initiatives (including those related to e-learning) were key parts of most organizations strategic plans. Though not critical to this particular study, it would be interesting to find out more information about the ones that were not aligned.



Methods to Deliver Training. As is clear from Figure 12, the methods used to deliver training were quite varied. The most common form of training was instructor-led, classroom-based instruction, with 98 percent of our respondents indicating that their organization relied on such methods. Interestingly, the next most frequent method respondents chose for delivering training in one's organization was Internet/intranet based (73 percent). In effect, nearly 3 in 4 respondents worked in organizations that utilized the Web for training needs. Similarly, in Huseman and Goodman's (1999) telephone interviews of 202 senior corporate training and education personnel working at firms with annual revenues of over \$1 billion, traditional classroom instruction was predominant, though they claimed that the Internet was playing an increasing role.

In terms of other instructional delivery methods, multimedia programs (e.g., CD-ROM, CBT, and DVD) were the next most popular with 68 percent of organizations utilizing them. This is not too surprising given that multimedia was the most highly touted instructional technology of the late 80s and early 90s. While multimedia-based training remains a strong delivery mechanism for training departments, the present survey revealed that Web-based instruction has already surpassed it in terms of importance. The next most popular media utilized, videotape (52 percent), was the technology that preceded multimedia. Paper-based correspondence was still employed for training purposes at 46 percent of the respondent organizations. Finally, other delivery mechanisms (including satellite-based systems, audio tape, virtual reality, professional magazines and journals, interactive television, conferences, and seminars) were mentioned by 17 percent of the survey respondents.

The Industry Report 2000 from Training Magazine (TRAINING Magazine Staff, 2000) revealed similar trends to those above. For instance, the primary vehicle for training was live, classroom-based instruction, with nearly all reporting organizations employing this method of instruction. In terms of computer-based training, CD-ROM was the primary response, though that particular report distinguished between online training via the Internet and that delivered through internal computer networks (i.e., corporate intranets, and local- and wide-area networks). In fact, that report showed that computer delivered training more often relied on internal computer networks than the Internet, although there were differences by industry type. The current report grouped intranet and Internet responses. Of note, the Industry Report 2000 (TRAINING Magazine Staff, 2000) disclosed that most online interaction was with a computer (i.e., self-study). In fact, it reported that only 29 percent of online training involved interaction with human instructors or other students.



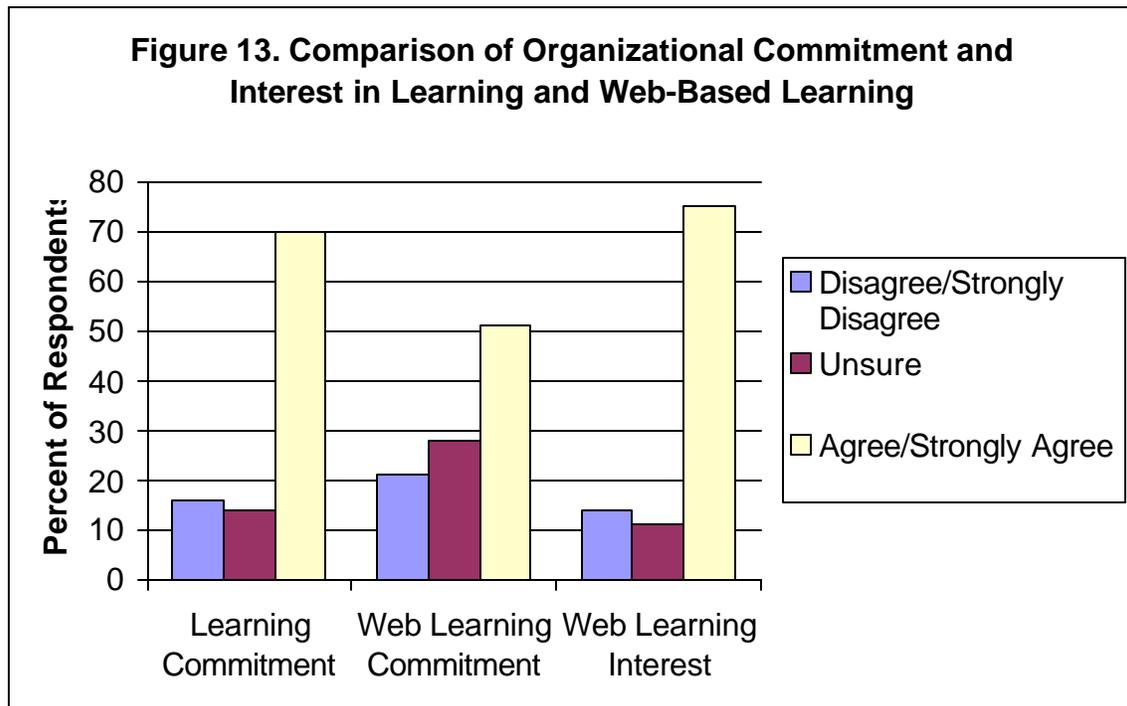
There are a couple of vastly different interpretations related to the above findings. One view is that Web-based training is a key aspect of an organization's delivery system and is gaining momentum. Another perspective is that classroom-based instruction remains the dominant form of corporate training, even in the age of proliferating collaborative and interactive instructional technologies. However, while we asked what methods were used for training, we failed to inquire about the percent to which each was relied on within the organization. Future surveys might explore this area more extensively.

3.3 Online Training in the Organization

Interest in and Commitment to Web-Based Learning. Before determining an organization's e-learning practices, it was important to know how it supported learning in general. Meister (1998) argues that CEO involvement and commitment to the learning process is the most important factor in the success of a corporate university. At the same time, Baldwin, Danielson, and Wiggenhorn (1997) documented the importance of an

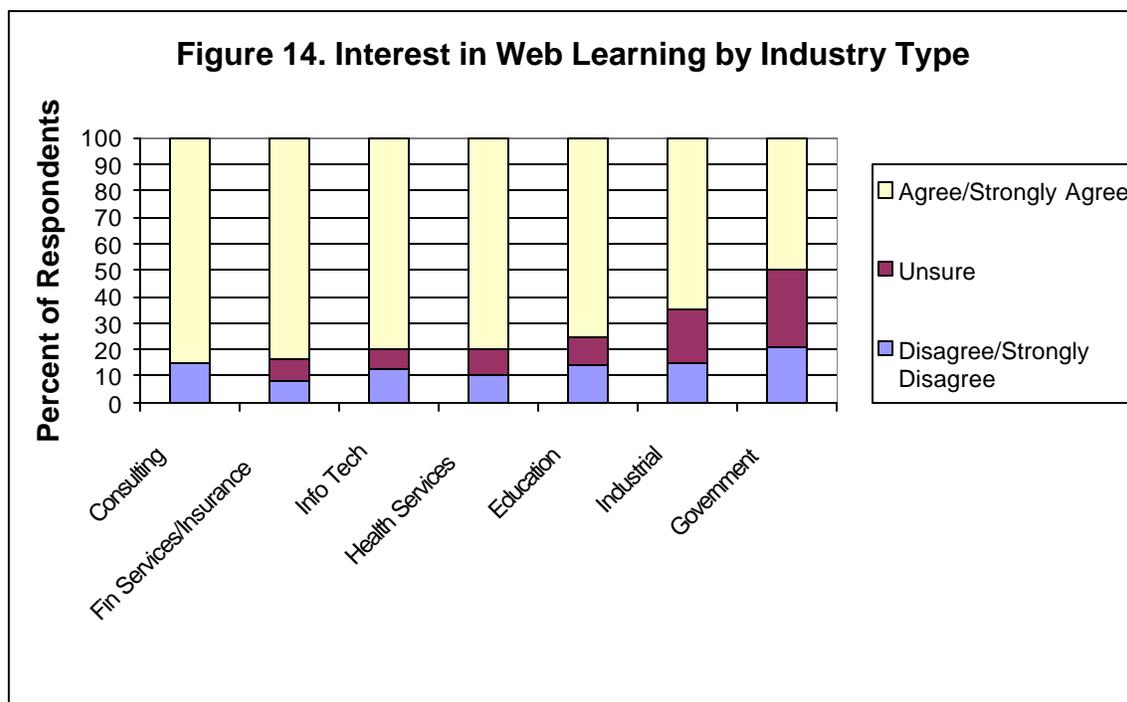
overall learning strategy or plan. Their study of 18 CLOs revealed that the role of the training department has expanded from course quality concerns and individual performance evaluations to a focus on strategy formulation and overall business performance. A recent report on workplace learning technologies from the Conference Board of Canada (Murray & Bloom, 2000) concurs with those views while arguing that employers need to provide more opportunities for employees to use learning technologies and these learning technologies should be aligned with organizational needs, objectives, and plans. Across these reports, it is clear that a plan and vision is needed for e-learning success.

When asked whether their organization's commitment to learning was strong, more than 70 percent of our respondents agreed or strongly agreed with that statement, while just 16 percent disagreed (see Figure 13). Surprisingly, even more, 75 percent, were strongly interested in e-learning. There was certainly some degree of irony when more organizations were interested in Web-based learning than were interested in learning in general. However, even though three-fourths of responding organizations were interested in Web-based learning, only about 50 percent of them agreed or strongly agreed that their organization was committed to Web-based learning. Somewhat troubling, nearly 30 percent of respondents did not even know if their organization was strongly committed to Web-based learning. Nevertheless, these figures revealed that organizations are generally interested in learning, and today that learning is increasingly online.



Industry Sector Interest in Web-Based Learning. Would there be differences between Web learning interest and commitment by industry type? While our sample size was

admittedly low for some industry types,³ as shown in Figure 14, there was high interest in Web-based learning across industry types. In fact, there was greater than 50 percent agreement with this statement across all industries included here. Still respondents from certain industries expressed more interest in Web-based learning than others. On the high support side were fields such as consulting (85 percent support), financial services and insurance (84 percent), information technology (80 percent), health services (80 percent), and education (75 percent). Those organizations with lower support were industrial/manufacturing (65 percent) and government (50 percent). It was not too surprising that financial services experienced the least resistance given that “the financial services industry has become increasingly characterized by high-stakes decision-making, rapid change, and a globally distributed workforce” (Ader, 2001) which extensively relies on solutions in distance learning.

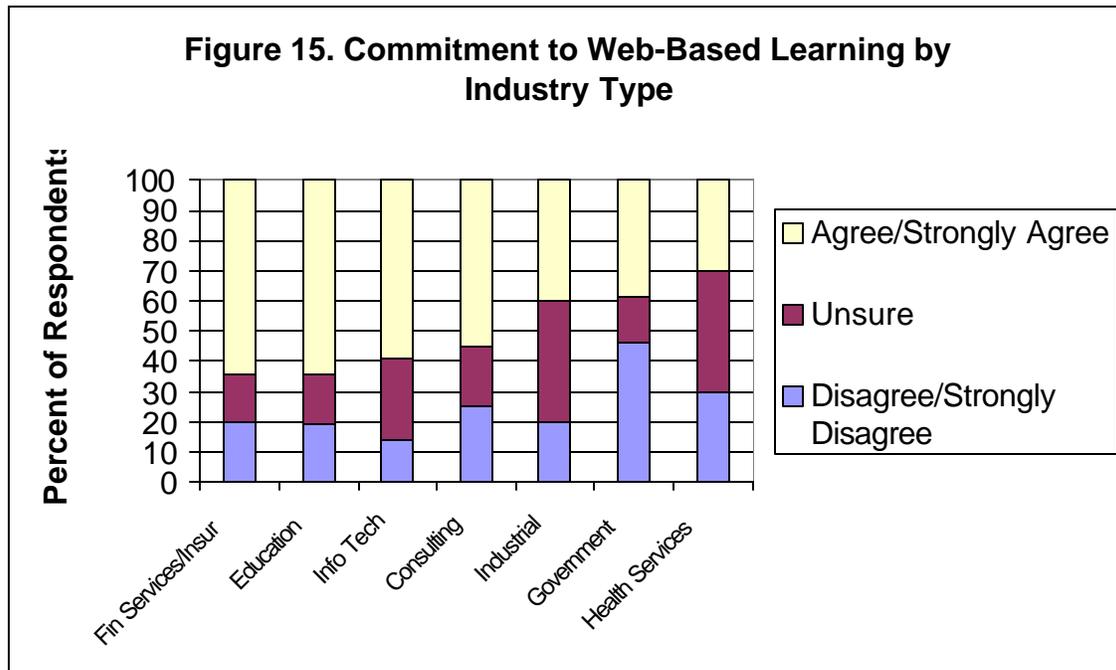


Industry Sector Commitment to Web-Based Learning. There was more interest in Web-based learning than organizational commitment to it regardless of industry type (the reader should keep in mind that some of these exploratory analyses were derived from relatively small sample sizes). As illustrated in Figure 15, the most committed to e-learning were financial services/insurance industries as well as the education sector, each with 64 percent either agreeing or strongly agreeing with the statement that their organization was strongly committed to Web-based learning. Other industry areas with solid commitment included information technology (59 percent) and consulting (59 percent). Those sectors with less than 50 percent commitment were

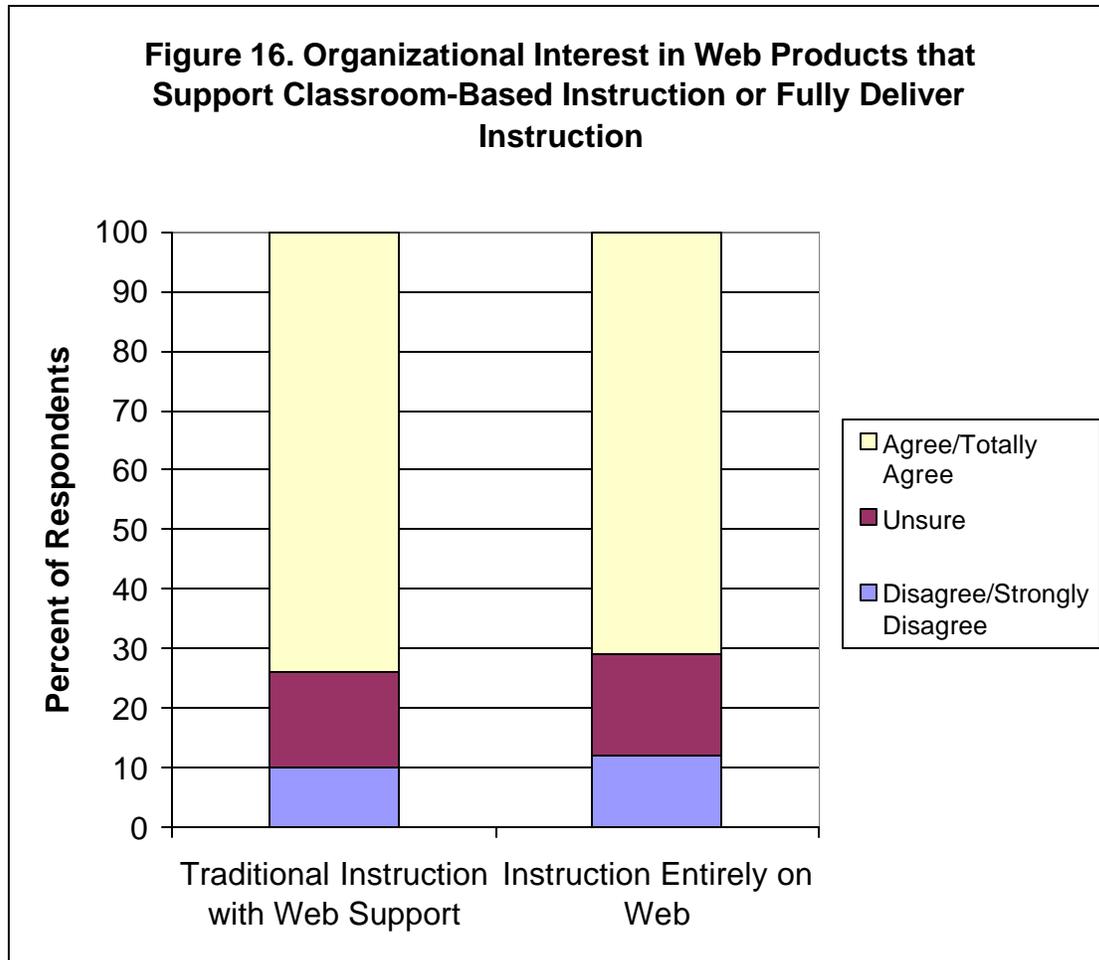
³ The cautions in this report about low sample sizes were especially applicable to health services with 10 respondents and government with 14 responses; the remaining industry types listed in Figures 14 and 15 all had greater than 20 responses.

industrial/manufacturing (40 percent), government (39 percent), and health services (30 percent).

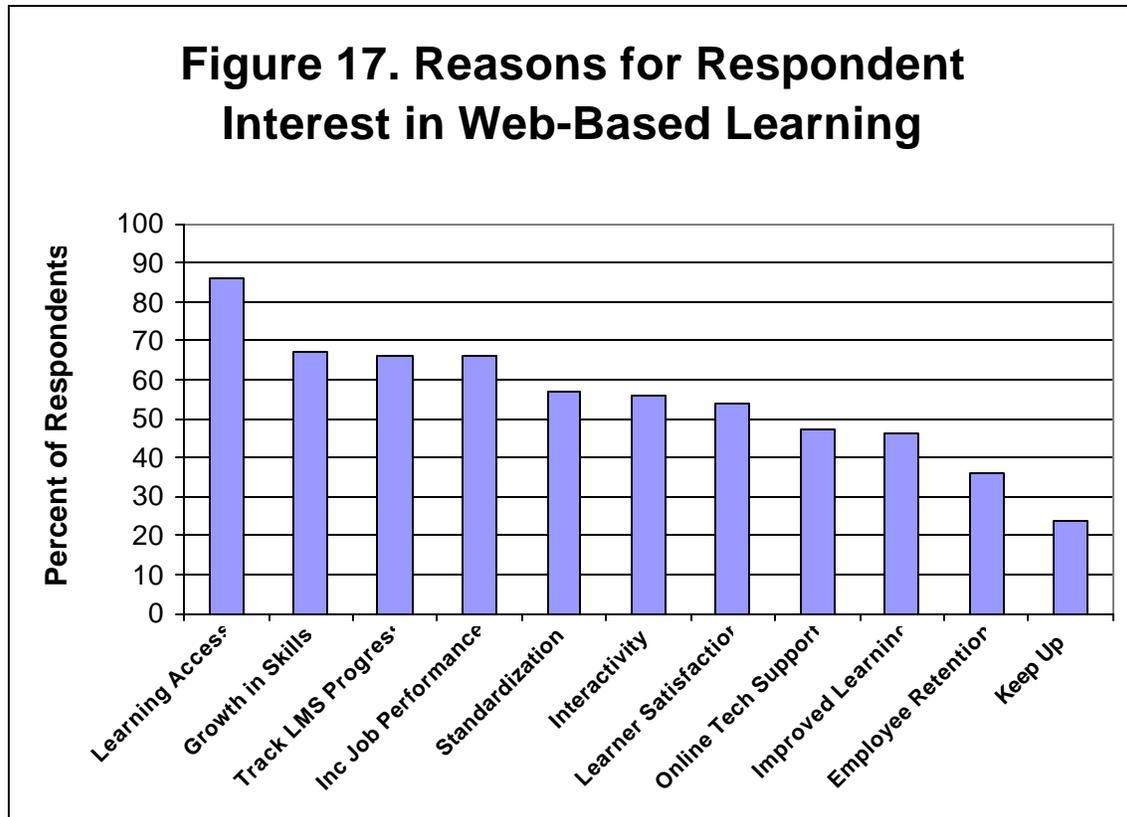
No matter the industry or field, there was a fairly consistent drop between interest and commitment findings. The industries with the largest gap between interest and commitment were health services (50 percent), consulting (30 percent), and industrial/manufacturing (25 percent). The narrowest differences were in education (11 percent) and government (11 percent). Despite concerns about specific sample sizes in each industry classification, such numbers provide one indicator of where interest in e-learning might actually lead to action or implementation efforts.



Interest in Products that Supported Traditional Instruction or Fully Delivered Web-Based Learning. Not only did we explore Web interest and commitment, but we also inquired about where organizations were actually utilizing the Web for training. When asked whether their organization was interested in using Web-based products that supported instructor-led (i.e., traditional classroom-based) instruction, 74 percent of respondents agreed with that statement, while only 10 percent did not. When further asked if their organization was interested in using Web-based products to deliver courses and programs entirely online, 71 percent agreed or strongly agreed with that statement. Figure 16 compares the findings for both of these questions. It was not expected that there would be nearly equal interest in the use of the Web to either support traditional face-to-face instruction or deliver it entirely. Perhaps such findings reflect the growing interest in online training, regardless of the environment or format.



Why Interested in Web-Based Learning? At the same time, it was interesting to ask why there was such a sudden interest in using the Web for the delivery of instruction. Figure 17 details the results from the highest to lowest cited reasons. As with our earlier survey in higher education, access to learning was the most cited reason for delivering instruction on the Web; fully 86 percent of respondents agreed that this was the key reason. There was a steep drop in their responses to the other ten options. Still, three reasons were cited as important by about two-thirds of respondents, (1) growth in employee skills, (2) ability to track learner progress through a learning management system, and (3) increased job performance. The focus here was definitely on the ability of Web instruction to enhance learner skills. Slightly over half of the respondents noted that they were interested in Web instruction since it encouraged the standardization of content and assessment procedures. A similar percentage of respondents were interested in such learning environments due to increased interactivity and learner satisfaction. Slightly less than 50 percent noted reasons such as the availability of online technology support or better learning for their interest. The lowest rated items related to employee retention (26 percent) and attempting to match the technology of other companies (24 percent).



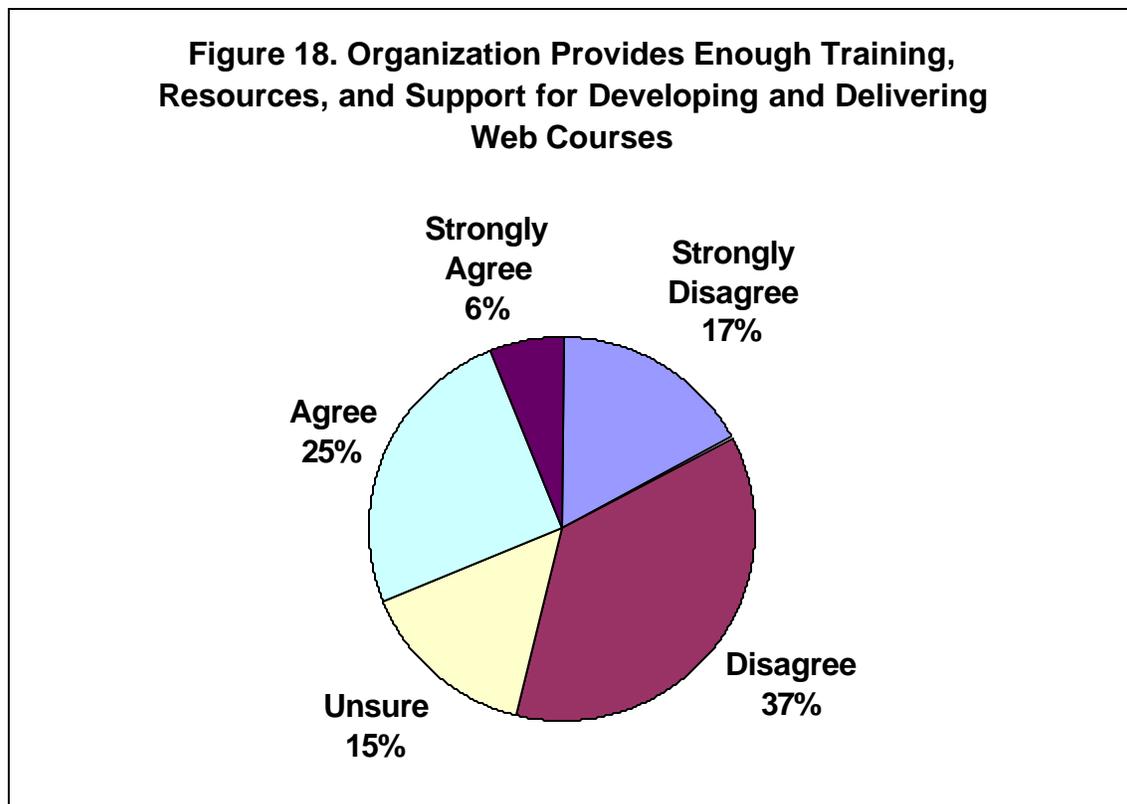
Of course, it was difficult to capture all the possible motives of the shift to online instruction in one question. Fortunately, nearly one-fourth of respondents provided additional reasons for their interest in Web-based learning. The largest percentage of these additional responses reflected cost savings, reduced travel time, greater flexibility in delivery, and the timeliness of training. Also mentioned were better allocation of resources, speed of delivery, convenience, course customization, lifelong learning options, personal growth, greater volume of learners or distribution of training materials, and ease of presenting to a more widely dispersed audience. Some of the more interesting reasons for adopting e-learning included:

- “Exploit the technology to deliver our intellectual capital.”
- “Ability to offer life-long learning options that meet the needs of the employer and employee.”
- “Invest less in expensive trips to train for 3 days without apparent results.”
- “Cost reduction (write once, publish on different platforms).”
- “Reduce time to learn, reduce time to productivity.”
- “Training at convenient times and short sessions.”
- “It’s an available option that would decrease travel costs.”
- “More complete training programs with front- and back-end materials and testing.”

Certainly there are many reasons why trainers and high-level administrators are now seeking out the Web for the delivery of instruction. Additional research might help

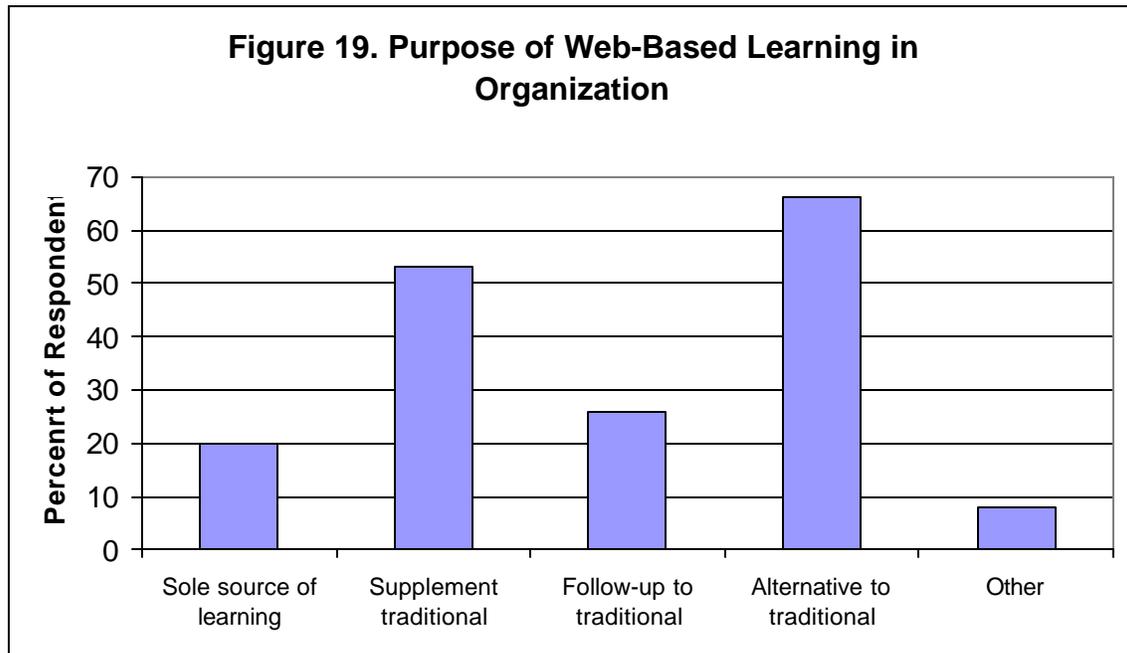
determine what the costs savings are, the degree of improved learning, the extent of online interactivity, and the impact on employee retention.

Organizational Support for Web-Based Learning. While there may be Web-based training interest, it is important to know if the organization provides enough training, resources, and support for effectively developing and delivering Web-based courses. As detailed in Figure 18, while other responses indicated fairly high organizational interest in and commitment to Web-based training, only 31 percent of respondents felt that their organization provided enough training, resources, or support for the design and development of effective Web-based courses. In fact, more than half (i.e., 54 percent) disagreed or strongly disagreed with that statement. Perhaps the less favorable responses were due to the word “enough;” they may show interest, provide support, and offer assistance, but it was still not deemed sufficient enough.

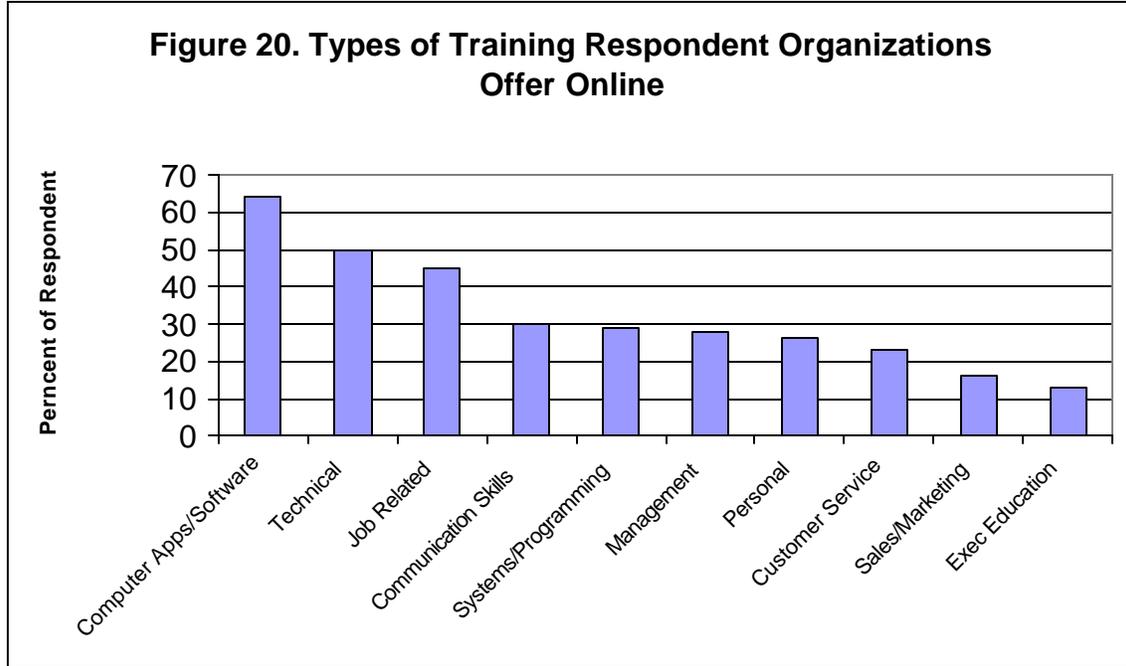


Purpose of Web-Based Learning. Respondents were also asked about the current purpose of Web-based learning in their organizations. As detailed in Figure 19, the most prevalent reason or purpose for Web-based learning was as an alternative to instructor-led training courses (66 percent). The next most applicable reason was as a supplement to traditional classroom-based courses (53 percent). Much less likely was the use of the Web as a follow-up to instructor-led instruction (26 percent) or as the sole source of learning (20 percent). In effect, the Web is not replacing traditional instruction in most organizations, but is supplementing it or serving as an alternative form of delivery in situations where learners require such flexibility. A few respondents, for example, noted

that they used Web-based instruction as a precursor to classroom-based training, whereas a couple of others relied on it as a new source of revenue.

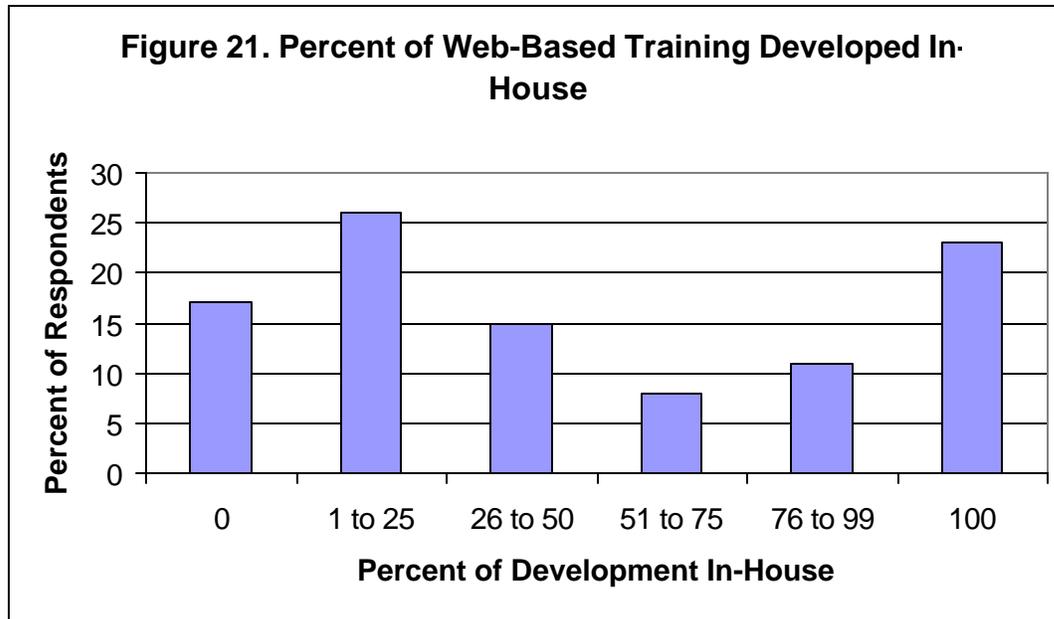


Types of Online Training. While many recent reports project or document increases Web-based training (Forrester, 2000; Fortune 2000; Urdan & Weggen, 2000), few provide details regarding the content areas that are actually available or most often offered online. In the current report, we asked respondents about specific areas wherein online training was taking place (see Figure 20). As previously revealed in Training Magazine (2000), the most prevalent skills taught online were technical or information technology related. In the present study, computer application and software skills were offered by 64 percent of respondent organizations, while technical skills and knowledge were offered at half of the organizations. The next highest response was for job related skill development (45 percent). Communication skills, computer systems or programming skills, and management or supervisory skill development were all offered at about 3 in 10 organizations. Slightly more than one-quarter offered online training for personal growth or development, while slightly less offered online customer service skills. Somewhat surprising was the fairly low use of the Web for training in sales and marketing skills (16 percent) or executive education (13 percent) among respondent organizations. Still, numerous reports claim that such “soft skill” training is currently growing at twice the rate of information technology training (National Governors Association, 2001; Urdan & Weggen, 2000).



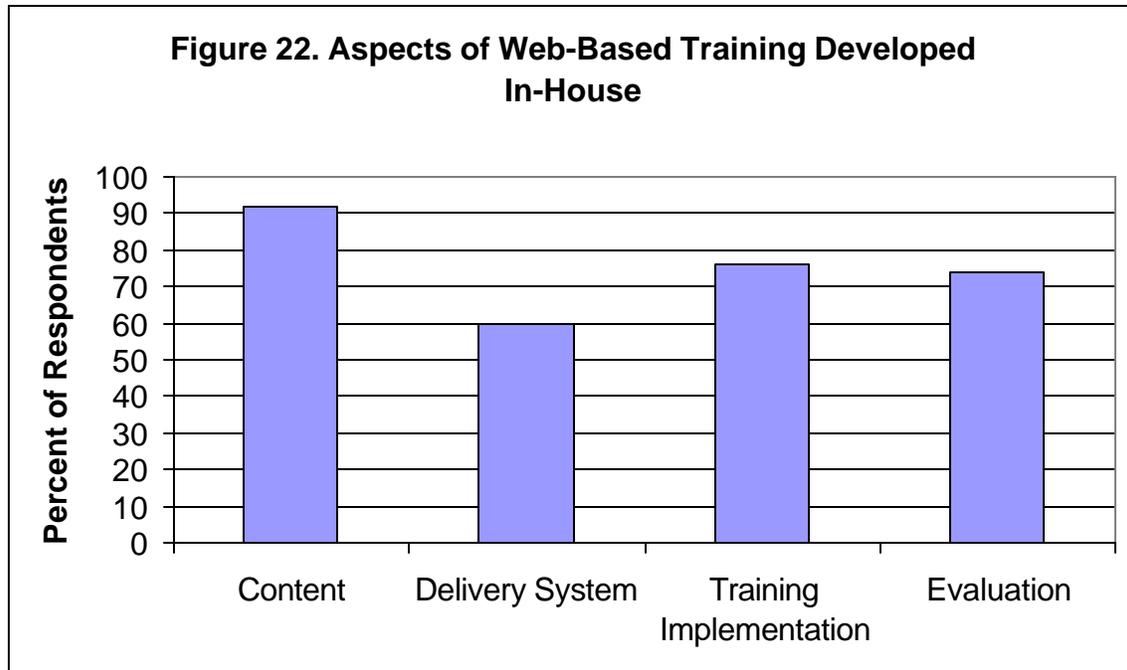
There were a few types of training that respondents noted were not included in our survey question. Among the skills not listed were safety, product knowledge, procurement practices, regulatory knowledge, consumer banking, and adult basic education or high school equivalency training. While such skills are likely central to the success of many organizations, the above figure clearly shows that the focus for most organizations is on technological, communication, and management skills that can enhance one's job performance and capabilities.

In-House Development of Web Training. Figure 21 details the percent of Web-based training (both Internet and intranet) developed in-house within respondent organizations. At the extreme, 17 percent of respondent organizations did not develop any aspects of their Web training internally. Around one in four organizations developed 25 percent or less of their online training in-house, while 15 percent developed 26 to 50 percent internally. At the higher end, 42 percent of companies developed more than half of their training internally, including nearly one-fourth of companies creating all their courses in-house.



When asked what aspects of Web-based training were developed in-house, there were mixed responses (see Figure 22). Of those 156 respondents working in organizations with internal Web-based learning initiatives, nearly all (92 percent) were developing online content. Slightly over three-fourths of respondent organizations were involved in implementation of online training, including monitoring and instructing learners and providing other forms of support. While this was higher than expected, it was not surprising that more firms were developing content than were developing tools to deliver it. Perhaps many were simply focused on the content development stage at the time of the survey. Along these same lines, nearly three-fourths of respondent organizations were generating evaluation programs or materials for their own online initiatives. Such numbers were interesting since, as discussed later in this report, only 41 percent of respondent organizations conducted formal evaluations of the benefits of their Web-based training courses.

The final aspect of this question concerned internal development of a Web-based learning delivery system. As illustrated in Figure 22, almost 60 percent of those developing at least some online training internally also claimed to be creating online delivery systems. While such data is hard to believe, the question was vague. It is conceivable that respondents could have mistaken the question for either the development of a learning management system or simply providing access to one. At the same time, perhaps LMSs are so expensive and training needs so idiosyncratic that many organizations have decided to customize all their online training. Future studies will need to address this issue more carefully.



While Figure 22 clearly shows that e-learning has significantly infiltrated online training environments, the percentages reported in this figure were somewhat skewed since the data for this question was limited to respondent organizations that were developing at least some Web-based training internally. Cross-tabulations of the four categories listed in Figure 22 by size of organization revealed no significant differences. Still, there was a slight tendency for organizations with over 1,000 employees to produce more online content in-house (95 percent), than those with less than 1,000 employees (87 percent).

Many question whether an organization should develop its own delivery system. In fact, a latter survey question revealed that 17 percent of respondent organizations had developed their own courseware systems or tools, while another 15 percent simply did not know what system they were using. While many respondent organizations used existing courseware systems or conferencing tools (e.g., WebBoard, LearningSpace, Blackboard, etc.), nearly 30 percent were using Internet applications tools such as Designer's Edge, PowerPoint, Toolbook II, Dreamweaver, Instructor, Authorware, Cold Fusion, HTML, Flash, etc., to customize their online training delivery. Another 35 percent were relying on online presentation tools (e.g., Astound, WebEx, Centra, or NetMeeting). In effect, some of these organizations were providing asynchronous or delayed delivery of instruction and others were focusing on synchronous or live instruction. Perhaps, as Urdan and Weggen (2000) claimed, more reliable and interactive synchronous tools will increasingly shift employee training, client presentations, executive briefings, and sales force updates to such virtual classrooms. The events of September 11, 2001 will only add fuel to these trends (Tedeschi, 2001; Welber, 2001).

When respondents were asked about the strengths and weaknesses of the courseware tools that they were using, more than one-third provided interesting and informative

comments. Some of these comments, which were divided into positive, negative, and mixed responses, are presented below.

Some respondent experiences were quite positive, as follows:

- “It is comprehensive, scalable, and fairly intuitive.”
- “It’s awesome.”
- “Haven’t quite used it enough to critically evaluate, however, seems to be very flexible with what we want to put out there.”
- “[XYZ] is simple to use and clean in design.”
- “Able to modify to suit individual course needs.”
- “It’s reasonably inexpensive, there is a Web-based template to design customized courses that can be easily added to existing courseware, the site they design for you is private.”
- “[XYZ] provides excellent IP audio and virtual classroom environment.”
- “[XYZ] is really great!”

Negative responses about the courseware systems or tools in place within their organization included:

- “The tool is in its infancy, though it was developed specifically for the Web. It’s very limited and wasn’t designed with instructional designers on the team that I can tell. Templates and wizards are clunky and slow.”
- “The time and cost to develop targeted courseware solutions has had an impact on the rate of development. Training is still perceived as something you do in your spare time—so tight now, the pressure is to be doing and not training.”
- “Slow development time.”
- “[XYZ] is limited by not allowing true application sharing (instructor and student manipulation of the software) and it doesn’t allow for a full screen on the presentation side.”
- “Our customers have limited hardware capabilities and use AOL and ISP. This limits the use of online presentations tools (such as [XYZ]).”
- “Not interactive.”
- “Not all learners are comfortable enough with the Web or have a fast enough connection to make this a blanket solution.”
- “Software sharing restrictions of multiple and remote application licenses.”
- “Too much time and scripting to get [XYZ] up and running properly.”
- “Low interactivity, boring.”
- “Lots of technical issues at the moment, persistent cookies, privacy issues, etc.”
- “Don’t support the instructional design process—course management systems.”
- “All the obvious issues, such as lack of bookmarking, tracking, evaluation, etc.”
- “[XYZ], depending on how the remote server is configured, presents obstacles in moving course content from one server to another.”

Of course, positive courseware features or successful online experiences tempered some of these negative responses, as follows:

- “...[XYZ] does provide a number of excellent features, yet development of course materials is very clumsy...it is not very intuitive.”
-

- “I am quite pleased with [XYZ]; my displeasure may be in the Gradebook feature, which is cumbersome to use.”
- “Fairly reliable, but not always. At times have had to stop training and go back to beginning to start again as it seizes up.”
- “[XYZ] is powerful and intuitive. It is not always reliable. There are limitations with any authoring tool compared to programming it yourself.”
- “[XYZ]’s strength’s are state-of-the-art. From a cost posture, they are, quite simply, unbeatable. Limitations: Can’t save whiteboard presentations developed in the virtual classroom. I suspect their next upgrade will incorporate this feature.”

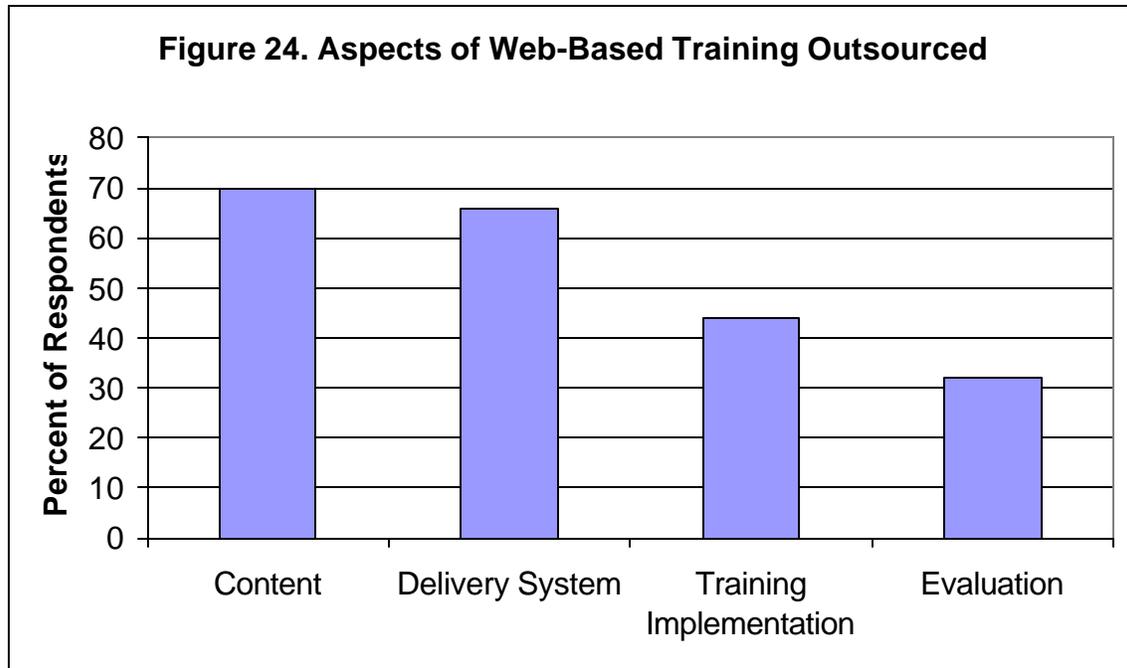
Across these comments were some suggestions for tool developers as well as those making decisions about different Web-based learning platforms and technologies. Some courseware platforms and tools are deemed too slow, clunky, incompatible, boring or lacking in interactive features, cumbersome, limited in options, and unrelated to the instructional design process. Those tools deemed superior were reliable, scalable, comprehensive, reasonably priced, intuitive, simple to use, flexible, and filled with useful options. Similar design features were noted by many college instructors in our earlier higher education survey. In effect, courseware users want tools that are easy to use, fast, flexible, and generally functional.

Outsourced Web-Based Training. With the sudden explosion of Web-based training delivery, it is impossible for most companies to develop all their online training needs in-house. As a result, companies are increasingly outsourcing their training activities in an effort to take advantage of this new training approach while also reducing employee training costs. In fact, a report from WR Hambrecht disclosed that 24 percent of all corporate training was outsourced in 1999 or about \$15 billion; nearly two-thirds of which was for IT training (Urduan & Weggen, 2000).

As shown in Figure 23, the majority of our respondent organizations outsourced at least some of their online training. Perhaps Urduan and Weggen’s (2000) predictions of increasing online learning outsourcing are accurate. Nevertheless, according to the Industry Report 2000 (TRAINING Magazine Staff, 2000), most training is still developed and delivered in-house. At the same time, we did not ask our survey respondents questions about the percent of their online training budget that was spent in outsourcing, nor did we inquire about respondent satisfaction with outsourced content.



While almost all organizations are devoting some resources to the internal development of online training content, content development is also the most frequently outsourced aspect of Web-based training (see Figure 24). Clearly, content is king to our respondents. Without content, there can be no instruction, no monitoring, and no evaluation. Given the proliferation of companies offering learning management systems, it was not too surprising that the next most frequently outsourced aspect of online training was the delivery system for the content (according to 66 percent of the respondents). In fact, delivery systems were the only aspect of Web-based training where respondents indicated that outsourcing surpassed in-house production. Less than half of the respondent organizations utilized external sources for implementing and supporting online training. Even fewer (32 percent) hired outside evaluators to assess the success of online learning.



In cross-tabulating these results by size of organization, there was an interesting finding in terms of content outsourced. Unlike the Industry Report 2000 (TRAINING Magazine Staff, 2000) which disclosed that smaller organizations outsourced a slightly larger percentage of their training courses than organizations with over 1,000 employees, 76 percent of respondents from larger organizations in the present study outsourced online content compared to just 60 percent of those working in organizations of under 1,000 employees. Our survey did not address the potential reasons for these differences, however. There could be budgetary, technology skill, project scope, or other explanations.

As the WR Hambrecht report revealed (Urduan & Weggen, 2000), companies are already outsourcing most of their online training needs. There are a plethora of vendors in which to outsource such training. In our survey, more than 35 different external vendors were used for development and delivery of Web-based training (e.g., DigitalThink, NETg, and SmartForce), but no vendor was selected by more than 25 percent of respondent organizations. Of course, as publicized in the December 2001 Product Guide from Online Learning Magazine, across online education providers, including degree granting, certification granting, and professional education vendors, there are hundreds of choices. The choices are somewhat clearer as the current shakeout of e-learning portals and companies eliminates a modest amount of the competition (Kiser, 2001a).⁴ In effect, the e-learning market is currently in a simultaneous state of flux and excitement.

Fortunately, the American Society for Training and Development (ASTD) is responding to this confusion with off-the-shelf courseware by providing a new e-learning courseware

⁴ For more extensive vendor information, Urduan and Weggen (2000) profile many of the major players in the e-learning space, including information on clients, partners, competition, and company history.

certification process (ASTD, 2001; Rosenberg, 2001a). Launched in January 2002 (e-learning Newline, 2002), this certification process and associated Website (<http://www.astd.org/ecertification/>) is intended to help those trying to sort through the 650,000 e-learning courses and more than 100 content vendors. Of their 30 criteria, 20 are focused on instructional design (e.g., providing feedback, eliciting relevant knowledge, avoiding cognitive overload, using consistent navigational cues and devices, showing examples, and offering opportunities for practice). While ASTD's Certification Commission and rating standards are still in the early stages of development, their new services should help weed out poor courseware as well as raise the standards for courseware in general. Currently, in this pass-fail system, ASTD charges a fee for the certification process on a course-by-course basis, depending on the number of hours of instruction (e.g., at the time of this writing, such certification cost roughly \$1,500 for 2 hours of instruction and \$8,000 for more than 16 hours of instruction).

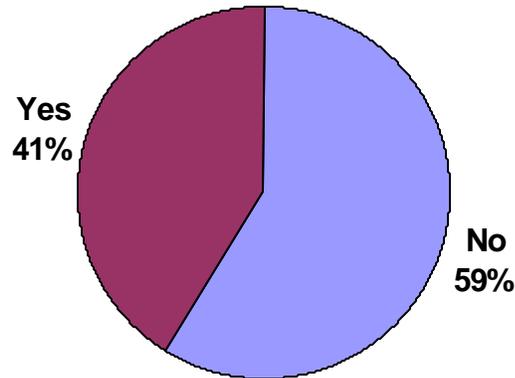
Similarly, the Lguide (2001), an independent e-learning research and consulting company, has recently provided a comparative analysis of 40 leading e-learning course providers. In compiling their analyses, an e-learning product evaluation template was developed based on in-depth reviews of thousands of e-learning courseware related to business skills, desktop applications, and professional information technology skills. Their evaluation scheme focuses on areas such as content, instructional design, interactivity, navigation, assessment, and reference tools or performance support. To date, they have found higher quality courseware in desktop applications and IT certification exams than in soft skill areas such as leadership and coaching. Like ASTD and Brandon-Hall.com (Hall, 2000a, 2000b), product quality reviews from the Lguide should prove vital for those presently facing critical e-learning purchasing decisions as well as anyone feeling overwhelmed by the vast number of e-learning vendor and product choices.

Finally, according to Rosenberg (2001b), the Aviation Industry CBT Committee (AICC) provides a list of Web-based course publishers and LMS products that they have certified or that are compliant with AICC Guidelines and Recommendations (see <http://www.aicc.org/>). Standards and guidelines from the AICC are intended to help with the interoperability of courseware and content.

3.4 Online Training Assessment in the Organization

Measuring Impact of Online Training. As Web-based training mushrooms, there is a need to understand the benefits of it. When asked whether their organization conducted formal evaluations of the benefits of online learning, nearly 60 percent indicated that their organization failed to do so (see Figure 25). As Web delivery of content becomes more prevalent, accepted, and reliable, firms will increasingly perform cost-benefit and other forms of evaluations.

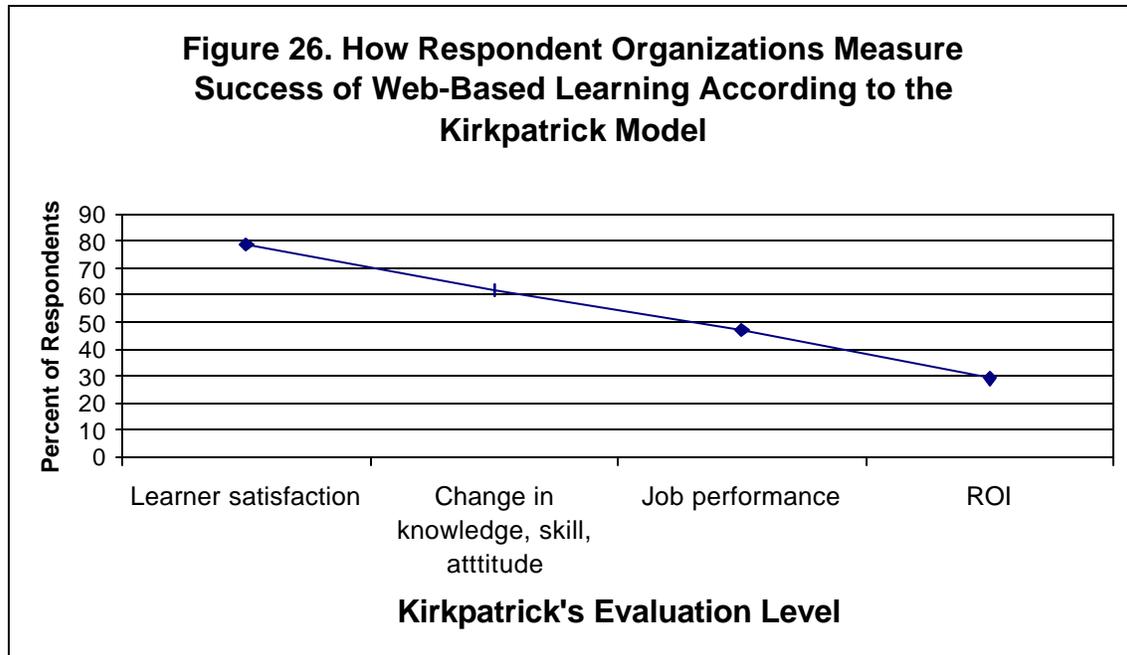
Figure 25. Percent of Respondent Organizations Conducting Formal Evaluations of Web-Based Learning



Respondents who attempted to measure the success of Web-based learning were asked to indicate the degree to which they evaluated it using Kirkpatrick's (1998) four-level model. According to Kirkpatrick (2001), these four levels of evaluation progress in difficulty as follows:

- Level 1. Reaction: participant reaction or satisfaction ratings.
- Level 2. Learning: participant change in knowledge, skills, and attitudes.
- Level 3. Behavior: participant change in job behavior.
- Level 4. Results: the final results in terms of quality, quantity, safety, costs, profits, and ROI.

As shown in Figure 26, our survey respondents most often measured the success of Web-based learning with simple assessments of student satisfaction (79 percent). Sixty-one percent of respondent organizations measured online success at the second level of Kirkpatrick's model by exploring changes in learner knowledge, skills, or attitudes. In effect, this level of evaluation explores the impact of training on student learning. Surprisingly, nearly half (47 percent) claimed to assess participant job performance improvement. Finally, nearly 30 percent of respondent organizations measured online learning success through calculations of the return on investment (ROI). Of course, as noted above, there are other measures of Level 4 success or results (e.g., improved safety, enhanced quality, etc.). Subsequent surveys might explore such factors. A few open-ended respondent comments revealed that some organizations measured success in terms of the amount of training completed or learner test-taking success.



What was somewhat amazing was the near perfect line showing the decrease in evaluation tendencies as one reaches the upper levels of the Kirkpatrick model. Perhaps this model has existed for so long that there was an expectation that each ensuing level would be measured less thoroughly. Of course, such results were not too startling since corporate training is replete with data documenting these same trends in traditional classroom settings.

Some of the decrease reflects the fact that Level 4 evaluation often requires more time and money. Perhaps measuring on the job behavior and final results on the job are as difficult to determine in the e-learning world as they are in live settings. According to Rath (2001), however, "corporate financial executives are growing less and less content with such results, in part because of the initial costs associated with the move to online learning." Rath cites a report from Brandon Hall that showed a tremendous increase in learning management systems from 1997 to 2001, with an average cost of a current system at about \$550,000 for 8,000 students (Hall, 2000a). As a result, some executives want to see these systems significantly impact their employee training programs.

Assessment Lacking or Still Too Early. Before completion of the survey, respondents were asked to comment on their online assessment practices, including the ways in which they assessed student online learning and/or evaluated their online learning courses and programs. While this was an optional open-ended question and the final question of the 44-item survey, nearly 40 percent of the respondents provided relevant information. The relatively large number of survey respondents completing this question suggests that assessment is an important and highly sensitive topic.

Their comments were mixed. Many of the survey respondents pointed out that their organizations had yet to assess their online courses or were limited by the learner-

management system that they selected. As the quotes below illustrate, the tools and measures for online assessment are often unfamiliar, nonexistent, unwanted, or unwieldy. Such responses suggest that corporations and other organizations adopting online training tools and practices need some guidance in regard to assessment and evaluation:

- “We are just beginning to use Web-based technology for education of both associates and customers, and do not have the metric to measure our success. However, we are putting together a focus group to determine what to measure (and) how.”
- “We are just in the development stage, so have not dealt with assessment practices yet.”
- “We are just beginning our online learning so we haven’t had an opportunity to evaluate the program yet. We are looking at the ROI calculator provided by Media Pro to initiate the process.”
- “We have no online evaluation for students at this time.”
- “We currently use just the assessment capabilities provided by ...”
- “My organization is just beginning to explore online learning possibilities. I have done some research and am familiar with the usual pros and cons, but want to continue learning from the experiences of others so I can determine what to do.”
- “My organization is hesitant about online learning at this point in time. I am trying to learn all I can to provide as much information as possible to them. We are a distance-challenged organization...”
- “In my organization any form of evaluation is not welcomed.”
- “We lack useful tools in this area.”
- “We have purchased Test Generator and RoboHelp. We have not yet developed any online training, but we hope to move into some this or next year.”
- “We endeavor to build competency-based assessments and learner feedback into all of our online learning.”

Limitations with Current System. Of those organizations that had made online learning decisions, many assessment comments were focused on the limitations of their current system:

- “I feel strongly there is a need to measure the success of any training in terms of the implementation of the new behaviors on the job. Having said that, I find there is very limited interest by our clients in spending the dollars required...”
 - “Currently our only form of assessment is either a survey in LearningSpace or a form on the Web. We are looking for better ways to track learner progress, learner satisfaction, and retention of material.”
 - “Currently our organization is not ‘big on’ evaluation or assessment. We have a limited question database which does not allow for simulations, etc.”
 - “Built Web forms in MS Front Page for evaluations. Works well, but is high-maintenance.”
 - “Right now, I’m outsourcing classes. Typically, I have one or two students pilot a course and give feedback as to the usefulness and design. Have had fairly poor ratings on reliability, customer support, and interactivity...”
-

Level 1 Assessment. Others noted that their organizations only assessed learning at the first level of Kirkpatrick's model. The following comments reflected Level 1 types of assessment:

- "We use the Halo Survey process of asking them when the course is concluding."
- "We assess our courses based on participation levels and online surveys after course completion. All of our courses are asynchronous."
- "I conduct a post course survey of course material, delivery methods and mode, and instructor effectiveness. I look for suggestions and modify each course based on the results of the survey."
- "We include Level 1 evals on all our CBT/WBT courses. Also, we have linked successful completion of software training with automatic access to the actual software..."
- "Do multiple choice exams after each section of the course."
- "Compile online student evaluations that rate the instructor/materials and the curriculum...online check of production and quality statistics."
- "We are currently moving evaluations to online form. Have done extensive course evaluations, however."

Level 2 Assessment. Many were concerned about the change in skill or knowledge of Level 2:

- "We are now setting up a simple .cgi script to gather multiple choice and free response items from students about our courses. A copy goes to the tutor and the administrators."
- "We use online exams and use level 2 evaluation forms."
- "We use online testing and simulation frequently for testing student knowledge."
- "We have just recently began doing learner assessments on a large scale. Most are fairly traditional forms of assessment, but we also do performance assessments (such as software simulations)."

Multiple Level Assessment. As the following respondent quotes demonstrate, a few organizations targeted higher levels of Kirkpatrick's framework or assessed at more than one of the levels:

- "Using Level One Evaluations for each session followed by a summary evaluation. Thirty days post-training, conversations occur with learners' managers to assess Level 2" (actually Level 3).
 - "Currently, we are using online teaching and following up with manager assessments that the instructional material is being put to use on the job."
 - "Online quizzes providing immediate feedback to students. Online evaluation form providing immediate feedback for our organization."
 - "We do Level 1 measurements to gauge student reactions to online training using an online evaluation form. We do Level 2 measurements to determine whether or not learning has occurred using Perception from QuestionMark."
 - "We currently run an online test and a learning survey at the end of each training module. The test scores tell us how each instructor is performing and the survey results tell us how the overall course material is being received."
-

As is clear from the quotes above, few organizations have targeted the upper levels of Kirkpatrick's framework. Once again, this hints at the need for methods to calculate the impact of online training on product quality, ROI, sales, and overall job performance (Crawford & Becker, 2001; Horton, 2001). What appears needed are tools for calculating the impact of online training as well as consultants who can interpret such calculations.

The assessment-related quotes listed above should provide guidance to companies currently formulating assessment decisions as well as some relief to assessors of training who are led to believe that most corporations are assessing ROI and have formulated complex calculations of the benefits of e-learning. Our respondent comments suggest that this is simply not true. Whereas some may breathe a sigh of relief, others will forge ahead to develop and report new assessment and evaluation methodologies. As Kiser (2001c) recently reported, while most firms still evaluate simple data such as course completion and course satisfaction, they are also beginning to measure change in employee skills, improved job performance, and business results.

The Kirkpatrick framework is not the only relevant tool for evaluating the impact of online training. For instance, organizations might evaluate the following two levels of objectives related to such training: (1) instructional objectives regarding whether the learner learned the material, and (2) systemic objectives regarding whether the training solved the problem. In effect, an evaluation plan might simply divide the assessment into learner progress or what they learned and the learning impact on the job.

Other schemes divide evaluation into formative and summative components. Formative evaluation is more attuned to the instructor and instructional design process since it is focused on improving the online learning experience and finding out what worked and what did not work. In contrast, summative evaluation targets the success of the overall online training experience such as whether the training objectives have been met and whether the training is effective. Basically, it attempts to answer whether the training should be continued or significantly altered.

Of course, any evaluation system or technique must recognize and explicate the contextual factors involved. Contextual factors might include technology breakdowns, inadequate computing systems or bandwidth, limited learner support, poorly trained instructors, dull and boring materials, learner unfamiliarity with online tools, and the authenticity of the learning environment. For instance, the CIPP (content, input, process, product) model examines online learning within a larger system or context. This model asks about the environment in which the online learning experience takes place. Next, it asks what are the inputs (resources, content, media) that are put into the online environment? Third, in terms of process, how well was the system or courseware implemented? Did the course run smoothly? Were there serious technology problems in delivery? If instructor-led, how was it facilitated or moderated? Finally, in terms of product, what did the participants learn? How does one know? And did online learning have an impact on productivity or workflow?

Other approaches might help develop benchmarks for measuring performance improvement. While many managers scream out for better ROI measures for the dollars they invest in e-learning, they tend to assume that the e-learning initiative can be translated into direct and identifiable impacts on the company bottom line. According to Reddy (2002), a cost/benefit analysis (CBA) may be a more relevant and viable approach. Instead of attempting to determine actual returns and estimate the impact on bottom line (e.g., reduced processing costs or increased sales), CBA shifts the focus from numeric values that may be months or years away to both qualitative and quantitative measures that occur more readily (e.g., reduction in processing errors or reduction in customer complaints). Reddy admits, however, that a CBA often leads to ROI calculations.

In addition to CBA, direct employee competency and performance measures may be more meaningful than ROI in terms of actual impact. Managers must be asked about the job areas that need performance improvement. At the very least, pre-training and post-training data should be collected and compared. But an evaluation study must not only be conducted, the data collected from the online evaluation must be analyzed and interpreted and then actually used for performance improvement purposes (Horton, 2001). In effect, there must be a purpose and framework for evaluation, learning benchmarks, timely and appropriate measures (e.g., online survey instruments or ratings), and a data analysis and management plan.

Some e-learning specialists are exploring new measures that do not strictly compare costs savings from instructor salaries, travel, and training incidentals. Time to competency may be one viable alternative to ROI (Raths, 2001). For instance, online databases of frequently asked questions can help employees in call centers learn skills more quickly and without requiring temporary leaves from their position for such training. Of course, the organization first needs a benchmark as to typical training time and quality for that skill or procedure.

Another alternative measure is time to market, which might be measured by how e-learning speeds up the training of sales and technical support personnel, thereby expediting the delivery of a software product to the market. Raths mentioned a third alternative, "return on expectation," where instead of traditional ROI calculations, employees are asked a series of questions related to the degree to which they think the training has met expectations of their job performance. They are then asked to place a dollar figure on that. Training evaluators might correlate such training reaction data with business results. Using that model or perspective, Level 1 analyses can now include items where employees estimate the extent to which they will be able to apply the skill that they learned to their present job situation. Others might take a tiered approach to evaluation by first looking at cost savings, second at performance improvement, and third at competitive advantages from the online training. While performance improvement is more meaningful, it may be more difficult to measure directly.

Technology has a highly significant and evolving role within the area of online assessment. For instance, e-mail and computer log data enable timely assessments that

previously were not possible. As most are likely aware, employees can respond to questions delivered via e-mail or online surveys. In addition, computer log data can also help correlate online course completions with actual job performance improvements such as increased sales or call responses. Currently emerging data mining techniques are beginning to increase the ways businesses might measure the results of online training.

While most of our respondents at least implicitly referred to the Kirkpatrick model in terms of online learning success, there are many possible avenues for e-learning assessment. Unfortunately, few of our respondents offered predictions as to the direction of online assessment. It was clear from their answers, however, that many of them were extremely busy wrestling with the online learning problems of today.

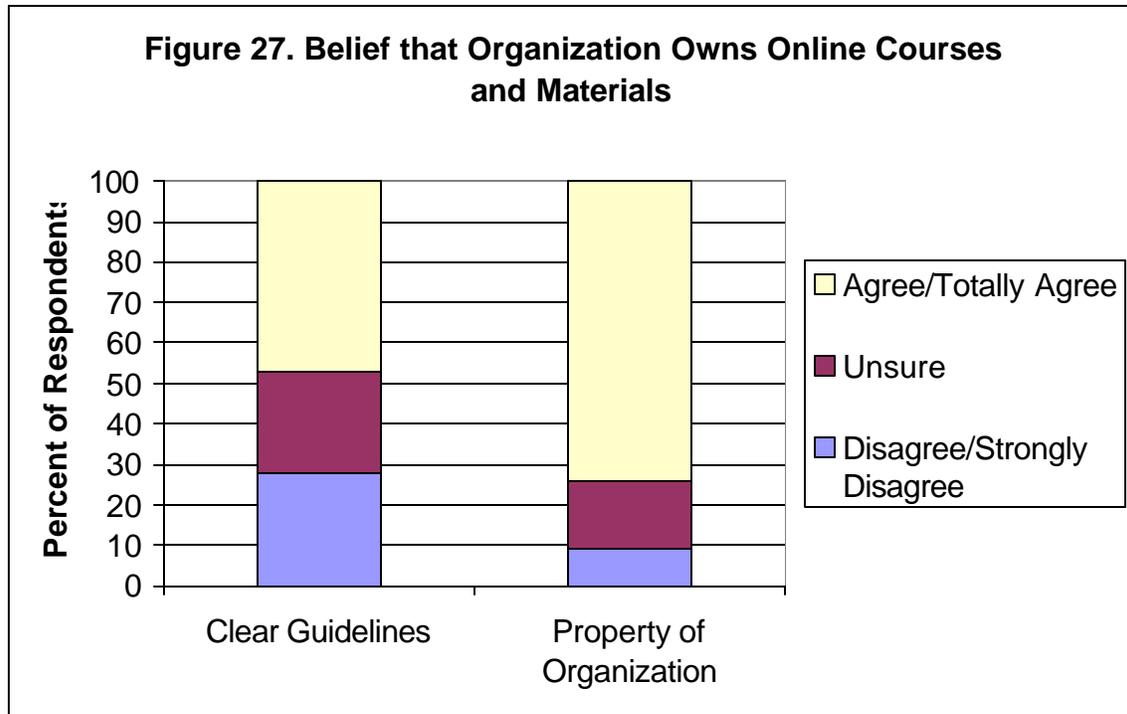
3.5 Current Issues and Attitudes Related to E-Learning

There are many issues that confront those interested in Web-based learning. Some of those issues, such as the forms of assessment and organizational support, have been discussed in earlier sections of this report. This section addresses other complex areas including course ownership and property rights, the valuing of certificates and degrees earned online, and the use of knowledge objects.

Course Ownership and Guidelines. Our earlier study of higher education instructors added some fuel to the heated debate about who owns the rights to courses or course materials developed for online instruction (Twigg, 2000). In that study, there was overwhelming support for the notion that the instructor owns the course materials. Given that only 16 percent of those surveyed in that study believed that the institution owned the course,⁵ there was interest in asking about course ownership, once again, in the present study.

In sharp contrast to the higher education study, nearly three-fourths of the corporate respondents considered online courses the property of the institution not the instructor (see Figure 27). Whereas 63 percent of respondents in the previous study supported faculty ownership of online courses, only 16 percent of the training respondents agreed with that premise. Of course, there are arguments that ownership of such intellectual property is more justified and relevant in higher education due to lower salaries and different job requirements than those in comparable positions in corporate settings. And, of course, a chief mission of higher education is typically to share knowledge, not protect it from competitors. In the workplace, however, most organizations have contracts with employees forbidding them to work with competitors and waivers of rights to course materials developed for the organization.

⁵That particular survey was aimed at college instructors not administrators. College administrators probably would have replied quite differently.



While most respondents felt that the organization owned the content, only forty-seven percent of them agreed or strongly agreed that their organization had clear guidelines about the ownership of course materials. In contrast to questions of course ownership, therefore, respondents were less supportive of the statement that their organization had clear guidelines regarding the ownership of online courses. In fact, 28 percent disagreed with that statement and another 25 percent were simply not sure. So while they felt that their organization owned the online courses, their guidelines or policies were somewhat unclear.

Reusable Learning Objects. Keep in mind that the second question above concerned the ownership or property of online courses not course materials. It is plausible that respondents in both this study and our previous one would have more likely considered course materials or small components (e.g., text, images, graphs, lectures, readings, simulations, animations, video clips, diagrams, etc.) as owned by the trainer or instructor, instead of the institution or organization. As course materials become increasingly modularized and mobile, this topic may rise in sensitivity (Twigg, 2000). In fact, organizational policy regarding ownership may be drafted as a result of the movement toward shorter online courses and shareable learning objects (Wiley, 2001).

With the growing emphasis on accounting for and expanding a firm's intellectual capital (Edvinsson & Malone, 1997) and knowledge management practices (Huseman & Goodman, 1999), the ability to share and account for kernels of knowledge electronically will rise in prominence during the coming decade. As it does, organizations will be forced to make critical decisions about the appropriate length of training, the timing of that training, and how often to update any kernels of knowledge. They will also have to

decide how to label or tag as well as appropriately use those knowledge bits, and how to mix and match them. Increasingly, there is a focus on content and courseware that is reusable, interoperable, and easily manageable at different levels within the online training organization (Urdan & Weggen, 2000). Employees often do not need an entire course, but can benefit from just a small piece of information at the right time (Mabe, 2001).

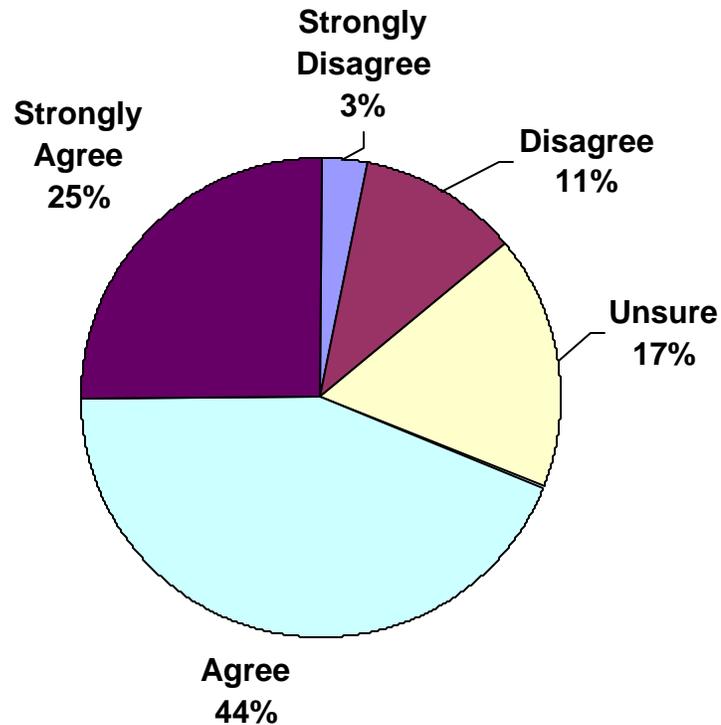
The Institute of Electrical and Electronics Engineers' (IEEE) Learning Technology Standards Committee (LTSC) defines a learning object as "any entity, digital or non-digital, that can be used, re-used, or referenced during technology supported learning" (LTSC, 2000). The goal of their learning object standard was to create a method for learning technology systems to locate, manage, evaluate, and share or exchange learning objects.

Since that concept is broad, instructional designers and trainers often prefer to use the term "reusable learning object" (RLO). RLOs are granular chunks of information that teach one or more objectives and can be meaningfully incorporated into multiple training contexts (Cohen, 2002; Jacobsen, 2001). In corporate training, an RLO often concerns the development of large-scale instructional (Lee, 2001). To be useful for an organization's knowledge management strategy, RLOs must provide user access, content modifiability, content standards and interoperability in terms of platform and delivery mode, consistency in the design and development of content, and the scalability of digital entities (Lee, 2001). Other applicable terms include flexibility, durability, adaptability, customizability, interchangeability, and affordability (Longmire, 2000; McGreal & Roberts, 2001). In effect, RLOs allow training to be updated instantaneously and constantly. Meta tagging of those knowledge bits will allow learners to find and utilize reusable knowledge objects quickly and efficiently (Schatz, 2001).

While knowledge may "never generate itself" (Huseman & Goodman, 1999, p. 158), technology can help in the process of sharing, stretching, compacting, and repurposing it. As template-based design and sharing of knowledge becomes the norm, the development cycle of content and courseware will hopefully be shortened. However, agreed upon standards and specifications will be needed first (Downes, 2001; McGreal & Roberts, 2001; Wiley, 2001).

Our survey respondents were asked whether their organization was interested in the use of learning or knowledge objects (such as animations, images, video clips, and other course materials) in online learning. Even though this is an emerging field, it was somewhat surprising that two-thirds of the respondents agreed or strongly agreed that their organization was interested in learning objects, though 17 percent still were not sure (see Figure 28). As the field matures, organizational interest in the use of RLOs will likely climb even higher.

Figure 28. Organizational Interest in the Use of Learning or Knowledge Objects

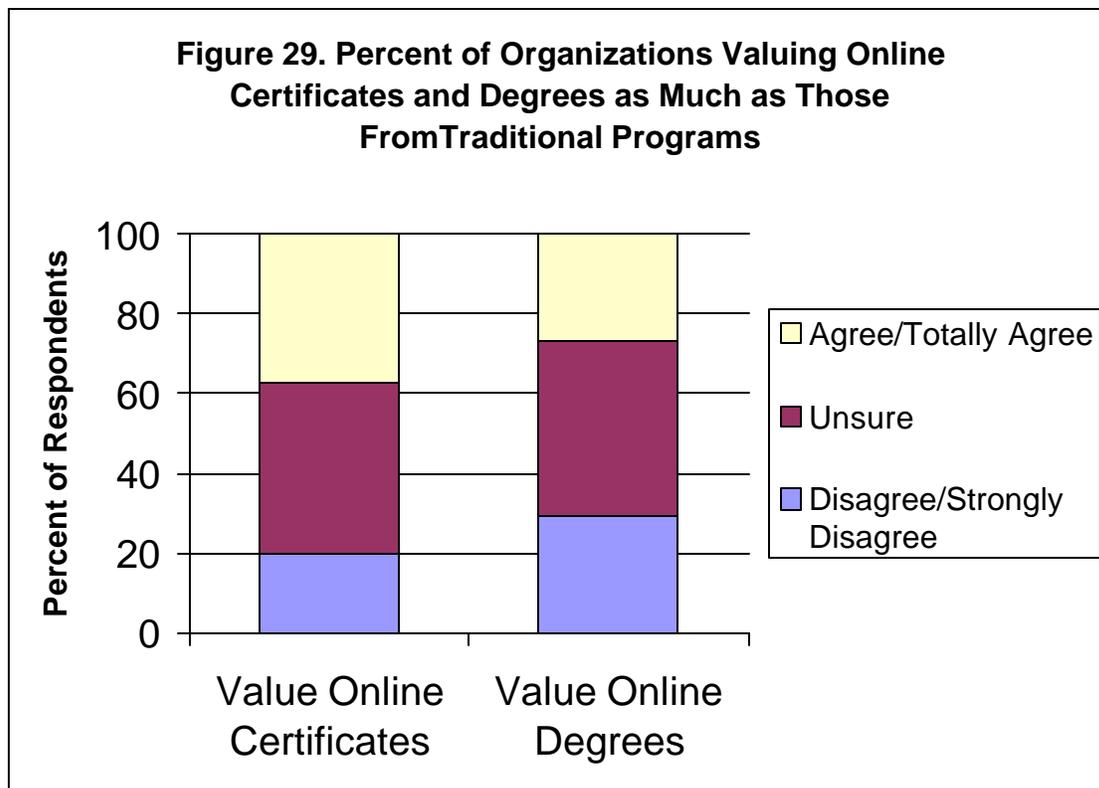


As is argued by Huseman and Goodman (1999), the informal sharing of knowledge between employees is common in most work settings. Whether the sharing of information is over cubicle walls, in the lunchroom, or at the water-cooler, the exchange is typically very local and often imperfect. Even when technology appears to drive the information flow, it is the social world or network that binds people together (Brown & Duguid, 2000). “As corporations increasingly recognize knowledge as their most valuable resource of competitive advantage, they must devise systems for fast and efficient transfer of knowledge. It is not enough for a company to generate mountains of knowledge if it has no means of knowing what it knows” (Huseman & Goodman, p. 183). Given that perspective, electronic sharing and exchange of education and training could become the most important task of a successfully functioning organization, if that is not already the case.

With recent trends in corporate management combined with high organizational interest in learning objects, further research is warranted. For instance, a large scale survey or analysis of this area might be developed. In the meantime, readers are encouraged to find David Wiley’s (2001) free online text, *“The Instructional Use of Learning Objects,”* at <http://reusability.org/read/> or download a popular white paper on this topic from Cisco

Systems.⁶ In addition, primers on learning objects (Longmire, 2000) and metadata (McGreal & Roberts, 2001) are also available.

Quality of Certificates and Degrees Earned Online. As pointed out in our earlier survey, there are numerous questions and issues about online course quality that may force potential Web-based learning decision-makers and users to be appropriately cautious. As shown in our earlier higher education study, even early adopters of the Web are unsure about the quality of online courses and programs. More than twice as many college faculty members were opposed to doctoral degrees earned entirely online than bachelor's and master's degrees (Bonk, 2001). In the present study, respondents were asked about whether their organization valued certificates from online programs as highly as those from traditionally delivered programs (see Figure 29). They were then asked a similar question about the value of online degrees compared to traditional programs.



The survey results show that online certificates were somewhat more valued (37 percent agreed or strongly agreed) than degrees earned from online programs (27 percent agreed or strongly agreed). However, around 43 percent of respondents were unsure in answering either question. Perhaps there are just too many unknowns today. And perhaps these numbers will significantly shift as online experiences become more

⁶ For Cisco white papers in this area, see:

http://www.cisco.com/warp/public/779/ibs/solutions/learning/whitepapers/el_cisco_rio.pdf.

common. Future studies might address the factors that help these corporate trainers, training managers, and executives value online degrees and certificates.

There are likely many factors affecting attitudes related to e-learning certificates and degrees, including quality of faculty, institutional reputation, availability of courses, accreditation, and cost (Huseman & Goodman, 1999). Certainly, the findings will likely vary by size of firm, type of training, and geographical range of such training. In our earlier study, we found that online program accreditation was highly important to college faculty. We did not explore that issue in the present study, however. Other issues not addressed here included questions about the overall time investment of instructors and trainers in online course preparation and delivery, how to cost justify Web-based training, ways to make Web-based training profitable, whether their organizations had effectively incorporated online mentoring, whether their organization had linked e-learning and knowledge management efforts, and what corporations and other training settings had model e-learning programs or systems. Those exploring such issues might include analyses by industry type and size of organization.

3.6 Usefulness of Web-Based Tools for Teaching and Learning

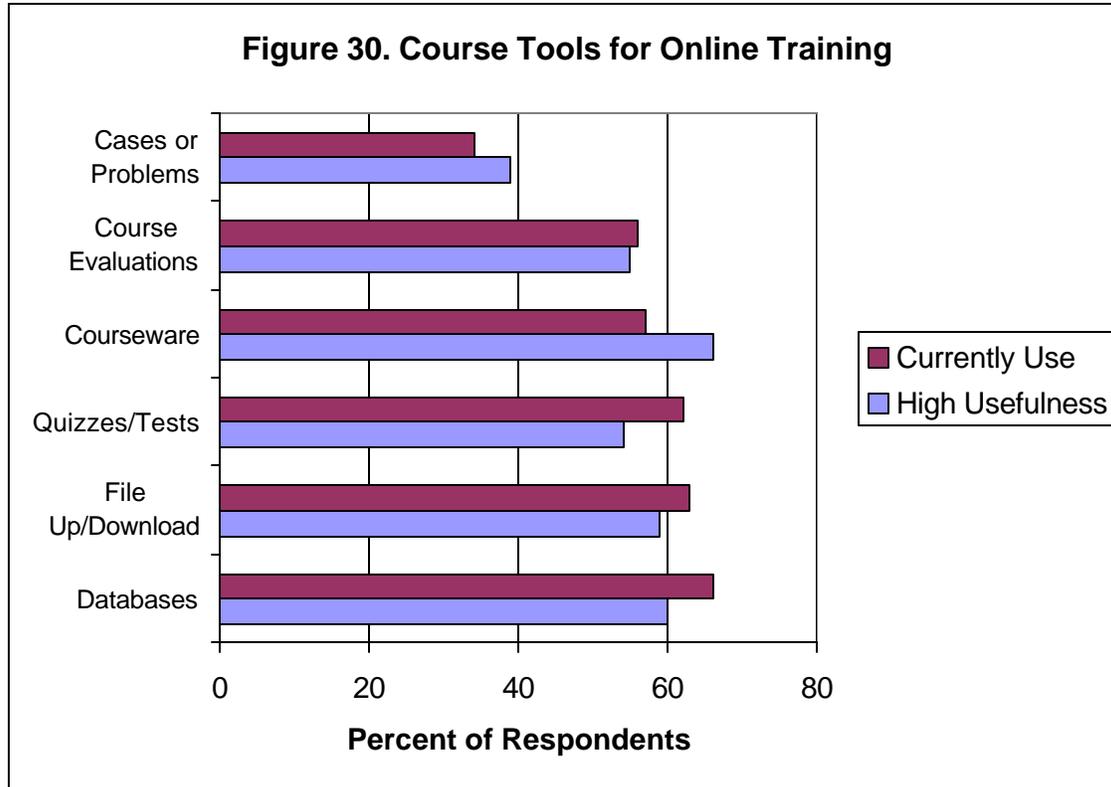
Based on many interesting trends and gaps in online instructional tools we found in the previous higher education survey, we were also extremely interested in the attitudes of the corporate respondents toward Web-based instructional tools, resources, and activities. A key goal of this survey was to discover the types of online instructional tools that were currently popular and also needed. To find out, we asked the respondents to rate the degree of usefulness for items in the following categories:

- (1) Online Course Tools (e.g., online databases, tools for quizzes or tests, cases, questions, or problems related to classroom material, online student course evaluations, online courseware, and file uploading and downloading tools).
- (2) Collaboration and Sharing Tools (e.g., tools for sharing best practices, learner collaboration, asynchronous discussion forums, real-time chats, interactive feedback and annotation, student or trainer profiles, instructor or trainer collaboration, and online technology demonstrations).
- (3) Instructional Activities (e.g., online critical and creative thinking activities, interactive and collaborative online tasks, etc.).
- (4) Web Resources (e.g., search engines, digital libraries and online research guides and resources, online glossaries, Web link tools, articles and journal links, book recommendations, newsgroups, general resources on training, and resources specific to training in different fields).

After rating each item as low, medium, or high usefulness for online teaching and learning, our survey respondents were also asked whether they, in fact, used that item in their online training courses.

Useful Online Course Tools. The tools for developing and placing courses and course resources online are vital for e-learning. In general, these corporate trainers perceived high utility for most of the online class tools we had them consider (see Figure 30).

Perhaps more importantly at least one-third of the respondents (and usually over half) actually used each of the items in this category. As with the college instructor survey, respondents tended to rate the tools that they actually used as more beneficial. Of course, such findings were not too surprising.



As indicated in the above table, the highest rated item in terms of perceived usefulness concerned courseware tools to place an entire course on the Web. Over 65 percent of the respondents felt online courseware was highly useful, while 57 percent of respondents were in organizations that currently used online courseware. Naturally, the relatively narrow gap between perceived high utility and actual use is indicative of an area in which it is difficult for some companies to develop or gain access. Interestingly, in the college instructor study, only 49 percent of respondents were highly supportive of tools to place their entire courses on the Web and 47 percent were using such tools. And those were early Web adopters! Could this reflect differences in support, time, or expectations between the corporate training world and higher education? Future surveys might attempt to ferret out such differences.

As with our previous survey of college instructors, Figure 30 also shows that corporate trainers and instructional designers valued tools that allowed them to quickly and easily upload and download files. About 60 percent rated these tools as highly useful and 63 percent currently used them in their online training. It is these types of simple tools that instructors universally gravitate toward (Peffer & Bloom, 1999).

Online databases also received high ratings and were actually used by more corporate trainers than any other item (66 percent of respondents used them for Web-based learning). Both course evaluations and online quizzes and tests were rated as highly useful by over 50 percent of the respondents (55 and 54 percent respectively), but online quizzes and tests were currently used more often (62 percent) than online evaluations (56 percent).

Online posting of cases, problems, or materials related to a class or training event was the least valued and also the least used of the online class tools. In fact, it was the only item that was valued as well as used by less than half of the 201 survey respondents. This finding was somewhat surprising since the higher education respondents of our previous study rated this item much higher. Over 20 percent of corporate respondents rated this item low compared to only 4 percent of college instructor respondents. Perhaps this is an area of key differences between corporate settings and higher education. With the focus on conceptual understanding in higher education, there may be more need for case problems and materials placed online than in more skill-based corporate training settings. Workplace environments may be more focused on real-life case materials uploaded for self-study, than instructors guiding student learning through a series of posted cases and problems.

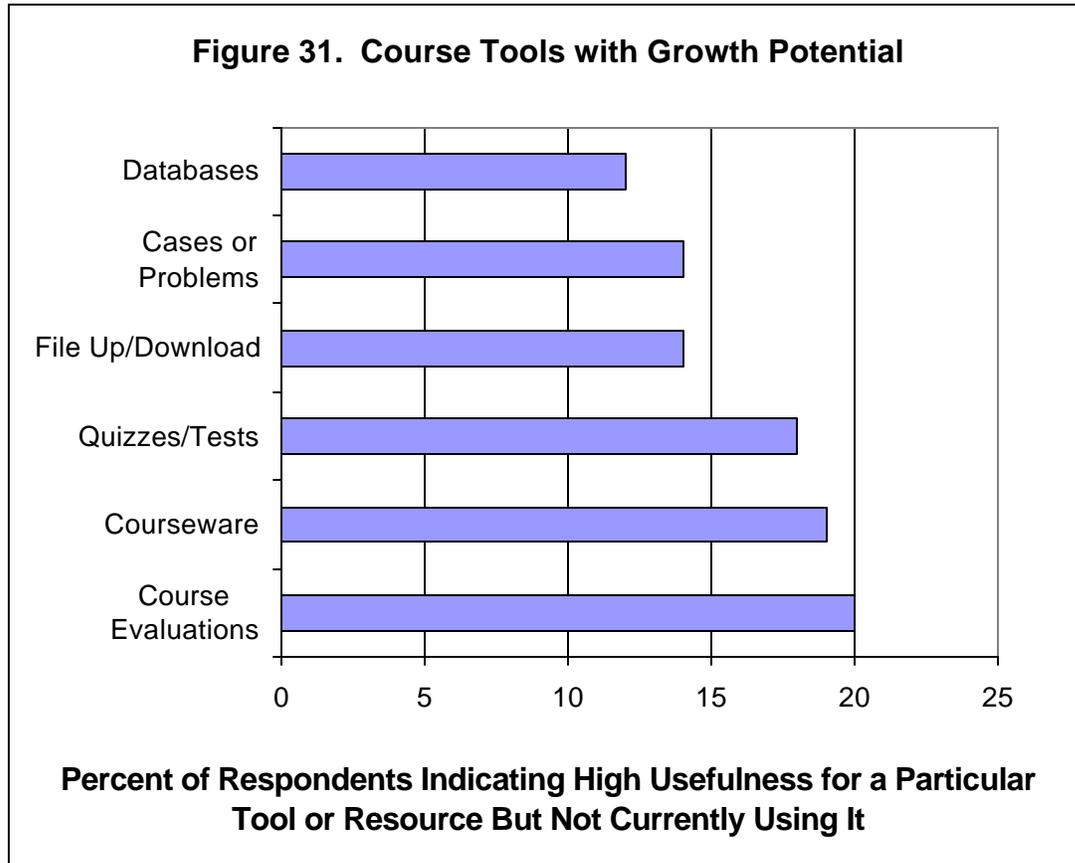
Why are some simple tools such as file uploading and online databases highly used and rated? Research reveals that online instructors tend to employ simple tools such as e-mail, static or dynamic syllabi, Web links to course material, posting lecture notes online, and accepting student work online, while significantly fewer use online chatrooms, multimedia lectures, online examinations, animation, and video streaming (Peffer & Bloom, 1999). Many instructors simply rely on e-mail over more complicated communication and interaction tools (Mioduser, Nachmias, Lahav, & Oren, 1998).

Growth Potential of Online Course Tools. The propagation of e-learning conferences, research reports, and resources signifies that online training is an area experiencing tremendous growth. These research reports and resources, however, fail to suggest which types of online tools will experience the most growth in the future because it is not easy to measure. During our analyses, we found that sizable percentages of respondents indicated certain tools were highly useful, but their organizations were not taking advantage of them. In effect, the gap between perceived high usefulness and actual use earmarked the tools and resources for e-learning growth.⁷

As shown in Figure 31, online course evaluation tools had the leading growth potential, with almost 20 percent of respondents not currently using these tools in their organizations but still viewing them as highly useful in the future. Online evaluation tools, therefore, are an area of potentially explosive growth. Nearly the same growth was predicted for courseware that allowed companies to put their courses completely online. Online quiz and testing tools had the next largest gap or perceived need at 18 percent,

⁷ Growth potential was calculated as the percent of respondents perceiving high usefulness for a particular tool or resource within their organization's Web-based teaching and learning initiatives but who indicated that their organizations were not presently using it.

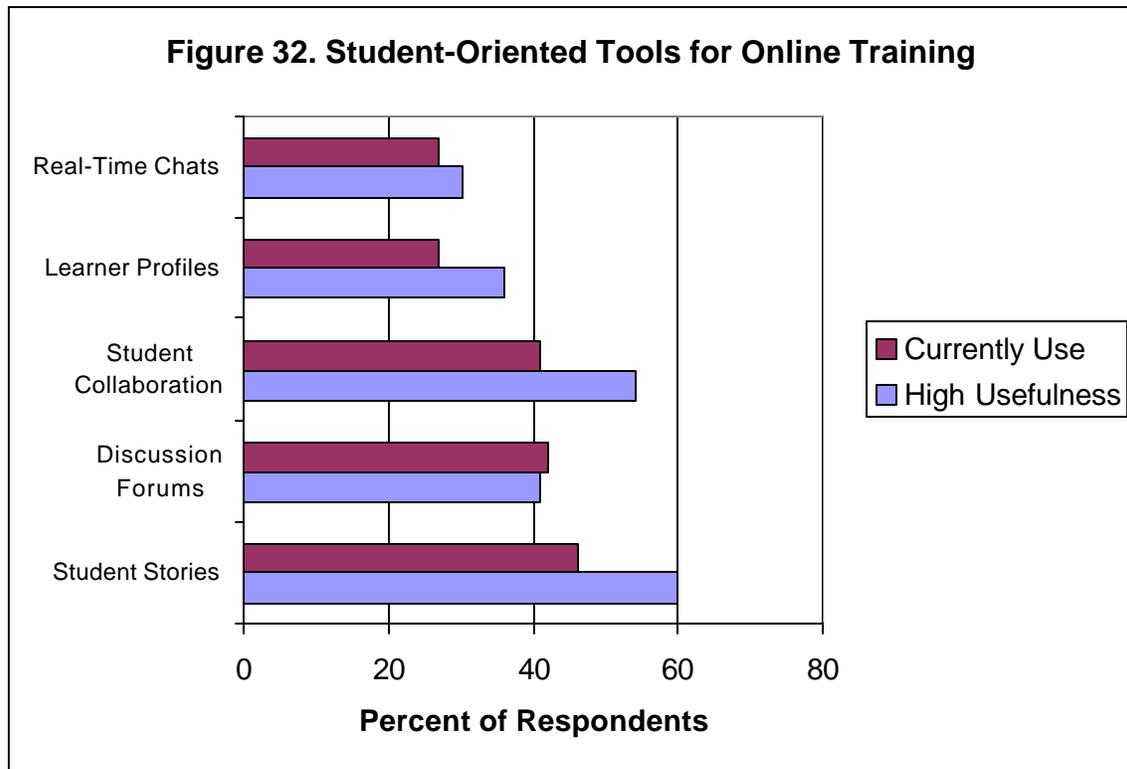
followed by online case or problem tools as well as file uploading and downloading tools at 14 percent each. Interestingly, online databases have the lowest perceived growth potential at 12 percent. This last finding reflects that fact that databases are already the most widely used course tool; in fact, online databases were used by nearly 70 percent of our respondent organizations.



Useful Student-Oriented Tools. A myriad of new collaborative learning technologies have recently emerged for both work and educational environments (Bonk & King, 1998; Bonk & Wisner 2000). While they offer unique ways for learners, instructors, and experts to problem solve, inquire, discuss, and generally interact (Cummings, Bonk, & Jacobs, in press; Oliver, Omari, & Herrington, 1998), some of these tools are oriented towards learners while others tend to target instructors. In our survey, we evaluated both types of tools and found student-oriented tools were usually rated slightly higher than similar instructor-oriented tools.

Not surprisingly, respondents seemed more familiar with the general online tools than with those specific to individual learner needs and preferences (see Figure 32). Perhaps many have yet to take an online class and experience the benefits of these learner tools. Perhaps such tools are newly emerging. And perhaps student-oriented tools simply are less functional than the general ones. In fact, respondent ratings of student-oriented Web-based learning tools were generally slightly lower than online class tools.

Nonetheless, many of our respondents still perceived high utility for software tools that enabled learners to collaborate.



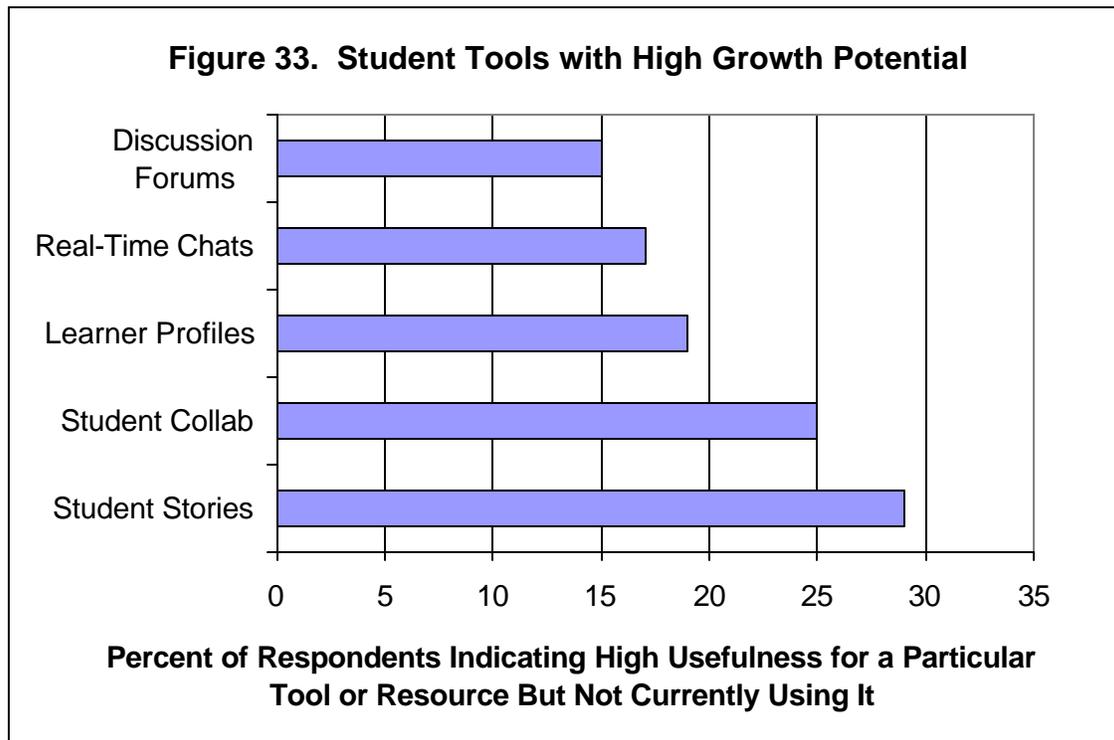
At the high end, tools for students to share stories of their successful practices (i.e., “best practices”) were rated as highly useful by 60 percent of those surveyed. Only about 46 percent currently worked in organizations that used these tools, however. In a similar vein, 54 percent of those surveyed indicated that online collaboration between students was highly useful, while just 41 percent currently use such techniques during Web-based training.

Other student-oriented tools were rated somewhat less enthusiastically, but were still deemed highly useful by over one-third of the respondents. For example, discussion forums and online bulletin boards were rated by 42 percent of respondents as highly useful while online learner profiles received 36 percent high ratings from respondents. As in the college instructor survey, learner profile tools and online chats did not fare so well; learner profiles and real-time chats each were only used by 27 percent of respondent organizations.

It is conceivable that synchronous chats were perceived as relatively meaningless chatter, not learning. At the same time, some organizations may have found them too difficult to monitor effectively. Whatever the reason, this collaborative tool was not well regarded by our respondents. Such findings were surprising given the recent popularity of live e-learning technologies that provide live or synchronous instruction and online

presentations (including opportunities for live chats) to groups of students, employees, or potential clients (Hall, 2000b; Leigh & Benyola, 2001; Welber, 2001).

Growth Potential of Student-Oriented Collaborative Tools. As with the course tools, discussed earlier, student-oriented tools were analyzed for potential growth by comparing respondents' high priority needs and actual use. Using our indicator of likely growth potential, it was obvious that student-oriented collaborative tools will play a significant role in the expansion of e-learning. As can be seen in Figure 33, tools that allow students to share stories about their best practices and engage in collaboration and learning partnerships with other students are likely to have the largest growth potential. In fact, over a quarter of the respondents indicated that they do not currently use these tools but still viewed them as highly useful for their future work. Even the student-oriented tools with lower growth potential have as high a percentage of potential users as any of the online class tools, including discussion forums (15 percent), real-time chats (17 percent), and learner profiles (19 percent). Certainly, student tools for collaboration, sharing, and communicating seem ripe for growth.

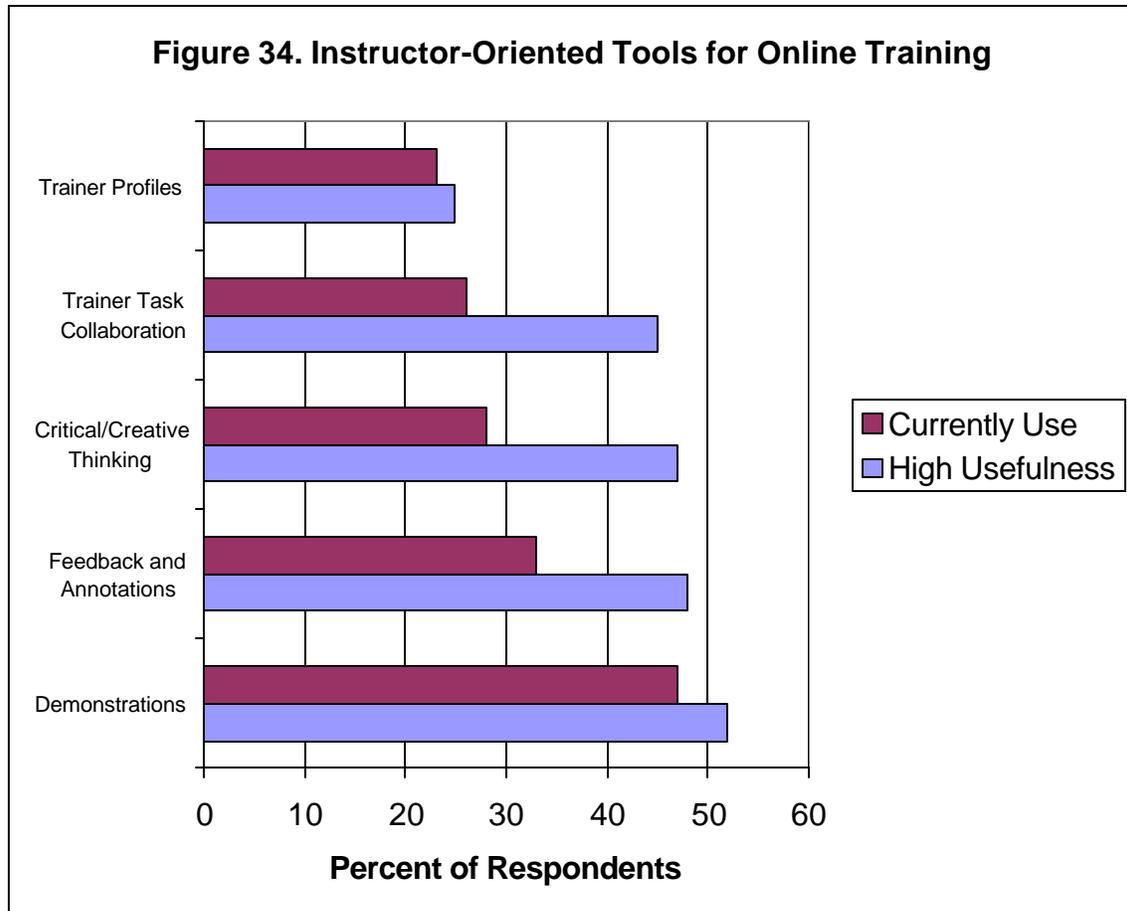


Useful Instructor-Oriented Tools. While the Industry Report 2000 (TRAINING Magazine Staff, 2000) revealed that only 29 percent of corporate training environments involve an instructor, online interaction with instructors, trainers, mentors, and coaches may increase as firms increasingly adopt blended approaches to online training (van Dam, 2002). A mentor or guide can help personalize the online learning experience and make it more learner-centered (Adler & Rae, 2002). As was pointed out earlier with the case of Motorola, the presence of an online mentor, guide, or instructor during the first few weeks of an online experience might become a standard means to raise course

completion rates. Of course, more organizations might lean toward instructor-student online interaction if better instructional tools existed.

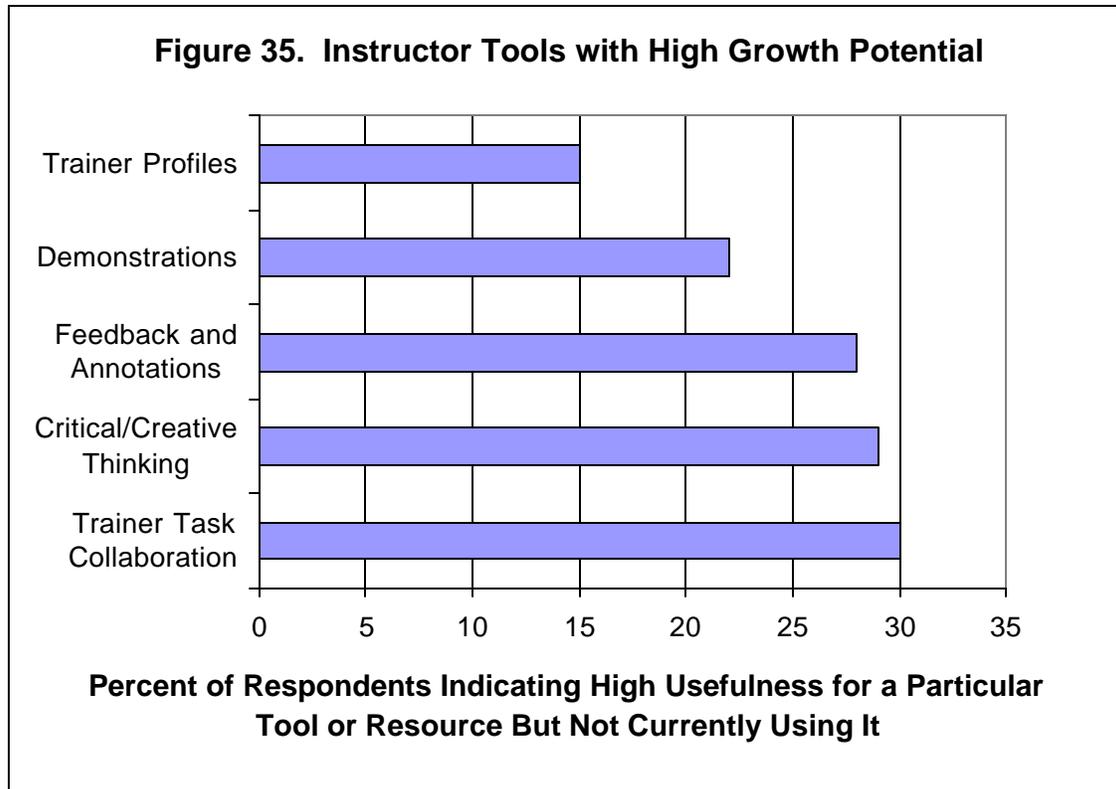
The digitization of books and other online content will undoubtedly lead to significant growth in both student-oriented and instructor-oriented tools. For instance, e-books might have links to ancillary course materials as well as the ability to search and highlight text. Virtual glossaries and streamed media might allow concepts to be learned more readily. Instructors might also annotate information, provide feedback on test results, deploy simulations that allow text concepts to come to life, and engage in content discussions with students. With e-books, they could further customize the online texts by removing and rearranging information, adding new materials, and posting announcements. Companies such as MetaText (a division of netLibrary) and Rovia already provide such tools and services (Letts, 2001).

As mentioned earlier, instructor-oriented tools received somewhat lower evaluations than similar student-oriented tools. The only instructor-oriented tool that over 50 percent of respondents selected as highly useful involved the development of online technology demonstrations (see Figure 34). Additionally, such technology demonstrations had actually been used at more respondent organizations (47 percent) than any other student-oriented or instructor-oriented software items. Online interactive and collaborative tools that allow for critical and creative thinking were considered highly useful by 47 percent of our respondents, yet only 28 percent were currently using such activities or pedagogical approaches. Obviously, those surveyed perceive a need for greater access to tools that engaged learners in creative ways and required them to undertake critical thinking. As in our earlier faculty survey, only 10 percent of respondents rated this item as low in importance. Similar gaps existed for both interactive feedback, comment, and annotation tools (48 percent indicated high usefulness but only 33 percent actually used them) as well as trainer task collaboration tools (45 percent perceived high usefulness but only 26 percent actually used them). Finally, trainer profile tools (25 percent highly useful, 23 percent current use) were valued and used by only a small percentage of respondents.



While the results uncovered a high need for tool development aimed at helping online trainers and instructors, it was unclear whether our respondents valued these tools and if they were even aware of their recent emergence. Additional research and usability testing is perhaps needed before further tool development in this area.

Growth Potential of Instructor-Oriented Collaborative Tools. While instructor-oriented tools received somewhat lower overall ratings, our calculation of likely growth shows that many of the tools in this area have tremendous potential. In fact, collaborative tools that allow trainers to share tasks and activities with other trainers represented the largest pool of highly interested potential users. As can be seen in Figure 35, thirty percent of respondents do not currently use these tools but see them as highly useful for their future work. Instructor tools to foster critical and creative thinking tools were also areas with high potential growth at 29 percent. Similarly, tools that facilitated interactive feedback and annotations within learner work showed large growth potential with 28 percent of respondents classified as highly interested potential users. Online technology demonstrations (23 percent) and trainer profiles (15 percent) have less growth potential, but still offered a reasonable number of potential users.

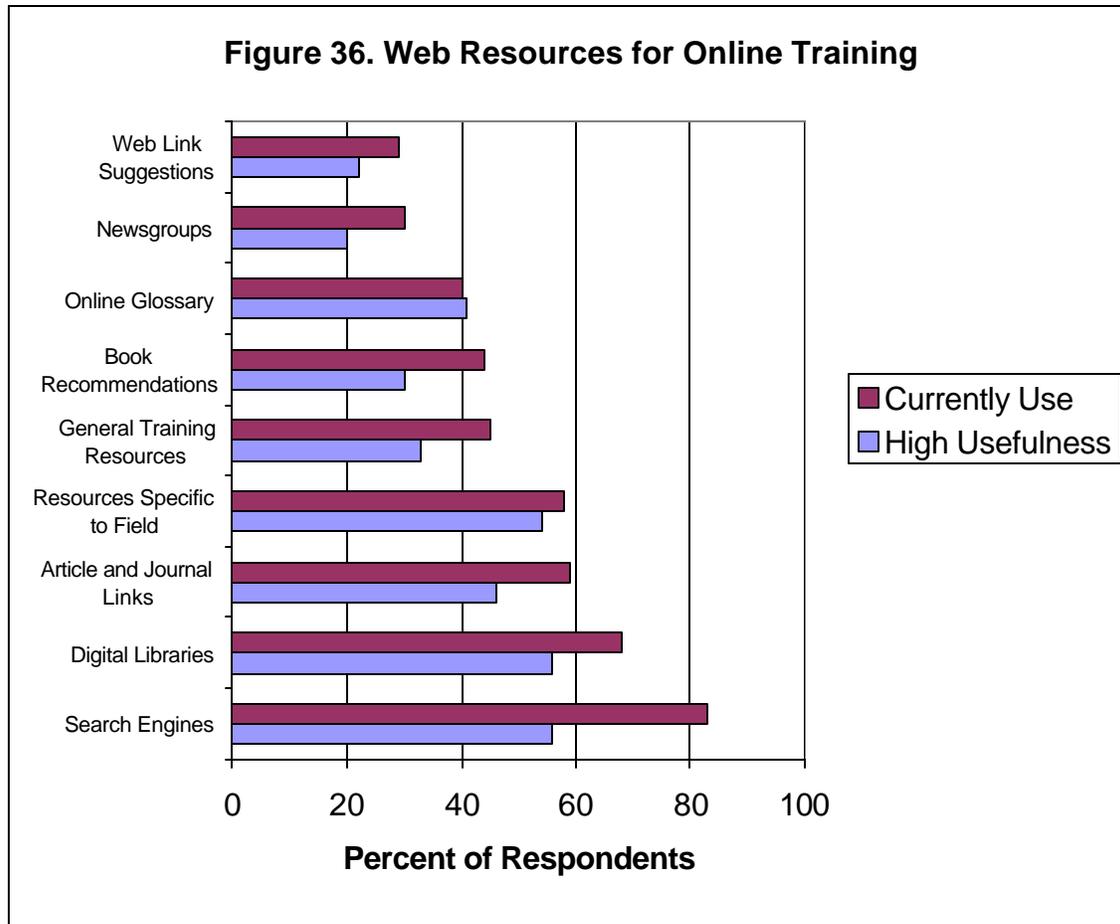


Overall, these results are further indication of the need for better pedagogical tools in online training environments. The data collected here uncovered a budding market for such tools. Critical and creative thinking tools as well as annotation and feedback tools were areas identified as lacking both in this survey as well as in the higher education one. Perhaps the lack of tools for critical thinking and argumentation as well as tools for creative brainstorming, role-play, and idea generation are areas where e-learning companies may want to invest some monies. In any event, e-learning companies should design more powerful courseware tools for Web-based collaboration and sharing.

Useful Web Resources for Online Training. Since the Web is highly touted as a rich resource for learning, respondents were asked to rate the degree of importance regarding different Web resources (e.g., newsgroups, online glossaries, search engines, etc.). Not surprisingly, the most widely used online resources were search engines (see Figure 36). Exactly as in the college instructor study, over 83 percent of respondents noted that their organizations currently used this type of resource. Once again, less than 10 percent of respondents rated this item as low in usability. Only 56 percent rated search engines as highly useful, however.

As detailed in Figure 36, some resources received relatively high ratings. For example, digital libraries, which allow users to quickly access information from varied locations, were seen as highly useful by 56 percent of our respondents. These digital libraries and online research guides and resources were currently used by about 68 percent of respondent organizations. The only other item over half of our respondents rated as

highly useful involved access to resources specific to one's field. It is not too surprising that individualization and specialization of Web resources is becoming increasingly important. In fact, 57 percent of respondents already have access to such resources.

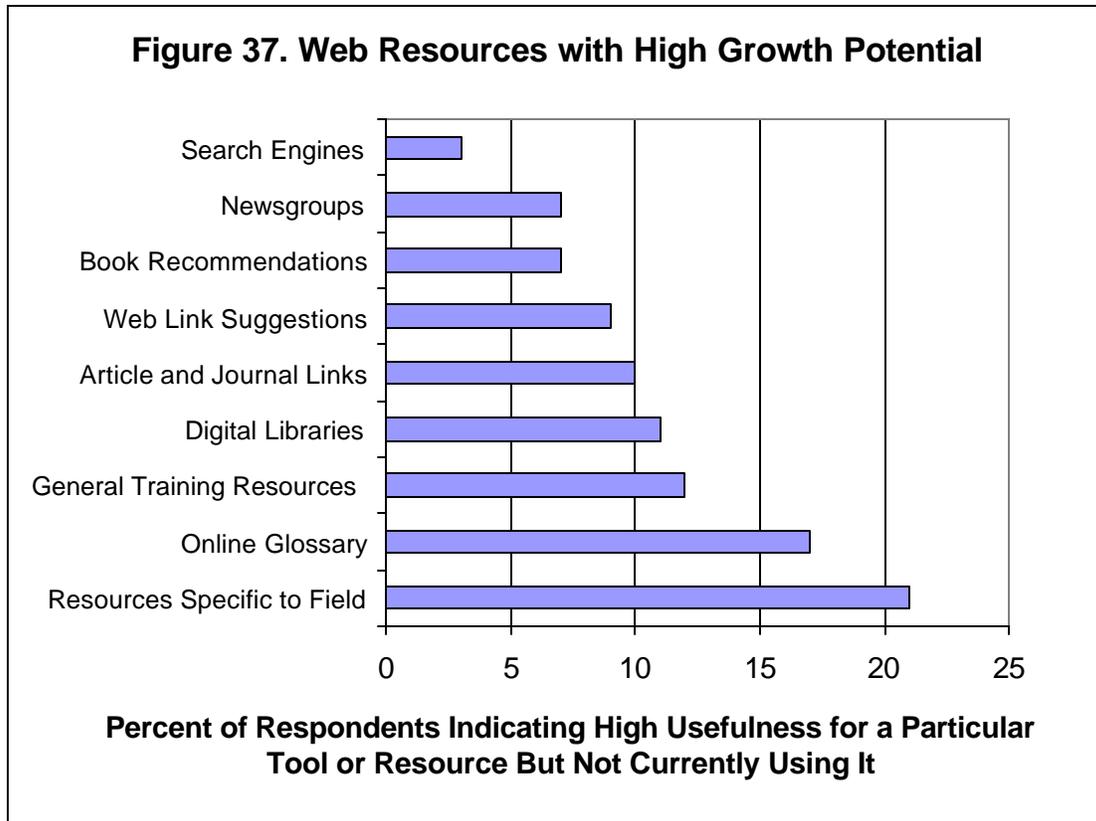


The next tier of tools received mid-level evaluations. Between one-third and one-half of respondents noted that these Web resources were highly useful, including article and journal links (46 percent), online glossaries (41 percent), and general training resources (33 percent). Out of all of the Web resource items, only online glossaries currently had fewer users than respondents rating it highly useful, though this was slight (40 versus 41 percent).

Three types of Web resources received poor evaluations from our survey respondents. For instance, only 30 percent of respondents perceived book recommendations as highly useful, while Web link suggestions were rated as highly useful by less than 22 percent of respondents. As in the faculty survey, online newsgroups were the lowest rated Web resource, and, in fact, received the lowest evaluation of any online tool. Even so, these low rated tools were currently used by about one-third of respondent organizations.

The last analysis suggests that not all Web resources are created equal in the online training world. Search engines, digital libraries, specific Web resources, article and journal links, and online glossaries all received at least modest support. In contrast, tools for offering book recommendations, making Web link suggestions, joining online newsgroups, and accessing general training resources related to learning and instruction were considered less important. As in the faculty survey, Web resources were more accessible and easier to use within e-learning environments than tools for collaboration, sharing, and interactivity. Consequently, the use of Web resources currently exceeds their perceptions of high usefulness. Could it be that scores of trainers and instructors use Web resources simply because they are there?

Growth Potential of Web Resources. Using the Web as an online resource was probably the earliest form of online training and, as a result, has become well established. This fact is illustrated by the higher percentage of current users when compared to highly useful ratings across all the resources assessed here (see Figure 37). Consequently, Web resources in general have the smallest growth potential. There do seem to be two areas, however, with a large percentage of highly interested potential users. Both areas involve increased specialization of Web resources. In particular, resources specific to one's field were highly desired but were currently used by less than one in five respondents. Such findings help validate predictions that increased specialization of Web resources is likely to occur over the next decade. The only other item with fairly high growth potential was the creation of online glossaries with links to examples on the Web; 17 percent of respondents highly desired such tools but were not presently using them.



Our findings in this section suggest a relatively high and diverse use of Web resources in online training. Web resources are highly valued by trainers since they can augment prepackaged instructor notes and course materials with visual depictions of concepts, replace the need for textbooks with online articles and glossaries, provide more current issues and research, and link to expert commentary and guest lectures. Online resources and tools to search, share, and evaluate online course materials are vital parts of one's Web-based teaching arsenal.

Web tools and resources offer unique ways for learners, instructors, and experts to interact (Cummings et al., in press). There are now Web tools for student collaborative inquiry, problem-based learning, articulation and dialogue, debate, and personal reflection (Bonk & King, 1998; Oliver & McLoughlin, 1999; Oliver et al., 1998). Whether effective use of such tools creates online communities of practice is unclear. In effect, the use of specific training resources, online glossaries, search engines, and digital libraries illustrates that the Internet has spawned a new type of training—one that is reliant on the Web for a significant part of instruction. Online training in an online world is different, and trainers need to be prepared for it.

Final Reflections on Web-Based Tools. As the findings above disclose, there are a myriad of areas wherein software development companies might partner to develop and test new Web-based training tools. The numerous large gaps between teaching practice and perceived utility reveal a need for more collaborative and interactive tools in e-

learning environments. The results also provide a glimpse into the current direction of Web-based training practices. For instance, software developers might want to target annotation and feedback tools; they are highly valued but not everyone is using them. They might also create ways for instructors and students to collaborate online, engage in demonstrations, annotate and critically evaluate papers, and link to visual depictions of concepts in action.

There are some interesting trends across this report and our earlier study of college instructors. In both cases, our findings revealed that tools for collaboration and resource sharing were highly valued by our respondents but tended not to be available, and when they were, they were underutilized. In the present study, tools for instructor and student sharing, online demonstrations, Web-based examinations, annotation and feedback, and critical and creative thinking all had perceived value that far outstripped their actual use. Such consistent findings point out that there may be more overlap in e-learning needs between corporate training and higher education settings than some may admit to. What may be the most striking aspect of both studies was the number of tools and activities that were already in substantial use, as well as the large percentage of high usefulness ratings that many additional tools received. Certainly this is evidence that online training is a growing field with many needs, possibilities, and emerging trends.

3.7 Pedagogical Practices for Corporate E-Learning

This section of the report primarily relates to instructional techniques to engage learners and motivate them through the online course. Since the recent Industry Report 2000 from Training Magazine Staff (2000) revealed that most online training involved learners interacting solely with a computer, not an instructor or one's peers, some readers may be tempted to skip this section. However, the emergence of blended approaches to training elevates the importance of knowing the types of online instructional approaches that are more prevalent and effective. Blended approaches to training include live or face-to-face instructor led training combined with self-paced online activities or some online modules without an instructor and other online events requiring instructor facilitation or mentor guidance (van Dam, 2002; Rowe, 2000).

New Instructional Roles. As training environments become more complex, compressed, data-rich, and demanding due to Web-based training, the primary job function or title of the trainer may change to "facilitator" or "coach" (Masie, 2002). According to Elliott Masie (2002), unlike conventional classrooms where learners are more hesitant to indicate their needs for help, e-trainers must be prepared to address huge increases in learner requests for support. They must also react to fast changing instructional situations or events with sound pedagogical techniques. Moreover, they need to be adept in merging resources, technologies, and techniques.

Online support may not always come from the trainer. In some systems, there is an online community that provides timely learner support and information. In other systems, online guidance or mentoring can also be obtained from electronic tutors through sound, alternate explanations, virtual depictions, and simulated worlds that allow

the learner to learn more rapidly and effectively (Adler & Rae, 2002; Report of the Commission on Technology and Adult Learning, 2001). Firms such as Indeliq and large training organizations such as the U.S. Army have developed intriguing online training and support systems and tools (Wardell & Paschetto, 2000, 2001).

Our earlier survey of college instructors made it apparent that better pedagogical tools and strategies were needed for e-learning environments. In fact, the most significant gap between the software tools college instructors used and tools they indicated would have high usability was in the area of online tools for critical and creative thinking. A need for more motivational and engaging learning environments was also noted by many of these higher education respondents.

Such issues appear to be true of corporate environments as well. For instance, a recent comparison study of interpersonal skills training in online and instructor-led courses found that lecture and facilitated discussion dominated the instructor-led courses, while reading and drill activities were predominant in the online courses (Gilmore & Fritsch, 2001). These differences may have been due to the fact that, unlike higher education environments, the online training courses were self-paced and without instructor guidance. Consequently, the instructor-led courses employed a greater number of instructional strategies (e.g., oral or written reflection, paired activities, and small group assignments) than comparable online courses. In addition, assessment in the instructor-led courses could be conducted in live lab environments with simulations of conflict resolution problems, whereas the online courses strictly relied on multiple choice pre-tests and post-tests for assessing learner progress. At the same time, online courses did allow learners to skip sections of the course that they had already mastered.

When instructors moderate online courses, some instructional approaches and techniques are more prevalent. For instance, Bonk and his colleagues have discovered that there is more instructor feedback, questioning, advice, and social acknowledgements in online environments than instructional techniques such as modeling and direct instruction (Bonk & King, 1998). In fact, direct instruction is often prevalent in just 10 to 20 percent of online instruction. In a review of the research on pedagogical practices in online learning and the role of the instructor, Bonk, Wisher, and Lee (in press) found that new online technologies increasingly facilitate or promote student-centered activities. In such environments, the role of the instructor or trainer typically shifts to a facilitator, mentor, or coach who provides leadership and wisdom in guiding student learning (Adler & Rae, 2002; Dillon & Walsh, 1992; Doherty, 1998). Gilly Salmon (2000) suggested that online instructor roles also include aspects of convener, host, conductor, gardener, personal learning trainer, tutor, leader, and negotiator. As Carr (2000) stated, however, until instructors feel comfortable with such new roles, online courses may experience higher than expected dropout rates.

Certainly, there are a myriad of responsibilities for the online instructor. Whereas Mason (1991, 1998) advocated three key roles for the online instructor—organizational, social, and intellectual, Bonk, Kirkley, Hara, and Dennen (2001) detailed the pedagogical, social, managerial, and technological issues encountered by instructors in teaching

online. After reviewing these four instructional roles in four online college courses, they detailed the components of each role and added suggestions or ideas to further illuminate them in practice. Their suggestions for the pedagogical role included creating problem or project-based environments, fostering peer interaction and online feedback, encouraging learners to take multiple perspectives, asking probing or Socratic types of questions, building in debate and controversy, and encouraging student exploration and knowledge generation. In response, this section of the survey concerned the pedagogical activities of the online course either as determined by the online trainer or instructor or by the course designer.

Despite recent attention regarding how to design and utilize pedagogical tools for the Web, Bonk and Dennen (1999) have pronounced most online courseware as pedagogically void or negligent. Instead of rich interactivity and active learning experiences, there is a focus on providing repositories of information and tracking student progress through that information. And instead of offering environments rich in social interaction, knowledge construction, learning ownership, information seeking and sharing, debate, reflection, and problem-based learning (Bonk & Dennen, in press; Oliver & McLoughlin, 1999), there are logs detailing when learners have entered and exited the system and tools to report learner participation and examination histories. Learner management is emphasized over learner learning.

Even though constructivist principles are generally ignored in the design of most courseware and course management tools, Michael Allen (2002) contended that these principles are particularly well-suited to e-learning in corporate settings. For instance, he noted that DalmerChrysler relies on a guided discovery approach for its maintenance engineers (including simulated activities, feedback on completion time, access to reference materials, procedural tests, etc.). Along these same lines, white papers from both IBM and Lotus Institute (1996) address the need for team-based learner-centered approaches and active learning in Web environments. According to these reports, Web environments offer opportunities for actively interpreting, questioning, challenging, testing, and discussing ideas as well as the means to collaboratively create and share that knowledge. Unfortunately, reality has yet to approximate these possibilities. As Reed and Francis (2001) contend, most e-learning is conceptual, factually-based, and reliant on recall tests, instead of more interactive, collaborative, action-oriented, and practical.

Some trainers and educators are beginning to realize that the role of the instructor in such an environment is to nurture student generation and sharing of information, not to strictly control the pace and delivery of it (Salmon, 2000). A key goal of more active and engaging online learning experiences is to apply expertise and experience of the different participants or learners to a group problem situation that helps them achieve something that they could not before. Of course, this is not easy. While some admit that online team collaboration requires significantly more time and effort, it can also generate new knowledge, skills, and behaviors (Kulp, 1999).

Instructional Approaches. Since most of research on Web pedagogy has been conducted in postsecondary settings, we wanted to find out whether certain instructional

approaches commonly found in face-to-face training settings were also germane to online training environments. We realized that some of these approaches are not typically found in self-paced training environments since they operate without instructors or mentors. Consequently, we were more interested in instructor-led environments.

In exploring online pedagogy more deeply than in our higher education survey, we asked respondents to rate a dozen different forms of instruction (e.g., lecturing, exploration, discussion, simulations, modeling, coaching, etc.) according to whether the strategy would be best supported in online learning environments, traditional classrooms, or equally in either one. While there was a tendency for respondents to favor traditional environments for most of the 12 strategies, each strategy was deemed equally supported by more than 40 percent of the respondents. Hence, any claims here about the advantages of one environment or the other are cautiously offered.

Figure 38 captures the six strategies with less than a 20 percent gap favoring either online or traditional classroom environments. Of these six, three were slightly favored in online environments, one was deemed equal in effectiveness, and the remaining two approaches were slightly favored in live classroom settings. Instructional strategies with slightly more support in a Web-based format included exploration or discovery environments, activities for student generated content, and case-based strategies. It was not too surprising that exploratory environments were deemed the most suitable to online training (35 percent favored it online, 16 percent favored it in classroom instruction, and 49 percent saw no differences). In fact, this was the only strategy wherein the gap between online and live environments was greater than 10 percent, and favored the online option. As the author has pointed out (e.g., Bonk, Angeli, Malikowski, & Supplee, 2001; Bonk, Hara, Dennen, Malikowski, & Supplee, 2000; Wang & Bonk, 2001), e-learning is ripe for using case-based learning tools and approaches. In terms of this survey, case-based learning was the only instructional technique that more than 70 percent of the respondents rated as equally effective within online and traditional approaches.⁸

Guided learning received the most balanced ratings, with 18 percent of the respondent population considering it better supported by an online environment, 18 percent by traditional ones, and 64 percent believing these two environments were equally suitable. Two methods slightly favoring conventional classroom training were problem-based learning (21 percent versus 12 percent) and modeling (28 percent versus 12 percent). Findings related to modeling were expected since it is one of the least favored online teaching methods (Bonk & King, 1998). In fact, the gap was not as wide as anticipated, perhaps due to the hope or expectation in online corporate training that the instructor can be replaced. However, given the findings of Bonk, Kirkley, et al. (2001) related to the importance of authentic experiences and problem-based learning (PBL) when teaching online, the PBL data were somewhat troubling. Nevertheless, these six methods—exploration, student-generated content, case reasoning, guided learning, PBL, and modeling—provide some initial footing for online environments.

⁸ Case-based learning tools and techniques might include video clips of key situations, team case building, counter cases, expert reviews, peer feedback channels on case solutions, visual representations of decision making processes, and learner reflection logs (Bonk, et al., 2000).

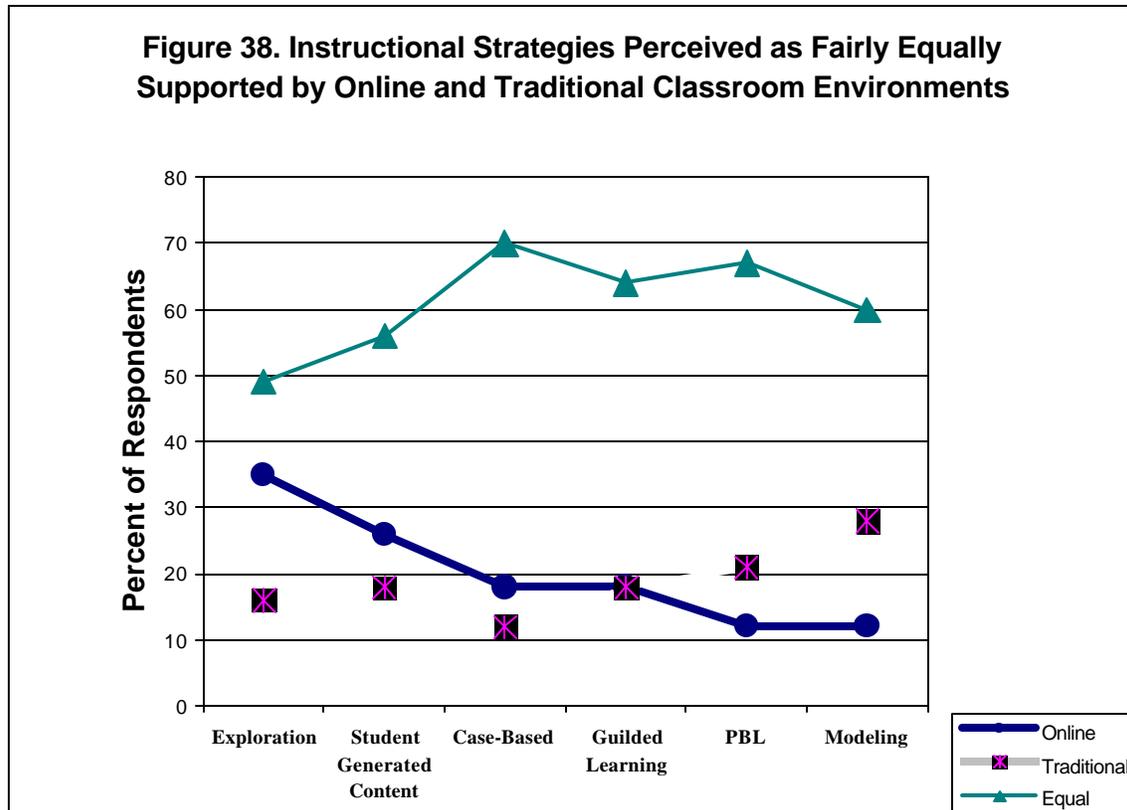


Figure 39 revealed the six methods that were deemed better supported by traditional live instruction. The differences were striking for each of these six:

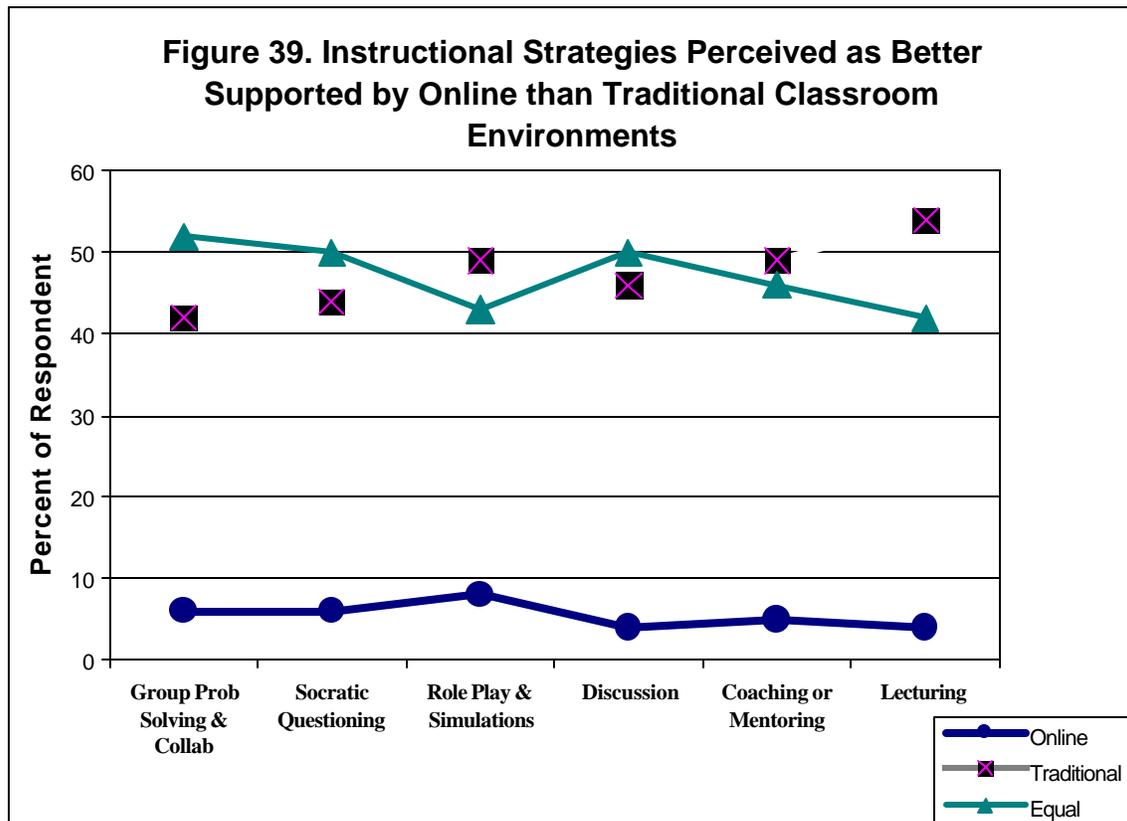
1. Group Problem Solving and Collaborative Tasks (42 percent favoring classroom based versus 6 percent favoring online).
2. Socratic Questioning (44 percent versus 6 percent).
3. Simulations or Role-Play (49 percent versus 8 percent).
4. Discussion (46 percent versus 4 percent).
5. Coaching or Mentoring (49 percent versus 5 percent).
6. Lecturing (54 percent versus 4 percent).

None of these differences were even close. In fact, online training environments failed to obtain more than 10 percent support from respondents in any of these methods. Methods such as lecturing and role-play or simulations received the lowest ratings in terms of whether they were equally supported in live and online settings.

It was interesting to uncover such views when trends in Web-based training and instruction suggest that just the opposite may be true (Bonk et al., 2000). In fact, Vince Rowe (2000, p. 42) recently noted that “the hottest trend, especially when it comes to information technology (IT) training, is the online course coupled with a live mentor.” He further added that this form of “experience is extended even further when those mentors are trained to mentor in a teaching style that correlates to individual learning styles and are backed up by a robust test prep and frequently asked question (FAQ) function.” The Web allows a shared space wherein clients and mentors can review goals, suggest resources, post assessments, record milestones, and chart progress over time

(Olson, 2001). Online mentoring can take place using live interactive chat, e-mail, FAQs, message boards, online assignment and test feedback, and asynchronous discussion. The use of mentors or electronic guests adds to the flexible and interactive nature of online learning (Adler & Rae, 2002). Still, our respondents effectively rated current online environments as poor substitutes for the live instructional experience.

There are ironies in some of the other findings as well. For instance, the respondents rated online discussion as less effective than conventional classroom discussion despite the permanence of such text and the opportunity for meek or shy learners to contribute online (Bonk & Dennen, 1999; Bonk et al., in press). They failed to support the use of online role-play and debate even though conflict and controversy has been found to be effective for online learning (Bonk & Wisner, 2000). And while most educators and researchers currently emphasize online problem-based learning (PBL) tasks and e-learning apprenticeships (Bonk, Kirkley, et al. 2001; Wang & Bonk, 2001), our respondents did not feel that collaboration and teamwork could be as well supported in online as in live settings. Finally, they did not appear to grasp how an instructor might be able to utilize Socratic teaching approaches online, despite evidence to the contrary (Bonk & King, 1998). In fact, given all the recent focus on moderating and facilitating online learning (Salmon, 2000), perhaps only the gap between the effectiveness of face-to-face and online lecturing is truly warranted.



Across the two figures, it is clear that respondents strongly supported the above 12 instructional methods in live environments over online ones. Only methods related to student online exploration, content generation, and case-based discussion were deemed more effective in online environments. Could it be that online environments will necessitate an entirely new set of teaching approaches and pedagogical practices? Or is there an implicit assumption in online corporate training environments that an instructor is less important and, hence, so too are traditional instructional methods? Or is the lack of familiarity with these Web-based teaching and learning environments impacting negatively on their perceptions? Perhaps online trainers and instructors simply lack the courseware tools and systems to engage in more interactive and collaborative online activities. And even after these issues are resolved, they will still have to contend with issues of bandwidth, computing power, and global Internet access.

Motivational Characteristics of Web-Based Learning. With the instructional issues and problems noted above, it is not surprising that student motivation and retention are major online learning issues. Complaints abound about the higher attrition rate and the lack of interaction in online environments. For instance, Moshinskie (2001) points out that Motorola experienced a significant gap between employee online course registration and completion. He then noted that Motorola addressed this through the assignment of learning guides for first-time e-learners. These “learning guides” offered social support and human contact by answering questions and connecting learners to support staff during the first few weeks of the online course or experience. Motorola also paid more attention to the actual learning strategy design by fostering greater interactivity and adaptive paths based on learner responses. Finally, it attempted to optimize the technology infrastructure so that there would be adequate equipment, access, and bandwidth.

However, few designers of e-learning tools have thoroughly considered the motivational principles behind adult learning. How can such tools motivate adult learner participation while fostering student thinking and collaboration? What can be done to motivate learners in online environments? These questions must be addressed in order for online education to thrive while providing positive learning experiences for students.

Moshinskie (2001) reported a model intended to improve learner motivation before, during, and after online courses. In particular, the model was intended to create and explain extrinsic motivational techniques that might complement the intrinsic needs of learners. Precourse motivators in this model included providing a supportive workplace environment and adequate access, communicating and promoting the course (e.g., potential accomplishments, credentials, course credits, success stories, testimonials, etc.), and providing a learning portal with a customized list of possibilities. In addition, his noninstructional strategies highlighted monetary compensation (e.g., perks, salary adjustments, additional pay, paid vacations or time off, gifts, etc.), as well as nonmonetary compensation such as enhancements in one’s work setting, new computer tools and equipment, awards, and career opportunities (Thiagarajan, Estes, & Kemmerer, 1999). Other external motivators included peer pressure or recommendations, access to valued external training events upon completion, and recertification. Importantly,

Moshinskie argued that it is not just the instructional designers who play a role in creating the motivational climate, but also the trainers, training managers, and others who can provide substantive contributions aimed at increasing employee success rates.

As such, several powerful instructional techniques were mentioned by Moshinskie, including linking information to learner prior knowledge, chunking information into digestible learning bytes, varying the information delivery or stimulus, and asking trainees questions about why they enrolled in the class and what they expected from it. Of course, a variety of other techniques can be used in an online learning environment to generate learner interaction and motivation. In reviews of the research on motivation, certain key strategies are consistently found to be effective in conventional classroom settings (Pintrich & Schunk, 1996; Reeve, 1996; Stipek, 1998). For instance, good instructors create a supportive but challenging environment, project enthusiasm and intensity, provide choice, create short-term goals, and offer immediate feedback on performance. As researchers have also shown, they should stimulate student curiosity, control, and fantasy. Naturally, they should make content personal and concrete by using relevant and authentic learning tasks and by allowing learners to create and display finished products. Finally, instructors should foster interaction with peers, create fun and gamelike activities, embed structure as well as flexibility in assignments, and include activities with divergence or conflict.

Many of these principles relate to the highly regarded learner-centered psychological principles from the American Psychological Association (1993) and can be incorporated in Web-based instruction (Bonk & Cummings, 1998). In a recent Delphi study of top distance learning experts in the United States, many of these same principles (i.e., relevancy, authenticity, control, choice, interactivity, project-based, collaborative, etc.) were identified as key indicators of constructivistic online learning environments (Partlow, 2001).

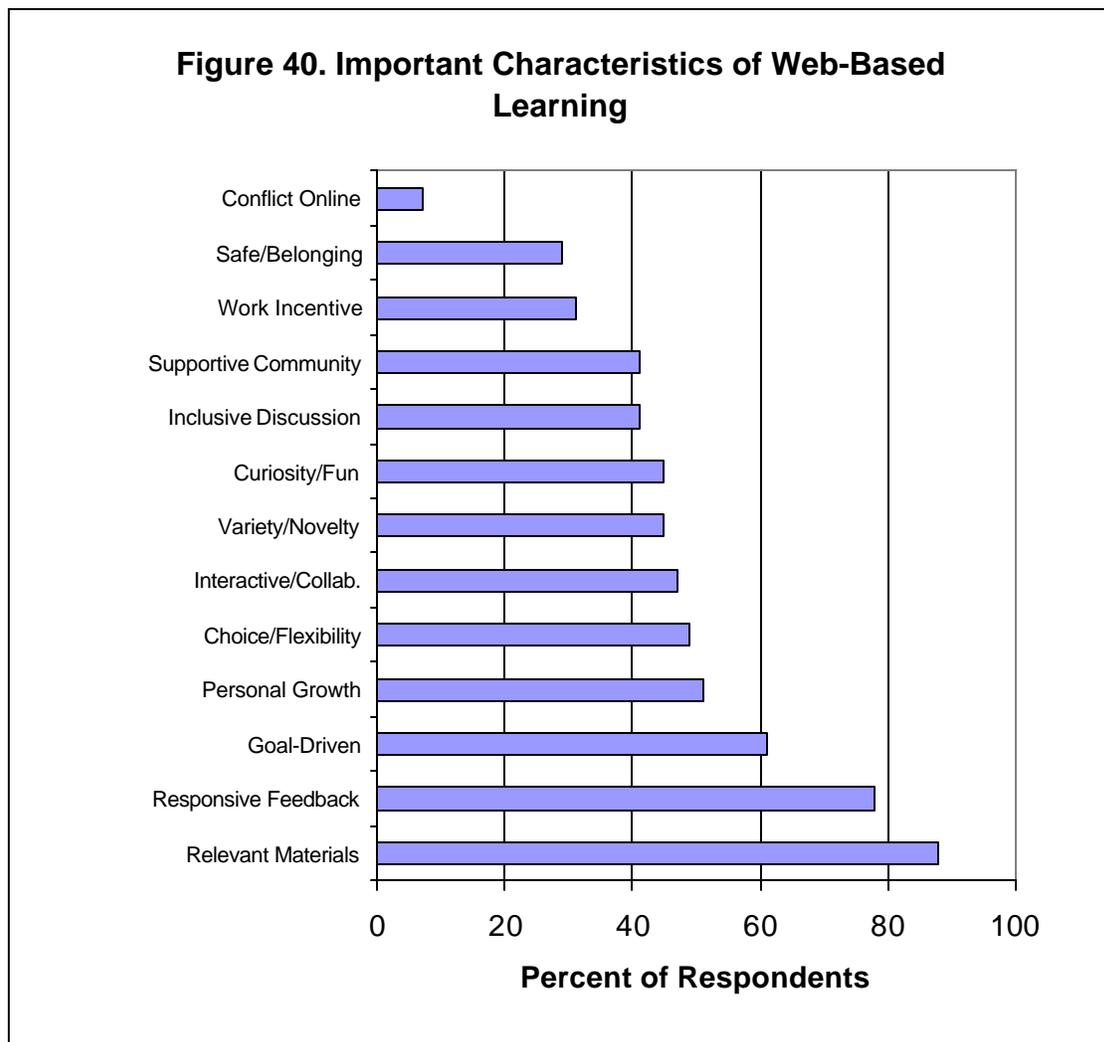
In responding to these trends in psychology, the present survey addressed the intrinsic motivational climate of online learning during course delivery. In fact, this survey asked about the motivational techniques or methods that might be used with adult learners during online training. More specifically, respondents were asked about the importance of 13 different Web-based principles or characteristics when creating or delivering a Web-based course. Twelve of these characteristics primarily related to intrinsic motivation while the other concerned extrinsic motivation.

The respondents rated these 13 items as high, medium, or low in importance. As detailed in Figure 40, only 4 of the 13 principles listed received a highly important rating by more than 50 percent of respondents, as follows:

1. Providing relevant and meaningful materials related to work (88 percent).
2. Timely and responsive feedback (78 percent).
3. Goal-driven and product-based activities (61 percent).
4. Personal growth (51 percent).

Amazingly, less than 3 percent rated relevant materials and responsive feedback as low in importance. Those motivational principles receiving slightly less than 50 percent high

ratings were choice and flexibility in activities (49 percent), interactive and collaborative activities (47 percent), a sense of variety and novelty in activities and delivery format (45 percent), a sense of curiosity and fun in activities (45 percent), engaging in discussion that involves multiple participants (41 percent), and a supportive community of e-learners (41 percent). The only truly extrinsic reinforcer, “work-related incentives” (e.g., wage increases, rewards, etc.), received high ratings of importance from just 31 percent of respondents. Similarly, just 29 percent of survey respondents found a safe climate and sense of belonging to be highly important. The lowest rated item was tension, conflict, or controversy online (7 percent rated this item as high and 62 percent rated it as low). A few respondents offered additional comments wherein they argued for online team competitions, just-in-time answers to questions, convenience and availability, relevance to career path, instructor evaluations on what to improve next, and management support.



As indicated, the respondents favored intrinsic motivational principles related to content relevancy, timely feedback, goals and product-based activities, personal growth, choice, flexibility, interaction, collaboration, fun, and variety in course materials and activities.

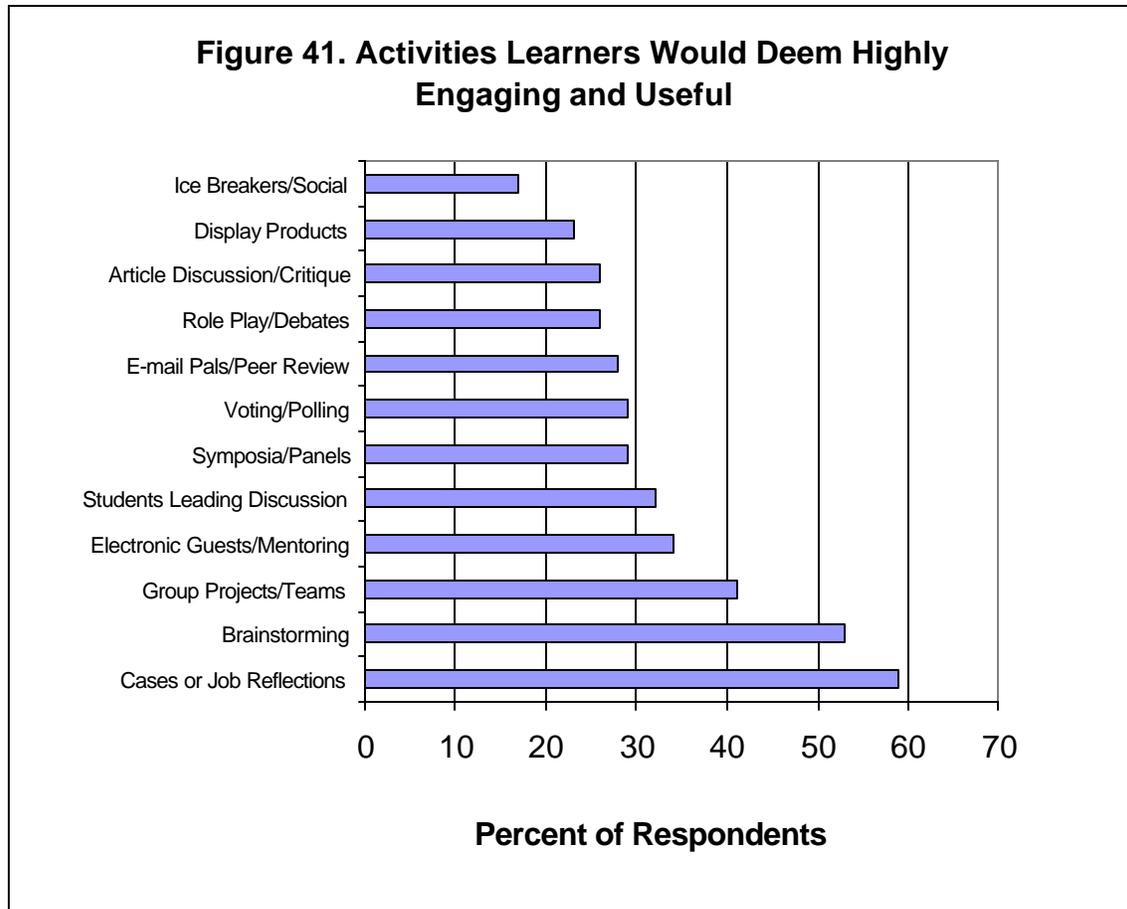
Assuming honesty in the responses, these motivational strategies were deemed more useful than monetary rewards. Less important characteristics of effective Web-based training concerned engaging in discussions with peers within a safe and supportive online community as well as entering environments filled with tension, conflict, and controversy. Such findings parallel the low support online debates and role-play received as well as the low ratings for group collaboration and discussion in the previous section (see Figure 39).

It is clear that many respondents do not perceive online technologies to be on par with live classroom-based instruction. At the same time, many of these responses were likely directed at self-paced environments where isolated students want relevant materials, choice of activities, and feedback on their completion, not tension and debate, discussion, or team conflict. So while some might interpret Figure 40 from the vantagepoint of their particular tool development efforts, there is a need for further research here. The chief motivational principles for online training are only starting to emerge.

Specific Motivational Techniques. In the next item, instead of principles, respondents were asked about a dozen specific motivational techniques (see Figure 41). The results were not as favorable as the prior question. Once again, meaningful and relevant activities were rated highly. For example, these training and human resource professionals indicated that the most valuable online activity from those listed would involve cases or job related reflections (59 percent rated type of this activity as highly engaging and useful). They also thought brainstorming and idea sharing would be engaging and useful (53 percent rated this as highly engaging and useful). The latter finding lends credence to our earlier instructional comparisons wherein the Web was deemed useful for content generation and exploration. Third, group or team projects were considered highly engaging and useful by 41 percent of these trainers and instructors. The remaining nine teaching strategies received high support from a third or less of these respondents, as follows:

1. Electronic guests or mentors (34 percent).
2. Students leading discussion (32 percent).
3. Online symposia and expert panels (29 percent).
4. Online voting or polling activities (29 percent).
5. E-mail pals and peer review (28 percent).
6. Role-play and debates (26 percent).
7. Article discussions and online critiques (26 percent).
8. Displaying student final products online (23 percent).
9. Ice breakers and social tasks (17 percent).

Respondents offered a few additional comments about engaging and useful motivational techniques. For instance, a couple of them suggested using motivational strategies such e-mail correspondence with the instructor, product demonstrations, and continuous individualized feedback and coaching. However, the scant responses to our open-ended question signaled that respondents either had minimal online teaching experience or little time to reflect on the effectiveness of it.



Each of the 12 listed strategies had at least modest support for providing engaging and useful Web-based learning. These findings, however, were somewhat disappointing. Apparently, there is a need to train corporate trainers and instructors in Web-based pedagogy. As Bonk and Dennen (in press) contend, online instruction is not a simple task; most instructors still do not understand how to adapt different technology tools to engage their students, and when they do, the technology is often unreliable. Perhaps this is why so many opt for learning management systems that take control over the process. In response, Bonk and Dennen outlined the necessary steps to employ the 12 motivational strategies listed in Figure 41. Furthermore, Bonk and Reynolds (1997) delineated a similar list of strategies for critical and creative thinking as well as teamwork.

Also of interest here was the low level of support for social tasks and ice breakers. Given the extremely important social aspect of online learning, this finding was unexpected. For instance, in a recent analysis of online problem solving behaviors in a military training setting, Orvis, Wisner, Bonk, and Olson (in press) found that that over 30 percent of the content of student chats were social in nature. Student socializing was more apparent at the start and end of this six month course experience. Studies of asynchronous case discussions among college students have found similar amounts of online socialization (Bonk, Angeli et al., 2001). In fact, Brown and Duguid (2000)

caution that to overlook the social aspects of work and the limitations or “frailty” of the technology will move our culture a few steps back instead of progressing it ahead.

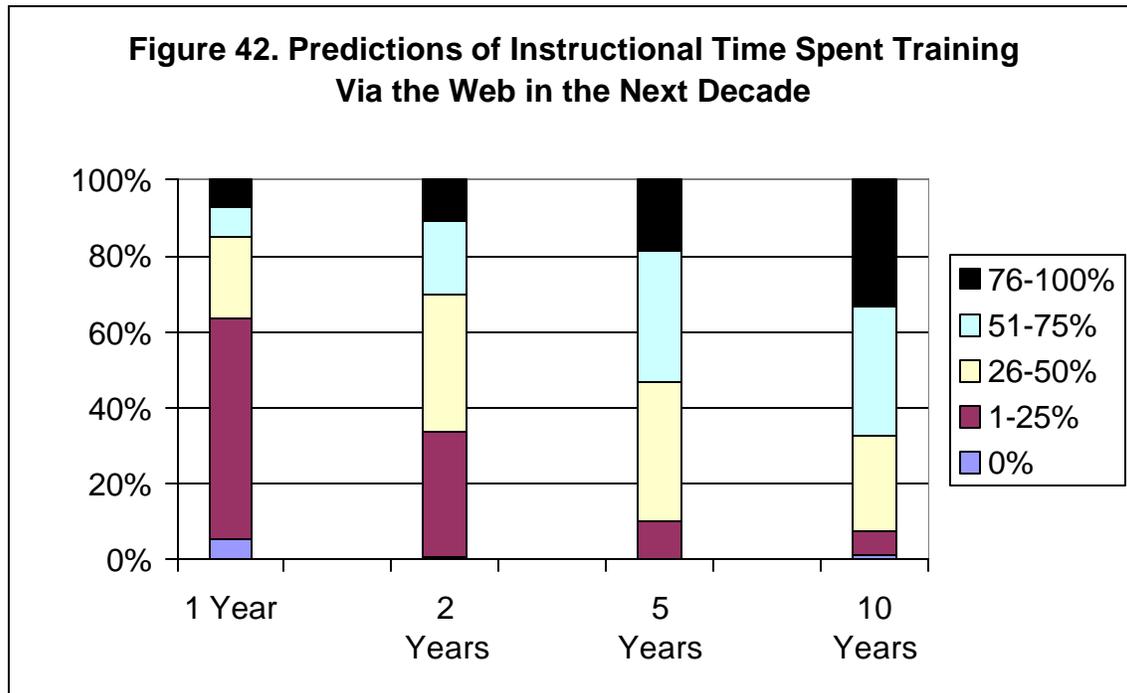
Pedagogical frameworks might help more instructors, trainers, and instructional designers begin to fathom the linkages between tools, theories, and techniques. Do instructors need special credentials to teach in online environments? Who will monitor and award those credentials, if anyone? What are successful ways to form instructional design teams? Web learning frameworks and guides should help in evaluating courseware systems, online content, and the instructional design embedded within that content. Is it unfair to ask enthusiastic marketing assistants at e-learning conferences to define “learning” before you plunge into a huge contract for an expensive learning management system? At the same time, is it unfair to ask content providers that offer online mentoring support about the types of training provided to their mentors and instructors before allowing them to mentor or support online learners? Moreover, why is there a pervasive assumption that e-learning usually involves instructor-less or instructor-proof learning environments? Is this simply a gimmick to enhance ROI calculations and boost sales? Will the pedagogical approaches of online trainers and instructors continue to be ignored or misunderstood? Will blended learning shift such views? The recent boom in online training increases the demand for answers to these types of questions.

3.8 Future Online Teaching Situation

Predicted Instructional Time Online. Since many of those surveyed are both decision-makers and users of online training resources, it was important to get their sense of how large a role online training will play in the future. As detailed in Figure 42, the consensus view was that online training will assume a growing and substantive role in corporate instruction in the next decade. While the majority saw online training as consuming 25 percent or less of their total training time next year, over half envision online training as commanding more than 50 percent of their instructional time in the next five and ten years. In fact, they predicted that online training would jump to nearly two-thirds of their instructional time by the end of the decade. In fact, by 2010, 34 percent believed that at least three-fourths of their time and perhaps all of their time will be devoted to online training, compared to just 7 and 18 percent in one and five years, respectively. While nearly 10 percent do not envision using the Web for instruction in the next year, nearly all our survey respondents identify the Web as a key component of at least some of their instruction within five years. Clearly Web-based training is expected to quickly become a major part of corporate America’s strategic plans.

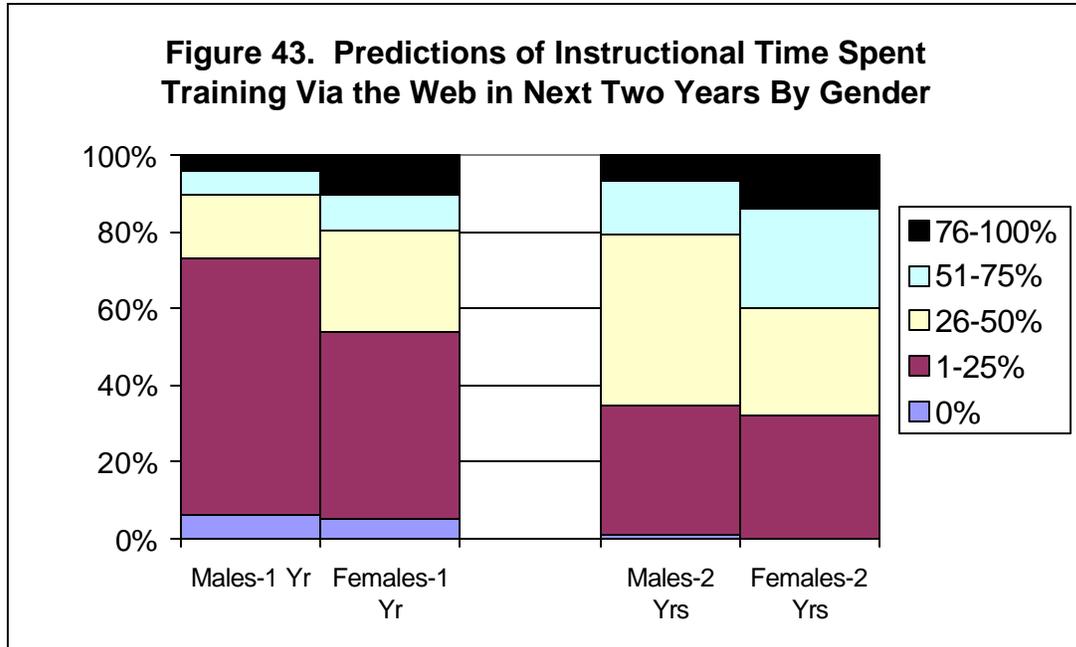
A nearly identical question was asked in our earlier survey of college instructors. Not too surprisingly, the same patterns held in both studies. As instructors across learning environments envision a future that increasingly relies on the Web for instruction, now is the time to redesign and advocate different learning theories, design better tools, test motivational techniques, and plan for new assessment devices for online learning. If these predictions are even close, we are at the cusp of a transformation within adult training and learning. Web-based instruction will not only be common, it will be the

expected form of instruction; at least until some other delivery mechanism is developed and promoted.

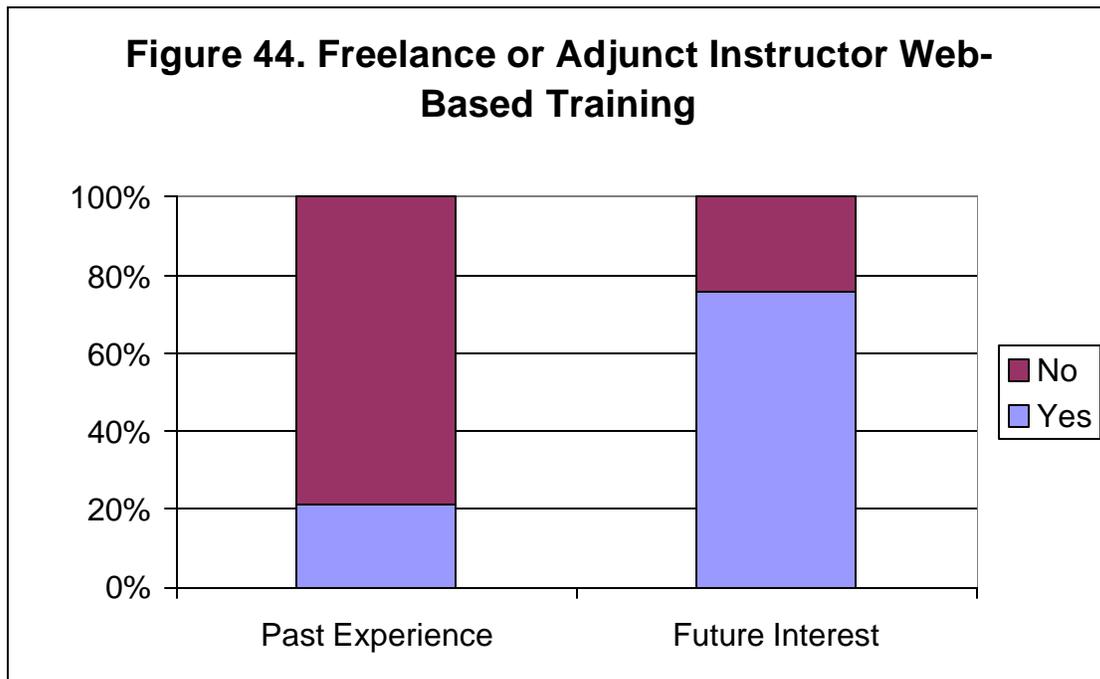


As with the higher education survey, a significant percentage of our survey respondents anticipated not teaching at all by the end of the decade (e.g., due to retirements, job changes, etc.). The percent of respondents finding this question inapplicable jumped from 10 percent in one year to 20 percent in ten years. Their responses were excluded from the figure above.

Interestingly, female respondents expected to devote more of their instructional time to Web-based learning during the next few years than male respondents (see Figure 43). Predictions of online teaching one and two years from the time of the survey showed significant differences between male and female respondents. Although females remained more optimistic in their predictions concerning online teaching five and ten years into the future, these differences were not statistically significant. Another intriguing finding was that 25 percent of female respondents did not expect to be teaching at the end of the decade compared to only 16 percent of the male respondents.



Freelance Instruction. Not only were our respondents planning on increasing online instruction within their companies, but many were expecting to engage in freelance instruction as well (see Figure 44). Whereas nearly 20 percent of our respondents noted that they have engaged in freelance or adjunct instruction in the past, 73 percent of the respondents expressed interest in future freelance instruction in just the next five years. Such a shift is dramatic!



Questions about interest in freelance instruction were also asked in our previous higher education survey. While it may not be too unusual for college instructors to teach for another institution during the summer or when on leave, it was not anticipated that most corporate trainers and other personnel who completed this survey would be interested in teaching for other firms or institutions. Nevertheless, it is doubtful that their primary employers would even allow this kind of activity.

In considering this issue further, it may be that the Web will offer busy corporate executives and instructors a chance to share their expertise and talents with college students and trainees taking online courses. In effect, their willingness to teach online could create more authentic and practical learning experiences. Freelance instruction could also be perceived as a teaching outlet for those frustrated and wanting to extend themselves beyond their present occupation. Equally plausible, some corporate trainers may simply want to extend their job experiences or earnings. Some may become fulltime consultants after exploring online earning possibilities. And still others may simply be considering online instruction as a potential source of revenue after retirement. Finally, there are likely many people grandstanding or waiting for more stable Web-based teaching tools before opting to utilize this form of training and instruction.

The exact reasons for the enormous interest in freelance instruction might be explored in a follow-up survey. Whatever the reason, one thing is certain; there were masses of people in both higher education and corporate settings who expect to offer their instructional services online within the next few years. Innovative companies, Websites, publications, and conference promoters might attempt to take advantage of this emerging trend. For instance, some firms may create “train the trainer” types of courses for freelance online instructors. Others might catalog online trainers and instructors and serve as a matchmaking service between those wishing to train, consult, or teach online and students or institutions seeking instructors for such workshops and courses.

But will freelance instruction be respected and encouraged both within and outside one’s organization? Or will it be frowned upon? How will such freelance instruction be rewarded? Might former CEOs and successful entrepreneurs find a role as “star” online instructors? Given the online executive chats, Webinars, mini-conferences and other synchronous instructional events already hosted by vendors such as PlaceWare, Centra, and LearnLinc, many interesting scenarios for freelance instruction are plausible. As with the previous question, respondent predictions demonstrate that corporate training and instruction is in the midst of a radical change, if not a revolution.

3.9 Obstacles Related to Web-Based Learning

Obstacles to Web-Based Learning. Those attempting to explore or implement e-learning initiatives in any organization are faced with numerous cultural, organizational, and technological barriers and obstacles (Murray & Bloom, 2000). These obstacles might include factors such as time, training, technology support and availability, and perceptions of high costs. Murray and Bloom detailed nine key challenges of learning technologies including:

1. Lack of time, money and support.
2. Limitations of the technology.
3. Difficulty in using the system.
4. Failure to measure learning outcomes.
5. Management resistance to change.
6. Inferior planning and direction.
7. Limited communications regarding how the technology fits with organizational purpose and strategic plans.
8. Lack of innovation champions and leadership.
9. Learner resistance to online training.

These authors appropriately offered nine steps to selecting technology solutions. Some of their key points naturally included determining what the organization and employees need in terms of e-learning (i.e., conducting a needs analysis), selecting technology solutions based on technological requirements as well as limitations, increasing access and use of the learning technologies, linking the technology to organizational needs, and securing management buy-in.

Interviews of training managers at forty global companies found that all but one already had online training initiatives in place (Forrester, 2000). The main obstacles noted in that study were lack of interactivity (mentioned by 56 percent of these training managers), cultural resistance (41 percent), and inadequate bandwidth (36 percent). Not surprisingly, one of the key recommendations was to begin to exploit networked interactivity in courseware by incorporating more simulations, collaborations, and personalization in online courses. Obstacles noted by less than 10 percent of their interviewees included measuring ROI, firewall problems, and lack of standards. As noted below, some of these same issues were raised in this study.

In our study, we divided the obstacles into cultural or organizational barriers and technological ones. In terms of cultural/organizational issues, the main obstacle to effective use of the Web concerned perceptions of high cost. This particular problem was checked by 44 percent of our respondents (see Figure 45). The next highest rated barrier was the time required for instructors to prepare Web-based courses. Whereas this was noted as a primary limitation by 36 percent of our corporate respondents, in our previous study of early Web adopting college instructors, over 60 percent perceived this as an obstacle. In fact, it was the major deterrent that they noted. The fact that course preparation time was a major issue in both studies indicates that those exploring online learning possibilities will want to address this potential problem no matter what the learning environment.

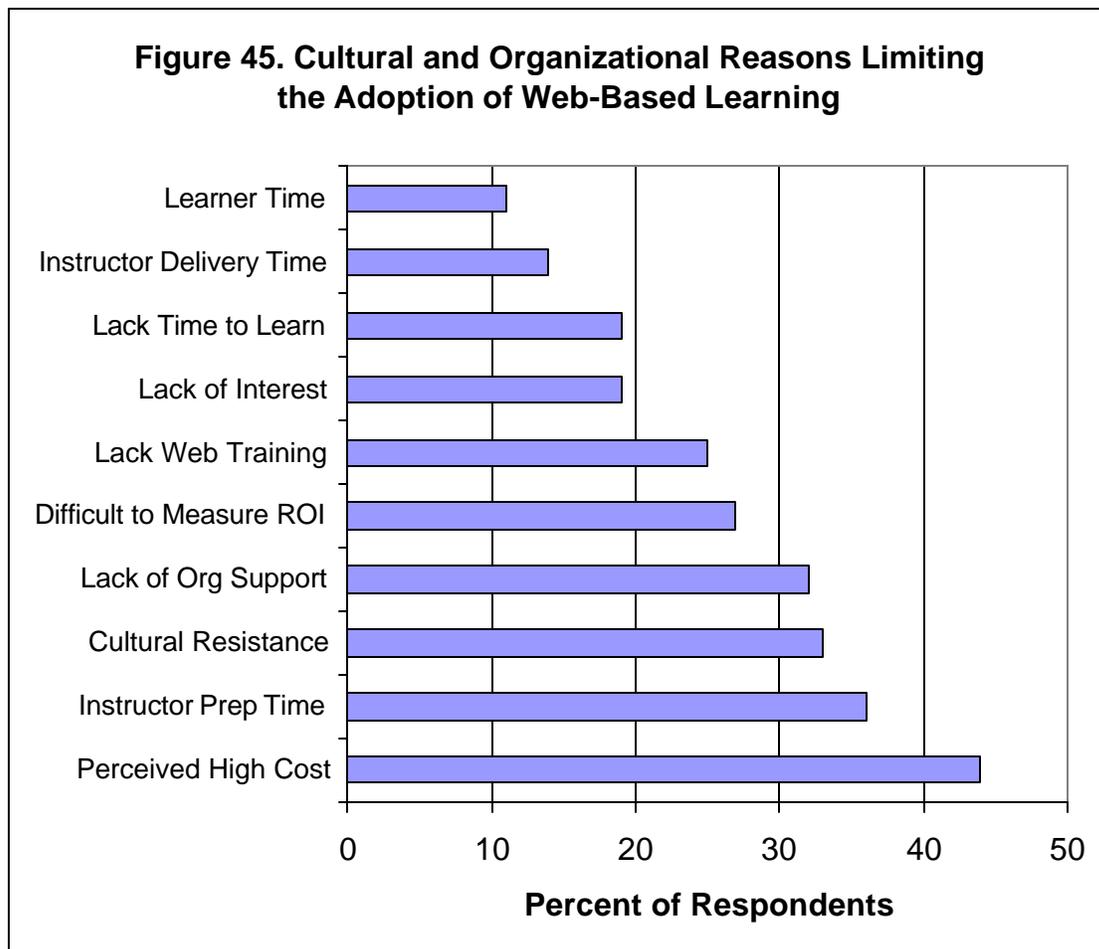
Two factors, cultural resistance to technology and lack of organizational support, were obstacles to Web-based learning for one-third of the respondents (33 and 32 percent, respectively). Additional comments about lack of organizational vision, planning, and support are noted later in this section. Factors perceived as Web learning barriers by approximately one-fourth of respondents were difficulty in measuring return on investment (27 percent) and lack of training on how to use the Web (25 percent).

Ironically, lack of interest, which was noted by only a handful of respondents as an obstacle in our higher education survey, was a primary barrier for 1 in 5 of the organizations in this corporate e-learning survey. Part of the difference may be that our college instructors were early adopters of the Web. But perhaps such findings also signify that Web-based learning is more quickly infiltrating higher education than corporate training settings.

Less than one in five respondents checked the following three obstacles:

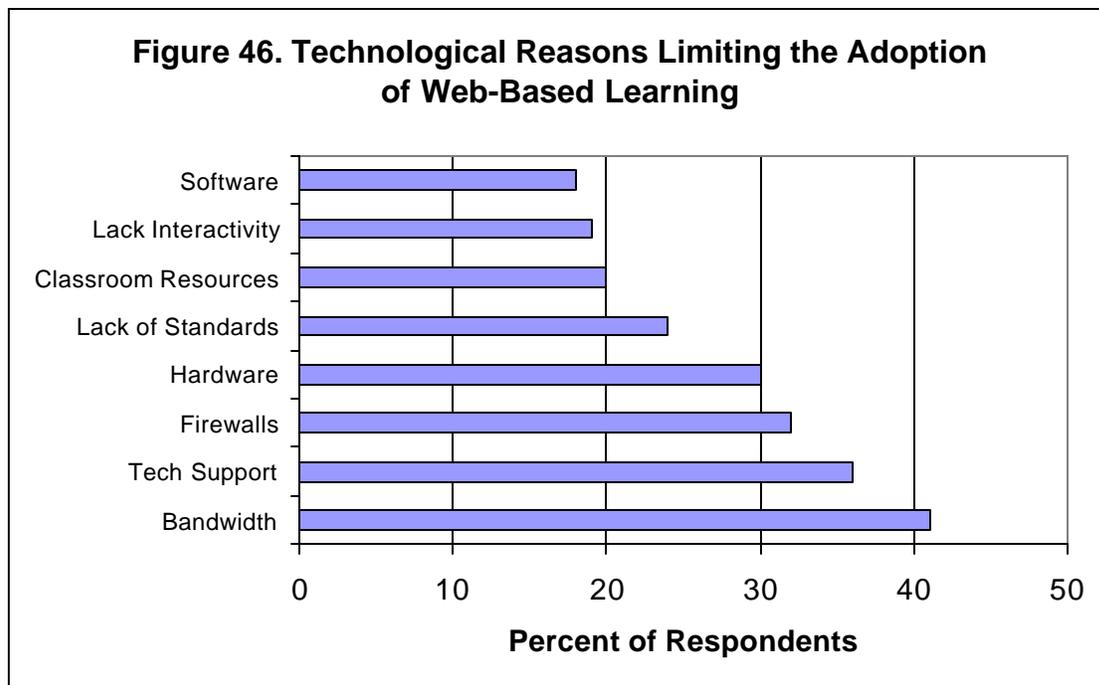
1. Too much time required of students to take Web-based courses.
2. Too much time required of instructors to deliver Web-based courses.
3. Lack of time to learn to use the Web.

Again, time seemed to be a more significant barrier in higher education than in corporate training settings. In the corporate world, e-learning problems or dilemmas were somewhat more related to costs and organizational support issues.



In addition to the above cultural and organizational issues, there are also many well known technological obstacles to Web-based learning. As shown in Figure 46, the chief technological concern was bandwidth. Slightly more than 4 in 10 respondents mentioned this as a primary limitation. Next in line was support for technical problems and

assistance with courseware development, which was listed as a problem by 36 percent of survey respondents. The technical support finding parallels the results of our higher education study. Next, around 30 percent of respondents noted that firewalls were a problem as well as outdated or inadequate hardware. A lack of standards was indicated as a barrier within 24 percent of the respondent organizations. Shortage of equipment or software to display the Web was a concern within only 20 percent of the companies surveyed compared to 30 percent of the colleges surveyed in our previous survey. Surprisingly, only 19 percent of the survey respondents found the lack of interactivity to be a barrier to the adoption of online training compared to 56 percent of those in the recent Forrester (2000) report. Of course, the sample size in the Forrester report was lower and based on interview data instead of survey reports. Finally, outdated or missing software was the lowest rated obstacle at 18 percent. Once again, such numbers closely parallel the findings of our earlier higher education survey.



Nearly 30 percent of the respondents offered additional information regarding factors that were negatively impacting their organization's adoption of the Web for training. Their open-ended responses were diverse but tended to focus on administrative support and vision, funding, technological infrastructure, lack of time, organizational priorities, and issues related to Web access and reliability. More of the respondents commented on cultural and organizational factors than technological ones. Not too surprisingly, some of the issues raised were directed at administrative level officials within their organization, while other issues related to barriers posed by this new type of training delivery mechanism. A few sample comments sorted by category or theme are included below.

Problems in delivery method comments included:

- "Students need hands on."

- “Some courses are better delivered in traditional classrooms.”
- “Effectiveness of this method.”
- “High rate of change in IT materials—never mature.”
- “Has a different pricing model.”

Lack of vision and organizational support comments included:

- “Skepticism on the benefits within the Healthcare environment.”
- “Level of priority.”
- “Poor support from IT managers to support organizational goals.”
- “Lack of foresight in the industry/no ability to see the big pic!”
- “Ignorance about the advantages of using the Internet to save money.”
- “Generation gap and bias against anything not face to face.”
- “Customer’s resistance to switch from instructor-led.”
- “Lack of system support.”

Technological comments included:

- “Lack of hardware to efficiently use Web-based technology.”
- “Student’s limitation to Web access.”
- “System infrastructure.”
- “Reliable Web access of our training audiences.”
- “Huge diversity in hardware.”
- “Database platform upon which to implement Reusable Learning Objects.”
- “Caught up in the technology not the instruction!”

Other comments included:

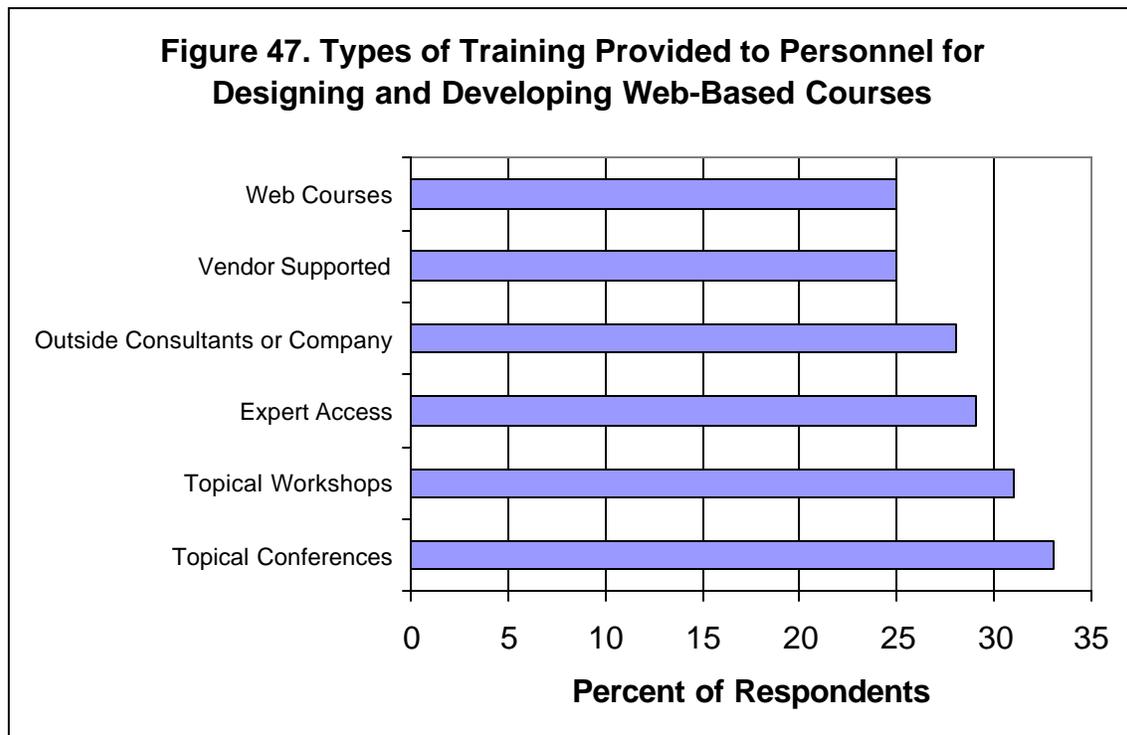
- “Accreditation process.”
- “Licensing issues.”
- “Agency that we contract with to provide the training.”

The factors noted above were somewhat different from those raised in our higher education survey. College instructors focused more on incentives, recognition, funding, intellectual property policies, time, technical support, and lack of pedagogical focus. However, in both studies, there were a number of comments aimed at the overall vision and administrative leadership. Once again, the data revealed that the barriers to Web-based instruction were more cultural than technological. The organizations surveyed here, for the most part, had the requisite Web access as well as adequate hardware and software. However, they generally lacked an overall organizational plan or vision related to online training, thereby fostering resistance to new technological delivery systems.

On the technology support side, there was a perceived need for companies to address the bandwidth issue that would enable them to send and receive Web courses. In addition, many respondents wanted greater technical support to assist learners in completing those courses as well as firewalls to protect the confidentiality and security of online training materials. It will remain difficult to stream exciting video or engage learners in complex simulations until an organization has sufficient infrastructure and bandwidth. When this occurs, interactivity will be much more than text-based activities.

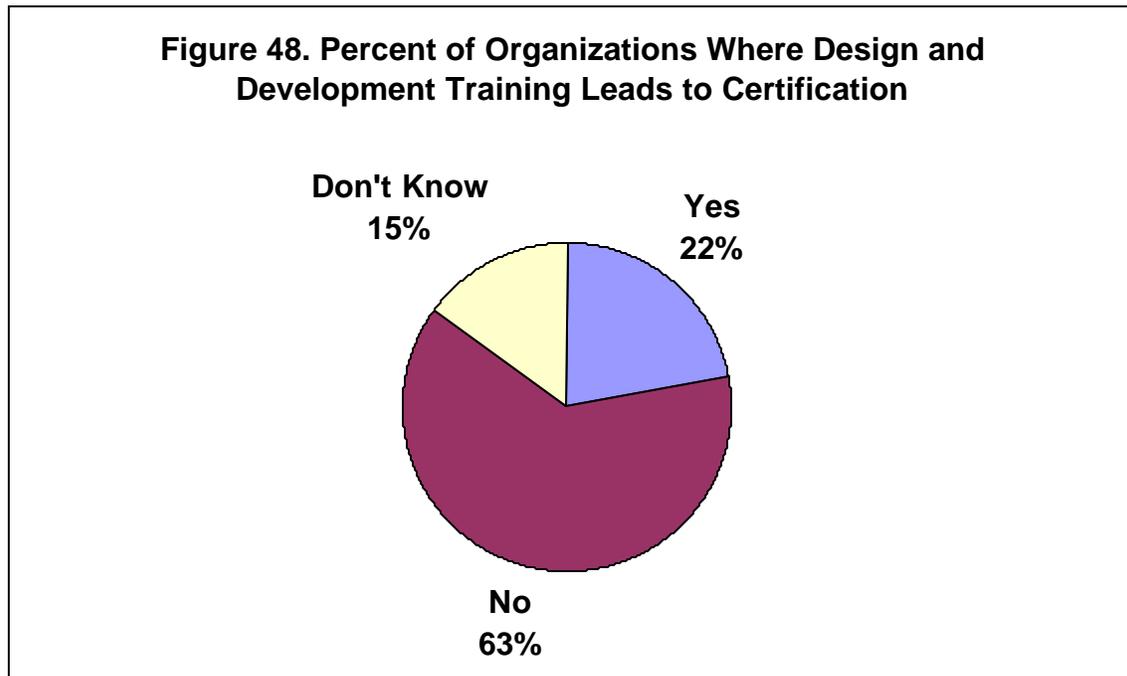
3.10 Supports Related to Web-Based Learning

Support for Course Designers and Developers. As corporate e-learning activities multiply, employees will increasingly need training to design, develop, and deliver e-learning courses as well as to learn and teach within these environments. Figure 47 details the prevalent forms of training for those designing and delivering Web-based courses. The results failed to reveal one clear method for this training. Around one-fourth of these organizations used Web-based courses for such training. A similar percent used vendor supported training. Hiring outside consulting companies or providing access to experts were training approaches used by just under 3 in 10 organizations. The most popular methods for training personnel in an organization were workshops or conferences on the needed topic, noted by 31 and 33 percent of respondents, respectively. A few respondents commented that their employees learned the needed skills through university classes, internal specialists, or self-learning. Finally, 30 percent of the respondents pointed out that this question was not applicable, since, as pointed out in the earlier questions about the outsourcing of e-learning, their organizations did not design or develop Web-based courses. Given the lack of differentiation in the responses, training departments may want to embed aspects of these key employee training and support approaches, depending on the topic area, resources, and complexity of the e-learning tool(s) or system(s).



When asked whether any of this training leads to certification, most survey respondents noted that it did not. As displayed in Figure 48, only 22 percent of organizations had course design and development training that led to some type of completion certificate.

Many respondents (15 percent) simply did not know. Despite the seemingly low numbers here, the fact that more than 1 in 5 organizations offered instructional designers and course developers some form of e-learning certification suggests that “Train the Trainer” firms and e-learning consultants such as Daryl L. Sink & Associates, Langevin Learning Services, Brandon-hall.com, The Masie Center, CourseShare.com, and TelesTraining.com will proliferate in the coming decade.⁹



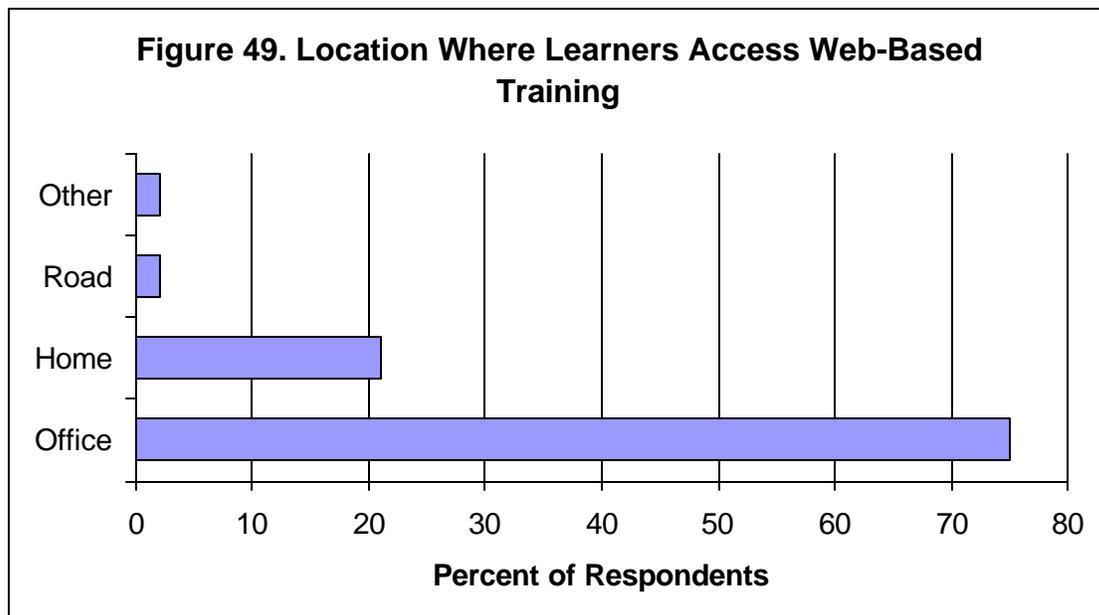
Vendors offering such e-learning training or support services are bound to increase as the Web begins to dominate technology delivered training approaches. Staggering expectations for Web training will translate into many companies offering courses, workshops, and other training events for e-learning trainers and developers. Some predict that partnerships and mergers between e-learning content, technology, and service providers will multiple in response to the needs of customers (Urdan & Weggen, 2000). Consequently, there will be a growth in total concept companies such as Mentergy or Jones Knowledge, which might offer training and instructional design services, online content, online courses and degrees, innovative courseware, software development, e-library services, and/or virtual classrooms (DeVeaux, 2001). Watching these events unfold over the next few years will be simultaneously confusing and exhilarating.

Support for Learners. In addition to supporting the designers and developers of e-learning, an organization needs to aid its learners. E-learners may need hardware and software access and installation, online tutorials, online technical help and support, and other advice on navigating the online courseware system and content material. In addressing the first issue of hardware support, we asked these training managers,

⁹ For additional vendors in this area, see Online Learning Magazine's December 2000 or 2001 Products and Services Index or e-learning Magazine's December 2001 Buyer's Guide.

instructors, and instructional designers about how learners in their organization most often accessed Web-based learning (both intranet and Internet formats).

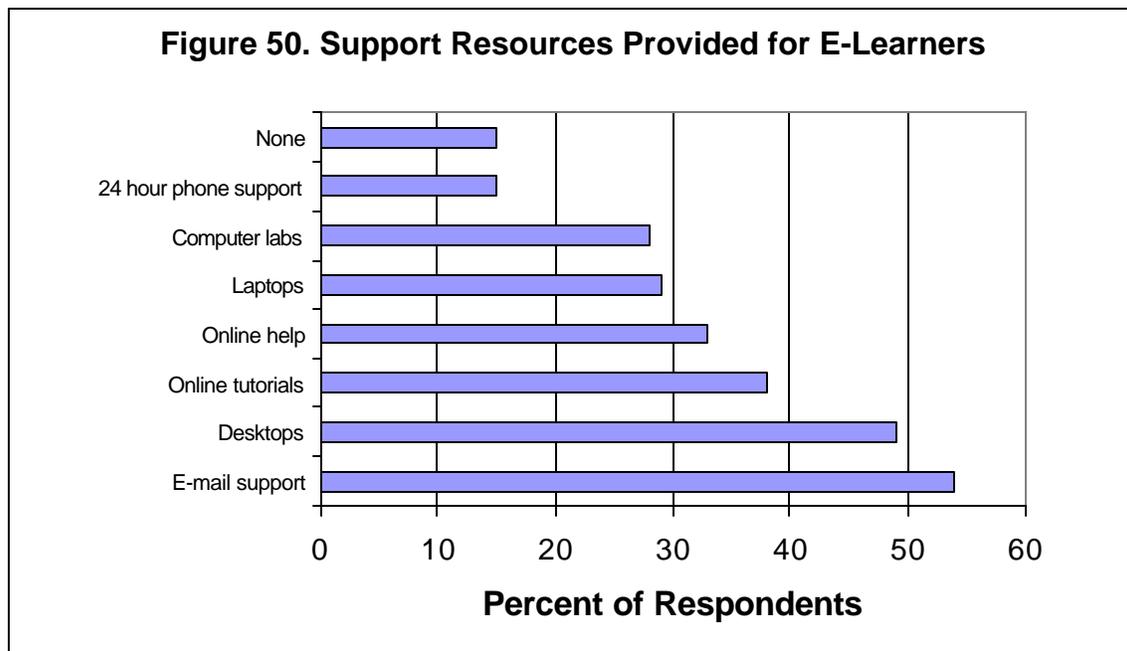
As is clear from Figure 49, the vast majority of corporate learners rely on the technology residing in their offices to access Web-based training. In fact, three-fourths of respondents noted that their organization's preferred mode of accessing e-learning was from employee offices. This corresponds with a recent study jointly sponsored by Online Learning Magazine and IDC, which reported that the majority of learners carry out their e-learning from work (Kiser, 2001c). In the present study, slightly over 20 percent noted that they primarily relied on employee's accessing the Web from home. Only 2 percent indicated that they mainly relied on road access or logging onto the Web while traveling. Other comments here alluded to the use of a learning resource center. Still other respondents claimed to select methods depending on need (e.g., office staff utilized in-house computers while sales representatives accessed the Web on the road).



While home access to the Internet is exploding (The UCLA Internet Report, 2000, 2001), there are numerous implications for the heavy reliance on office technology for the Web-based learning of employees. First of all, adequate bandwidth for work-based e-learning will be important to overall firm productivity. Employees who have to wait minutes to download lecture notes, PowerPoint slides, or video and audio clips will quickly become disappointed with this form of learning, while, at the same time, the organization will lose valuable job performance. In fact, the striking comparison between office and home delivery of Web-based training begs questions about when employees normally take their online courses (during normal work hours, after work, or on weekends), what support resources and materials are provided, how long most office-based training courses and units are, and how these online courses are administered. Do employees have an appropriate physical setting for their Web-based training? Is the office area quiet and secluded enough to complete the coursework (Fortune, 2000)? Just what are corporate

policies surrounding employee Web-based training from office computers? Will posted notes, do not disturb signs, and caution tape, deter fellow workers from interrupting someone when taking an online course at work, as Hoffman (2001a, 2001b) suggests?

In attempting to address at least some of those questions, corporate survey respondents were asked about the resources that they provided for Web-based learning. Figure 50 details their responses. The chief resource provided to e-learners was e-mail support. This relatively inexpensive form of support was provided at 54 percent of respondent organizations. Desktop workstations were provided at 49 percent of the organizations surveyed. This percentage is somewhat lower than expected given the location of most e-learning as detailed in the previous figure (see Figure 49). Online tutorials and online help were provided at 38 percent and 33 percent of responding organizations, respectively. Laptop computers and access to computer labs were each utilized as e-learning support mechanisms at slightly less than 3 in 10 corporations in this survey. Twenty-four hour phone support, which is cost-intensive, was only provided at 15 percent of respondent organizations. The same percent of survey respondents indicated that their organization offered no resources for Web-based learning. A few respondents commented that their organizations provided help desks, online chats, or specific training sessions. One person was exploring the use of tutors to answer student questions online.



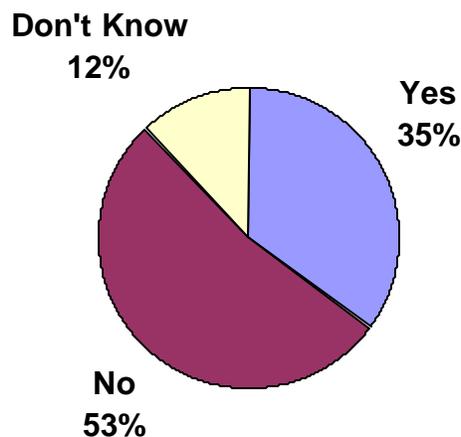
Each of these resource options has associated costs and benefits that were not measured in this survey. Figure 50 illustrates that most learner support today is provided through existing workplace technology such as computer desktops and e-mail. As the technology evolves and the economy slows, the hesitation of companies to devote resources to 24-hour phone support seems highly warranted. At the same time, such restrictions on internal resources and support magnify the importance of such services being supplied by e-learning content providers. Some suggest that a mix of online support structures—chat

rooms, e-mail, electronic office hours, and online mentoring from both trainers and fellow students—is the best solution (Fortune, 2000).

Number of Languages for Online Training. Other forms of online assistance include attending to the cultural preferences and primary language(s) of the online learners. Advances in information technology and the need to address a globally-dispersed workforce are key reasons to make online courses available in multiple languages (Fortune, 2000). In fact, “Corporations are now seeking innovative and efficient ways to deliver training to their geographically-dispersed workforce...Through its increasing reach and simplicity of use, the Internet has opened the door to global markets where language and geographic barriers for many training products have been erased” (Urduan & Weggen, 2000). As access to Web technology increases, there undoubtedly will be a growing demand for content that is delivered in multiple languages and for multiple cultures. Companies must become aware of cultural differences in the interpretation of content or risk endangering their credibility and influence (Borman, 2001).

While some e-learning vendors may be correct in assuming that most people may be accustomed to learning in English or wanting to practice their English skills in order to be better prepared for the business world, not all content can be delivered that way. Given recent e-learning trends, respondents were asked whether their organization was involved or interested in the development of Web-based courses in multiple languages. There were a few indicators in our data that corporations were beginning to respond to these trends. In fact, as shown in Figure 51, thirty-five percent of our respondents worked in organizations that were interested or involved in developing Web-based courses in multiple languages. Somewhat surprisingly, 12 percent did not even know.

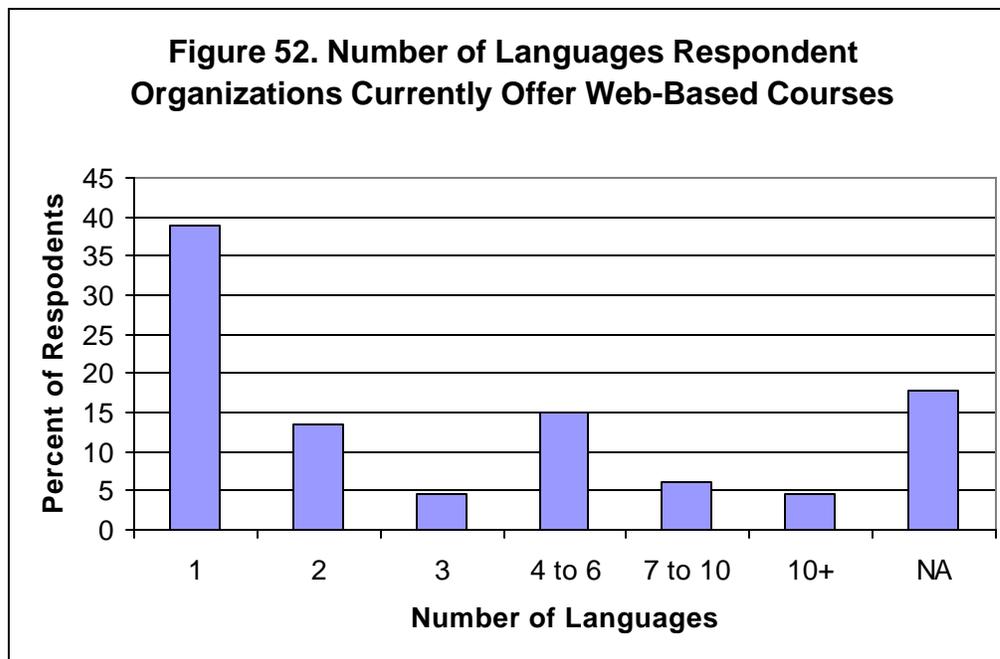
Figure 51. Organizational Interest or Involvement in Developing Web Courses in Multiple Languages



Survey respondents who noted that their organization was developing or interested in developing online courses in multiple languages were asked how many different languages they currently offered courses in. As detailed in Figure 52, of the 67 people answering this question, nearly 40 percent were offering courses in just one language format. In contrast, 13 percent offered courses in a second language format, while just over 4 percent of organizations offered their courses in three languages. Still, some firms definitely were making considerable headway here. For instance, nearly 15 percent of these respondents offered courses in four to six languages, 6 percent in seven to ten languages and nearly 5 percent in more than ten languages. In effect, more than one-fourth of those companies interested in or addressing multiple languages were creating content in four or more different languages.

On the high end, once again, are global firms such as Motorola, which offers courses in 24 languages. According to Fortune Magazine (2000), Motorola must educate 142,000 employees in 70 countries around the globe. In the People's Republic of China alone, Motorola employs about 10,000 Chinese workers and operates the largest corporate university of any foreign business (Ya, Rothwell, & Webster, 2001).

While the above trends were informative, this question was apparently not applicable to 18 percent of the survey respondents even though they had previously indicated that their organization was interested in online training in multiple languages. It was assumed that these individuals worked in firms that either were developing such courses or were still in the e-learning planning stages.



We further explored whether or not the size of the organization was related to interest or involvement in developing Web-based courses in multiple languages. Organizations of less than 1,000 employees were significantly less likely to be interested in or involved

with developing multiple language Web-based courses than larger organizations. This is not surprising since smaller organizations may have fewer resources to build additional language support. Moreover, they will likely have less of a perceived need to develop such support tools and features.

We also examined whether or not the type of organization affected multiple language e-learning development. It does not appear that the focus of the organization had a significant effect on the likelihood of participating in multiple language development of Web-based courses. Military organizations, for instance, were not more or less likely to pursue the expansion of e-learning to non-English speakers than financial institutions or health services firms. Keep in mind, however, some of these sample sizes were modest at best.

There are many questions that remain unanswered. For instance, we did not ask about the types of languages in which courses were offered, nor did we collect data about the difficulties or costs involved in these endeavors. Given falling trade barriers combined with the globalization of workforces and the explosion of e-learning in corporate settings, this is an area ripe for additional inquiry.

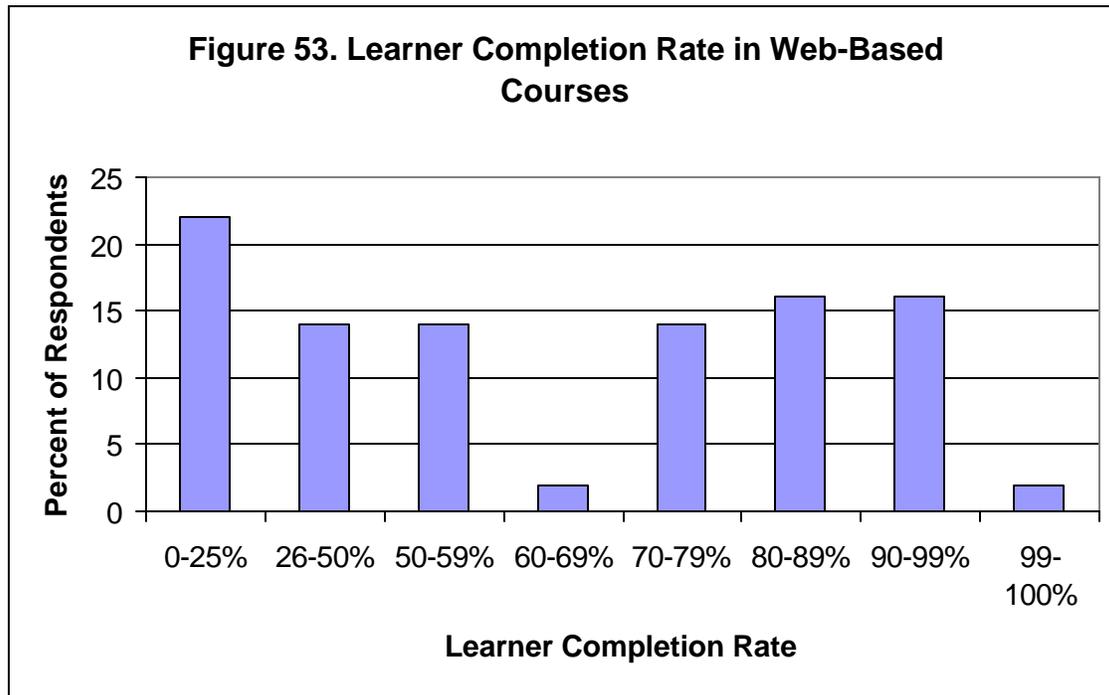
Completion of Web-Based Courses. Student attrition in Web-based courses is a key concern among educational researchers and policy makers. Phipps and Merisotis (1999) note that most research fails to adequately explain why the drop-out rates of distance learners are higher than that experienced by students in conventional classrooms. They argue that many Web-based learning research outcomes would be vastly different if dropouts were not excluded from the outcome findings. However, most of the studies they reviewed were from higher education settings.

Tom Kelly, Vice President of Internet Learning Solutions at Cisco Systems, claims that their tests reveal that e-learning results in better retention than classroom-based instruction because it can be targeted to student individual needs (Galagan, 2001). Still, he admits that developing additional tools and methods to foster human interaction could positively impact e-learning.

Given the inconsistencies in the claims here, we were curious whether instructors in corporate and other training settings experienced high learner drop out rates. As detailed in Figure 53, we asked respondents about the percent of learners in their organization completing their online courses. After eliminating the 47 responses received from individuals at organizations where completion rates were not tracked as well as the 48 responses from respondents who did not know the completion rate of their organization's Web-based learners,¹⁰ there were 78 useful responses. Amazingly, 22 percent of these respondents worked in organizations where learner completion was between zero and 25 percent. Another 14 percent indicated that their Web-based courses had only a 26 to 49 percent completion rate, while 16 percent had between 50-69 percent completion rate. Given such numbers, in retrospect, we should have asked why their completion rates were so low and what measures they were instituting, if any, to address this problem. At

¹⁰ When combined, this represented 55 percent of the responses to this question.

the same time, we might have inquired whether low course completion rates were even a concern.



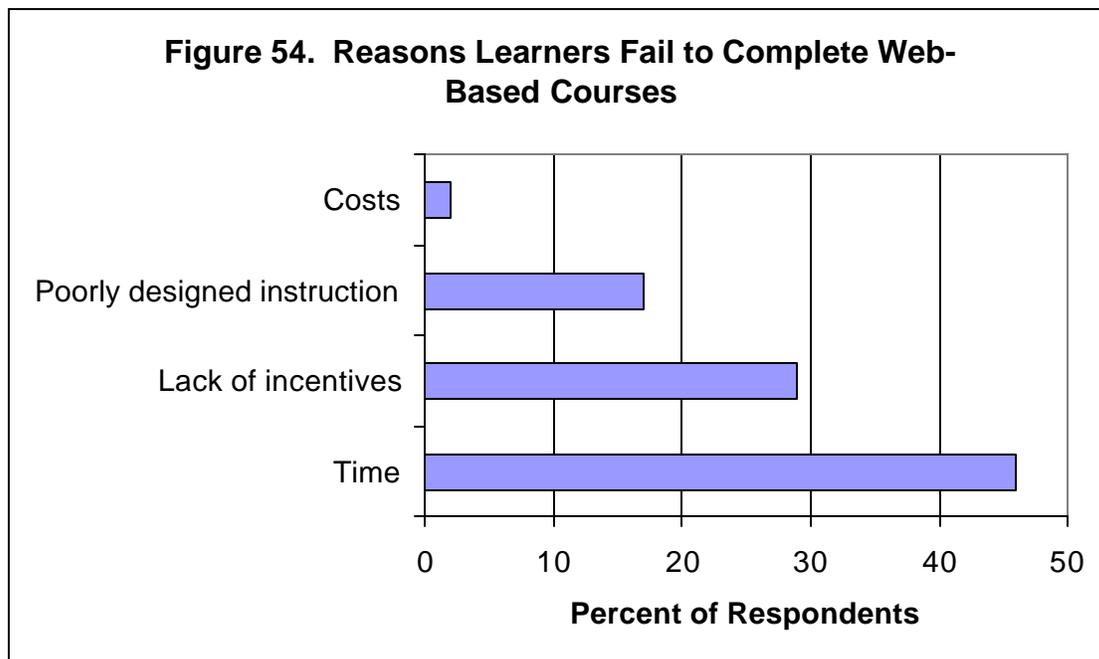
What about those firms with higher completion rates? While earlier figures were troubling, 48 percent of respondents noted that more than 70 percent of their employees completed their Web-based courses. At the high end were the 2 percent of organizations that experienced 100 percent completion rates. It would be worth exploring the types of courses or domains the employees of these organizations enrolled in as well as the delivery systems and content providers. Given that our previous study found that completion rates were higher in blended courses (utilizing live and Web instruction) than in totally online courses, other researchers might explore the actual modes of delivery and technology systems used that resulted in higher completion rates.

As the responses to this question reveal, there is a need for better monitoring and assessment of course completion. If completion is no longer a key concern in many skill areas or situations, then new measures of course success are needed. While this is simply speculation, perhaps smaller learning modules or nuggets will be the norm in the near future as employees learn only small pieces of knowledge for specific needs (Fortune, 2000). In effect, learners may be taking mini-courses, thereby favoring vendors that focus on creating and delivering chunks of relevant knowledge or knowledge objects.

It was hypothesized that characteristics of Web-based learning courses and communities might affect the likelihood of participants' completing these courses. However, the percentage of people dropping out of a course was statistically unrelated to the ranked importance of the qualities and characteristics of those courses. So, for instance, an organization that highly valued having a supportive community of e-learners did not have

a lower drop out rate than organizations that did not view this as very important. Furthermore, attrition rates were generally unrelated to the value placed on different types of e-learning activities, such as icebreakers, social tasks, or role-playing and debates.

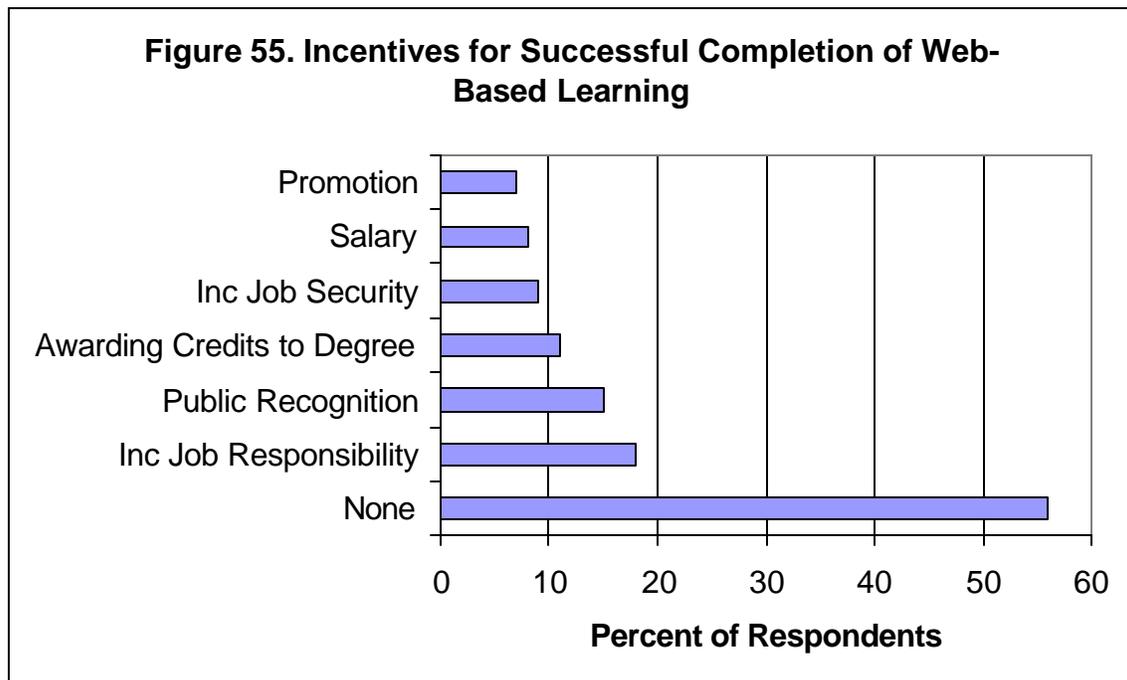
When asked why learners dropout from their organization's Web-based courses, most respondents blamed time and incentives as the two primary reasons. While limited time was checked by 46 percent of respondents,¹¹ lack of incentives was mentioned by 29 percent (see Figure 54). Additionally, poorly designed instruction was marked by 17 percent of survey respondents. However, less than 2 percent of respondents selected cost as a factor inhibiting course completion. Other reasons noted here included procrastination, scheduling conflicts, employee turnover, lack of relevancy in course material, dropped connections, learned what was needed without having to complete the course, and supervisor expectations in regard to workload completion. Many additional comments concerned using the online course as reference material where learners can go when needed; in effect, alluding to the importance of accessible and usable knowledge objects. Finally, more than one-third did not know why their learner's dropped out.



Incentives for Completion. What additional incentives might e-learners be offered as a means for course completion? Figure 55 reveals that most corporations did not offer incentives for successful completion of Web-based courses. Of those that did, the chief incentive was increased job responsibility (18 percent). Some corporations also offered some form of public recognition (15 percent), credits toward a degree or certification (11 percent), increased job security (9 percent), additional salary (8 percent), or promotion (7

¹¹ These findings were not startling since time limitations were also a key factor in the earlier survey of higher education instructors.

percent). Since respondents could select more than one item, these percents were lower than expected. Other comments from survey respondents were informative. Some organizations offered bonuses, points that could be traded for prizes, continuing education credits, and other financial incentives unrelated to salary. Several individuals commented that the incentives varied by job function and division within the organization. One seemingly frustrated respondent sarcastically noted that one would just get, “more grief and abuse! I know from experience!”



Meister (1998) advocates linking what employees earn to what they learn. It is somewhat ironic, therefore, that our findings indicate that those completing courses were more likely to be rewarded with additional responsibility rather than some type of financial incentive. Small wonder there is fairly high attrition in e-learning.

3.11 Online Communities, Services, and Resources Needed

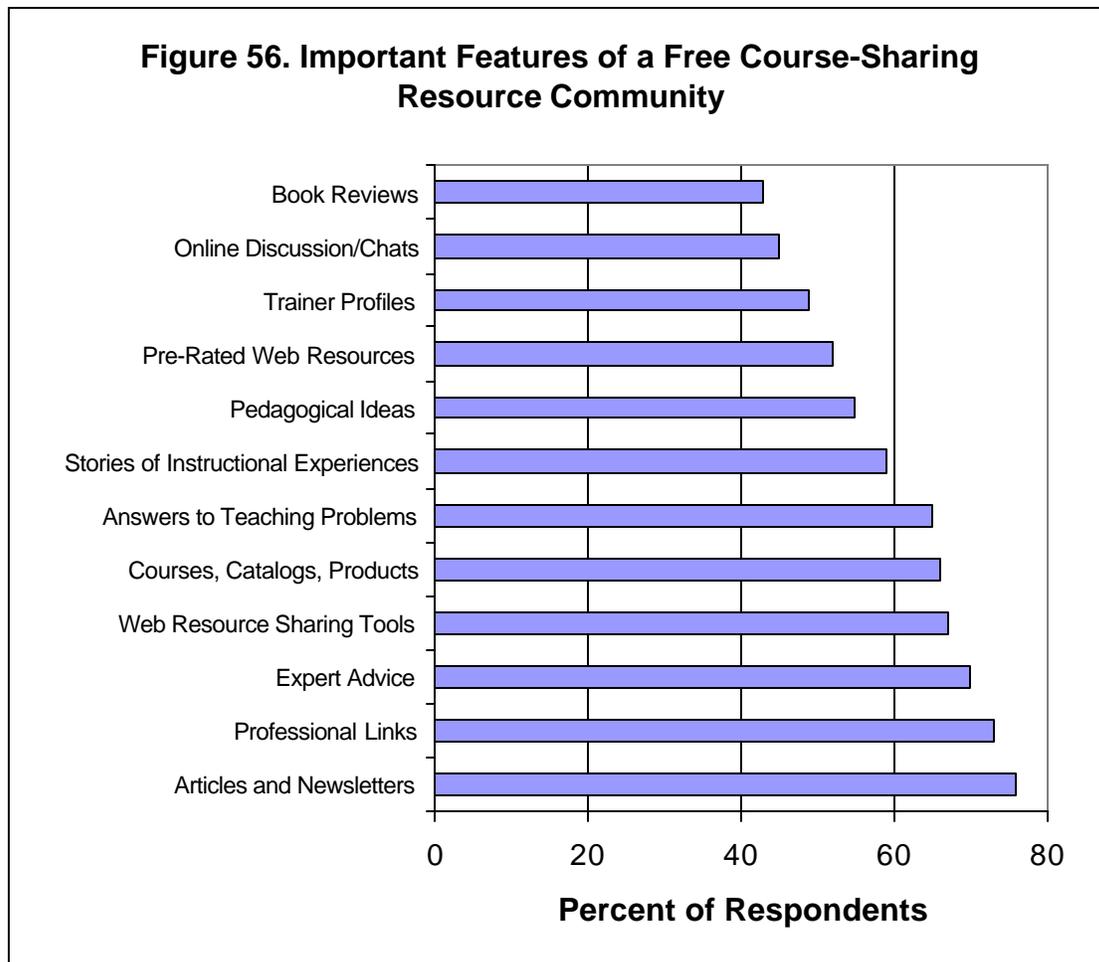
Online Communities for Resource Sharing. The development of the Web has allowed for the creation of online communities (Jones, 1998; Rheingold, 1993). Agre (1998, p. 81) defines community as “the set of people who occupy a given structural location in an institution or society...most communities engage in some degree of collective cognition—the interactions through which they learn from one another’s experiences, set common strategies, develop a shared vocabulary, and evolve a distinctive way of thinking. These interactions might take place through war stories, newsletters, rumors, speeches, philosophical tracts, music videos, management consultants, or bards who travel from place to place bearing news.” Wenger (1998, p. 7) takes this notion a step further by pointing out that when people “congregate in virtual places” and develop new ways of sharing their common interests and pursuits, they are forming or participating in

a “community of practice.” Howard Rheingold (1993, pp. 57-58) insightfully pointed out that “Virtual communities emerged from a surprising intersection of humanity and technology...virtual communities are cultural aggregations that emerge when enough people bump into each other often enough in cyberspace. A virtual community is a group of people who may or may not meet one another face-to-face, and who exchange words and ideas through the mediation of computer bulletin boards and networks.”

As such, online communities can potentially allow a diverse array of institutions, teachers, and learners to share and exchange resources online. However, online communities do not simply come into existence. They must be created, developed, maintained, and *used*. We wanted to find out what features would motivate our respondents to regularly participate in online communities devoted to corporate training. What might they want to receive and share related to online training?

Near the end of our survey, we asked respondents to select which of 12 online tools and resources of a free resource-sharing community they would be interested in. As shown in Figure 56, no item had less than 43 percent support from our respondents and 9 of the 12 items were rated positively, thereby indicating a general interest in these course-sharing resources. Perhaps there is a pressing need for the development of such an online community resource.

In examining the most highly rated items, we found that many career-oriented features were considered important elements of such a community. For example, about three in four respondents felt that articles and newsletters as well as links to other professional resources were features that would make them more likely to participate regularly in an online community and keep them abreast of new developments in their respective fields. Additionally, access to expert advice (70 percent), Web resource sharing tools (70 percent), and courses, catalogs, and products (66 percent) were selected by over two-thirds of our respondents as beneficial features of such a community.



Instruction-oriented features were also rated highly. Online answers to teaching problems were selected as necessary or beneficial by 65 percent of respondents, and 55 percent chose sharing “pedagogical ideas” as a vital feature of online communities. Sharing of stories was also a highly valued feature, with 59 percent of respondents checking it. One other item, pre-rated Web resources, garnered support from more than half of the respondents with about 52 percent choosing that item.

Other features were attractive to a smaller, though not insignificant, percentage of our respondents. Trainer profiles were seen as advantageous by 49 percent of respondents, whereas online discussion and chats received support from 45 percent. The lowest rated feature involved the posting of relevant book reviews (43 percent). A few open-ended responses included the need for online tool tutorials, job postings, lists of proven Web developers and designers, threaded discussions, technology demonstrations and showcases, and andragogical (i.e., adult learning) ideas. Nonetheless, there were too few commonalities in their remarks for any generalizations or themes here.

Given respondent membership within training and online learning organizations, it was expected that many would be interested in participating in an online community for sharing resources. Do they want to find a true marketplace of ideas or simply quick

access to answers they currently need? There were interesting differences between our earlier survey of college instructors and the present survey of trainers, instructors, and managers.¹² For instance, while more than three-fourths of college level instructors wanted access to an online community for the pedagogical ideas, only 55 percent of these training and human resource professionals were interested in this feature. And while access to online articles and newsletters was a preferred item of corporate trainers, our college instructors had more of a mixed response.¹³ Corporate instructors and trainers likely read and respect online newsletters more than college instructors since they are more practical and results oriented. Along these same lines, course catalog listings were deemed of higher value in the online training survey than in the higher education survey. Nevertheless, in both surveys, access to expert advice and answers to teaching problems had strong support. Clearly, access to expert advice and information is a vital reason to join or participate in an online community of trainers and instructors.

What is apparent is that respondents across a wide range of training settings want online instruction help, access to professional resources, and the ability to share instructional experiences with colleagues of similar interests. As Rheingold might state, there is a need for an intersection between humanity and technology related to online training; an e-learning marketplace of instructional ideas and events. But instead of extensive involvement in online discussions and chats, trainers would prefer resources that provide them with fast answers to their instructional dilemmas and technological problems. When such a community emerges, it will be interesting to see who emerge as the community leaders and typical users as well as the types of tools and activities to which they gravitate.

Useful Web-Based Services, Resources, and Information. While determining the need for online communities was important, we also wanted to know what kinds of Web-based resources, services, and information might be attractive to members of online communities devoted to corporate training. In one of the final survey questions, we asked respondents to indicate which of 15 services and resources (e.g., online bookstores, mentoring services, conference information, course listings, evaluation tools, electronic journals and papers, library resources, etc.) they would like to access. Their responses are illustrated in Figure 57.

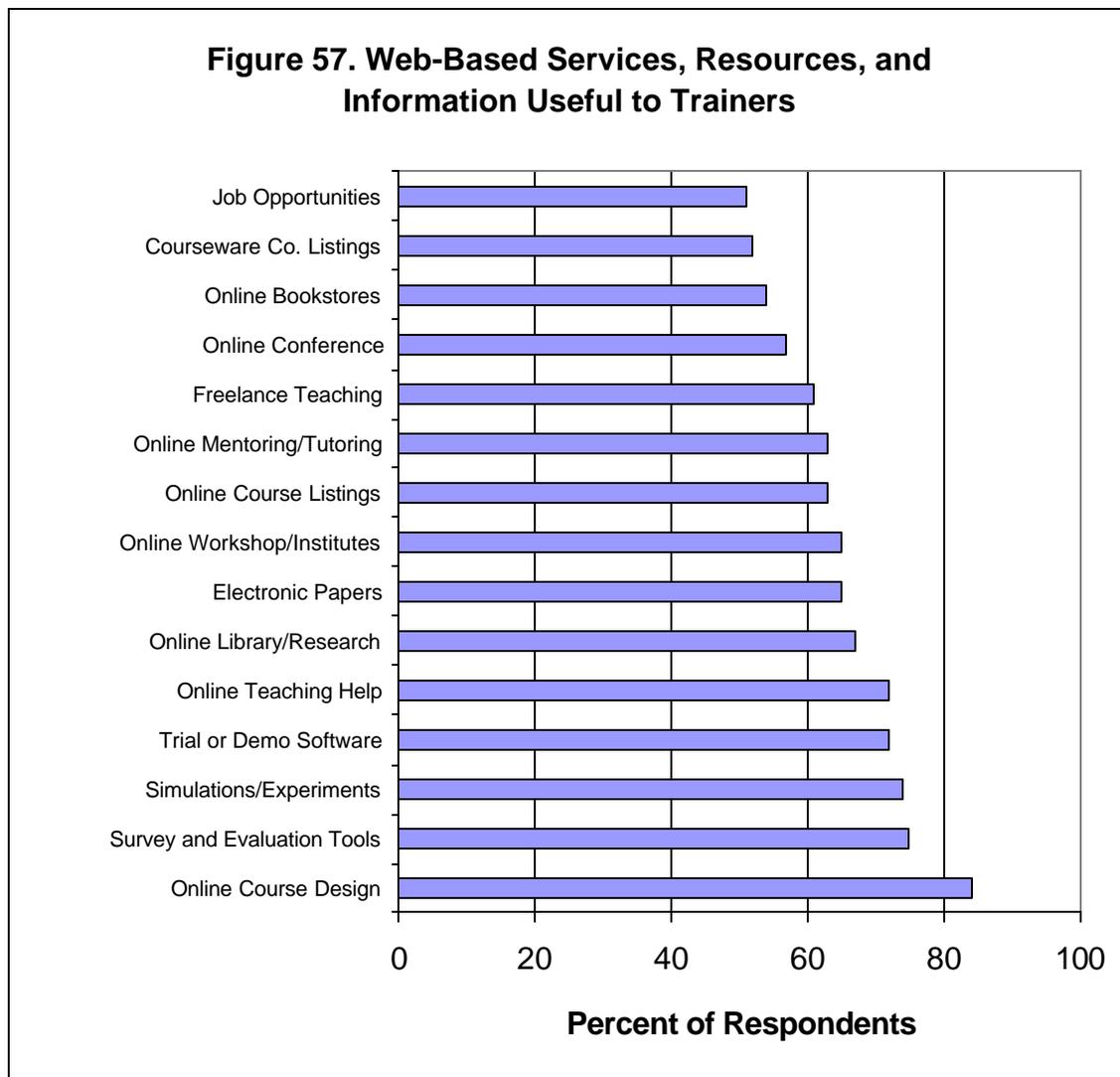
It is important to note that all of the 15 resources and services listed received over 50 percent support from our respondents, which is somewhat higher than was found in our earlier college teaching survey. As alluded to throughout this report, there was consistent demand for Web-based tools, resources, and services from our respondents. Certain resources and services, however, elicited exceptionally positive responses. The top rated service was online course design and development help (e.g., guides, courses, workshops, newsletters, tutorials, and conferences) with 84 percent asking for such help. This finding is likely due to the large percentage of instructional designers and trainers in this

¹² It was difficult to directly compare all the items in both surveys since some of the wording was refined and many items were changed, added, or deleted in the second survey.

¹³ College instructors rated online newsletter access extremely low (their second lowest item) but online papers, reports, and journals were among their most vital features of an online community (Bonk, 2001).

survey. In addition, the example list of course design and development help features was perhaps too extensive. There is a need, therefore, for additional research that ferrets out what types of help are most needed. Still, the high support for course design and development assistance linked to our earlier finding that respondents perceived a need for more supportive and friendly courseware tools. It also signaled a significant interest in not just using the Web as an additional resource for training, but as the actual instructional arena for training.

Respondents also wanted other services that related to online expertise. For instance, 63 percent of respondents selected online mentoring and tutoring services as worth accessing, while 72 percent wanted online teaching help (e.g., guides, courses, workshops, newsletters, tutorials, conferences, etc.). Such findings bode well for e-learning consulting and training organizations.



While access to expertise was salient in their answers, three of the four highest rated items concerned technology resources:

1. Web-based survey and evaluation tools (75 percent support).
2. Web-based simulations and experiments (74 percent support)
3. Downloadable trial or demonstration software (72 percent support).

Given all the focus on ROI and learner competencies and achievement related to online learning, it was not surprising that survey and evaluation tools were selected as useful by three-fourths of our respondents. While there were similar findings in the college instructor survey, trial or demonstration software was ranked lower. Of course, a myriad of Web-based survey tools have emerged during the past few years to fill this need (e.g., Zoomerang, Active Feedback, InstantSurvey, Infopoll, SurveyShare, SurveySolutions, MyClassEvaluation, QuestionMark, EXSurvey, eCourseEvaluation, Remark Web Survey, SurveyTracker, SurveySite, etc.) as well as numerous online quizzing and testing tools and services (e.g., Assessment Systems Corporation, IntelliTest, QuestionMark, QuizStudio, QuizPlease, and Test.com).¹⁴ Many of the above tools have scaled down demonstrations or limited use free versions. Such trial package options fit a niche since, as reported above, respondents favored downloadable and demonstration software. Some respondents also wanted greater access to simulation tools. Software development and courseware companies might want to take note of these online tool preferences and trends.

Other Web-based resources providing vital information for online training also received high ratings, though not quite as high as those mentioned above. Many of our survey respondents wanted online access to job opportunities (51 percent), courseware company listings (52 percent), bookstores (54 percent), conference information (57 percent), freelance teaching possibilities (61 percent), course listings (63 percent), workshops and institutes (65 percent), and library and research resources (67 percent). Online bookstores and company listings were not as popular in the higher education survey. Across these responses, it was clear that the Web provides critical support for online trainers and instructors.

Responses to this question were overwhelmingly positive, once again signaling a need for greater instructional support services for trainers, instructional designers, managers, and anyone involved in online training. Apparently, respondents understood the value of sharing knowledge and making it explicit. One key aspect of online learning, therefore, will be the ability for organizations to identify, capture, share, and reuse knowledge (CIO Advertising Supplement, 2001b).

Technology tools (both trial versions and commercial software) and expert advice were considered more important than Web resource access. Nevertheless, all tools, services, and information resources listed in Figure 57 were considered useful to our respondents. Imagine the exciting and valuable information portal that provides a mixture of all these tools and resources. Such a resource might provide trainers with extensive online mentoring services and expert advice. It might also tap into the wealth of freelance

¹⁴ For a listing of Web-based testing resources, see <http://www.indiana.edu/~best/samsung/resources.html> or the resource section within <http://www.surveyshare.com/>.

corporate instructors who want to exchange information or find new jobs. In the present economy, people want fast and efficient access to such information resources. Given these trends and findings, we are definitely in store for some interesting changes, dilemmas, and issues related to online training during the coming decades.

3.12 Final Comments from Respondents

Final comments from respondents, while illustrating the dilemmas training and human resource departments presently face, were not as strongly negative as we received in the college instructor survey. For example, there were no overly sarcastic final claims about anyone ripping them off or extreme disappointments concerning the lack of organizational commitment and support. On the other hand, there were no extremely positive expressions such as e-learning leading to a Utopian world as was prevalent in our earlier higher education survey. Nevertheless, there was still plenty of tension and opportunity embedded within them.

Perhaps the comments were not as striking since many of our 201 respondents were in the throes of their recent e-learning decisions or were in the critical planning phase. In fact, several respondents explicitly mentioned that their organizations were just beginning to implement online training solutions. Others were satisfied, at least for the moment, in outsourcing all online training.

A few others stated that they were in new positions within their companies that required them to generate an e-learning plan. For instance, one of these respondents stated, "My mission is to structure and implement a global training strategy that includes Web-based training." Another alluded to his/her new role with the organization when stating, "I have been leading classroom training. Our company is early in the game of providing Internet training. Online training has gained great interest in our Company and Member users." Still others noted the huge internal resistance they encountered in their respective companies. Some remained strong advocates in the face of this resistance and hesitation among learners and decision-makers, while predicting many applications and potential uses of online learning.

Online training services are forecasted to be the fastest growing component of the Internet-based training market during the next few years, surpassing the markets for both content and technology/tools with an annual rate of growth of 111 percent (Urdu & Weggen, 2000). There are many ways in which this will be realized. For instance, as trainers and training managers encounter resistance or forge ahead with online training and assign new people to training departments, e-learning consulting companies such as Brandon-Hall.com (Hall, 2000a, 2000b) can offer help and guidance. Or as one respondent readily admitted, "I would like information on how to encourage higher management to support online learning." While online service companies will certainly fill this void, e-learning vendors can provide better guidelines on the use of their tools and systems. They might also sponsor white papers to clarify terms and features or hire external consultants to research their products.

The uniqueness and explosive growth of e-learning demands extensive reports, guides, and other consulting services. Our respondents, in fact, seemed to have access to minimal e-learning data, in part, because they had yet to conduct internal evaluations. As one person stated, "I am a strong advocate of e-learning. I see so many applications for its use. Today, it is still new, and unfamiliar territory for many learners."

Given the newness of this training approach, negative comments were few. Some did, however, complain about problems in reliability, customer support, and interactivity. Others noted the dilemmas they faced in simply choosing the right learning management system. One person argued for the need to better "track learner progress, learner satisfaction, and retention of course material." Still another wanted to learn how other companies were applying instructional design (ID) models to e-learning, while pointing out that the traditional ID models may no longer apply in these environments.

What this Survey Report Offers. Corporations and non-profit organizations should find a wealth of implications from the results of this survey. There are extensive analyses about the types of content, the forms of instruction, and the varied evaluation methods typifying online training today. The report contains valuable information about the perceived high costs, lack of technical support, limited organizational support, high instructor or course preparation time, and other cultural and technological barriers affecting corporate decision-making related to e-learning. As an instructional tool, most trainers and training managers feel that the Web is better suited for exploratory areas than for simulations, discussion, group collaboration, or lecturing. Web-based learning tools still suffer from at least a bias that they are less interactive and engaging than traditional instruction, thereby increasing perceived cultural resistance.

Numerous online tools and resources were mentioned as needed in the report. However it is difficult to predict when pedagogically sound tools for online collaboration, motivation, and instruction will be available. There are also many questions about the incentives for completion of e-learning. Can the success rate of e-learners be increased? Is that even important?

There indeed are many e-learning needs here. There is definitely a need for sample courses that illustrate how to motivate online learners and lower attrition. Such courses might also highlight the forms of online instruction, mentoring, and feedback available to online trainers and instructors. Similarly, the need for instructional design support was noted. In response, e-learning companies might offer Web-based teaching institutes for corporate trainers, instructors, and training managers. Our respondents also welcomed Web-based resources to assist in their online training efforts.

While several respondents commented that this questionnaire was comprehensive and longer than most surveys, many thought it would be a useful report and were looking forward to the results. In fact, 85 percent indicated that they wanted a copy of the final survey report. One person thought it covered most of the useful issues in online training. Another suggested conducting a similar study at the international level. Still another

hoped “to see new and exciting developments as a consequence of the feedback” on this survey.

As with our earlier survey of instructors in higher education, this survey report provides a window into the online training experiences, assessment practices, tool preferences, policies, obstacles, supports, etc., of those interested or involved in workplace e-learning. While one report cannot address all the questions related to online training in this online world, hopefully it helps substantiate the importance of this new instructional approach for the coming decade. The following section offers some conclusions and recommendations for those developing online learning courses and programs as well as for those contemplating such activities.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

This report provides one glimpse into the world of online training and what is presently possible with emerging Web-based training technologies. The results of the survey clearly reveal that online training is increasing in importance within an organization. While the comprehensive nature of this survey significantly reduced the response rate, there were many insights and ideas provided by the respondents, most of whom were both users of and decision-makers related to Web-based training. Survey responses ranged from data about the actual tools used in Web-based learning to ideal or preferred e-learning. The survey report provided a ranking of common pedagogical practices and motivational techniques for the Web. It also summarized predictions about future online training commitments. Perhaps more importantly, the report touched on currently sensitive e-learning issues such as course completion rates and incentives, knowledge ownership, acceptable assessment practices, cultural and technological barriers and supports, and multiple language support. As such, the data within this report should prove valuable to those grappling with e-learning vision statements and strategic plans as well as those in the trenches of e-learning implementation.

Recap of the Findings. Though there was a range of job titles and sizes of organizations, most respondents worked at organizations with training departments that were aligned with key functions of their organization. While nearly all of these organizations still relied on instructor-led classroom training, the vast majority were turning to the Web for many aspects of their training and instruction. Of course, there was more interest than commitment at this point in time. And this interest in the Web varied by industry type; provoking the most interest from those in the information technology, financial services/insurance, and consulting services industries.

In terms of the rationale behind e-learning decision making, most respondents here were interested in learning access. They were also interested in increasing the skills of their employees and tracking that growth as well as seeing it exhibited on the job. Surprisingly many thought it could be better supported within their own organization. At present, most use online learning as a supplement or alternative to traditional instruction. The skills typically offered online were programming and other technical skills, not marketing, customer service, or executive education.

Because online training is a novel area for most instructors, a large percentage of companies are outsourcing their online training needs. Naturally, more firms are developing content internally than are designing their own e-learning delivery systems. At the same time, content is the most likely area that firms outsource.

There are many prominent and controversial issues within the online training field. Most respondents, for instance, worked at institutions that failed to conduct formal evaluations of Web-based learning. The evaluations that were performed primarily focused on basic

learner satisfaction, not ROI or job performance related outcomes. New assessment tools and perspectives may soon alter those trends.

Some of the controversial issues from higher education have yet to surface in corporate training environments. For instance, course ownership is not as significant an issue in corporate training and non-profit sectors as it is in higher education. However, many training organizations lack extensive guidelines about the ownership of course materials. While dealing with this lack of clarity, the respondents recognized that the sharing of knowledge bits or objects will be more important to them as they attempt to reduce development costs and speed the delivery of skill training through online means. As such, it was not surprising that shorter online certificate programs were more respected by these respondents than online degrees. No matter the decisions here, the many directions of this new field will likely spark its' own set of controversies and problems.

Some online tools were definitely more valued than others. As with our previous survey, our respondents preferred simple and functional tools to handle their database activities, upload and download files, offer tests and quizzes, evaluate courses, provide feedback, hold discussion forums, demonstrate ideas, foster student collaboration, and offer library and research support. In addition, they would like access to online journal articles and newsletters, instructional resources specific to their field, and search engines. Interestingly, tools for critical and creative thinking as well as instructor task collaboration were also highly valued. Calculations of where the gaps between use and interest was 20 percent or greater (i.e., tools with high growth potential) included tools for online course evaluation, instructor demonstrations, student task collaboration as well as story telling, trainer task collaboration, critical and creative thinking, feedback and annotations, and Web resources specific to one's field. If such tools are created, the Web will be transformed into a device for pedagogical ideas and expert advice or answers to their teaching problems. Innovative development companies might target such tools and features.

The survey participants clearly had a bias toward live environments over online ones. They found most instructional approaches (e.g., group collaboration, Socratic questioning, role-play and simulations, discussion, coaching and mentoring, and lecturing) better suited within live classroom training settings. Only student exploration, student generated content, and case-based activities slightly favored online environments. The dominance of traditional classroom instruction may be due to either the lack of experience teaching and learning in this new fashion or from ineffective online tools.

When asked about tools and activities that were more motivational for adult learners in the workplace, respondents favored Web-based learning that contained relevant materials, responsive feedback, goal-driven activities, personal growth, choice or flexibility, and interactivity and collaboration. They more modestly supported online fun, variety, and inclusive discussions. Items receiving low support were work-related incentives, providing a safe climate with a sense of belonging, and tension, conflict, and controversy online. Thus, it was not surprising that our respondents supported cases, job

reflections, brainstorming, and team projects on the Web over social icebreakers, article critiques, and role-play or debates.

A few survey questions addressed the future of Web-based instruction. As with the earlier survey in higher education, there was a strong sense that the percentage of instructional time devoted to Web-based training will increase in the next five to ten years. Furthermore, a majority of respondents expected to be teaching in a freelance fashion in the next few years. But many questions emerged here. For instance, what restrictions will be placed on employees from working the midnight oil to teach online for a virtual university or other organization? What types of training and support services will such freelance instructors need? Who will provide them? What rights will adjunct online instructors have in organizations wherein they are teaching?

Still more unanswered questions. Will e-learning instructors require a different type of training than today? Will this form of instruction require a new set of skills? Or will organizations simply replace instructors with content delivered via the Web? Will instructional design standards, such as those from ASTD and the Lguide, elevate or lower the quality of online courses? Will most content providers even submit their courses to such a review? And who will be responsible for creating and evaluating these standards?

There were many cultural and organizational factors holding back the adoption of Web-based learning at these organizations. Cultural issues included perceptions of high costs (some of which were certainly warranted), instructor preparation time, resistance to technology, lack of organizational support, and difficulties in measuring Web training impact. Of course, technological barriers were related to limited bandwidth, technology support, insufficient or outdated hardware, and firewall protection. As online training experiences become more common and Web learning technologies increase in reliability and acceptability, many of these issues will subside. In fact, even in the face of enormous issues today, there is fairly wide acceptance of online training.

Supports that organizations can provide are varied. Respondents expected that the standard range of conferences, workshops, consultants, and expert advice would help their designers and developers of Web-based training. Few employees received certificates for such training, however. As the extremely low reported course completion rates signal, online learners also need some support. A lack of time and incentives were the chief problems reported, while increased job responsibility and public recognition were the primary means of recognition. In most organizations, however, there were typically no incentives that fostered course completion. Perhaps more attention needs to be paid to such incentives.

In terms of the learners, it was interesting that most learners still accessed Web-based learning from their office and not the home or the road, except for sales personnel. The supports provided for these learners were mostly via e-mail, online tutorials, and other forms of online help. Desktops and employee workstations were more often provided for such training, not more portable laptops or designated computer labs. But what happens when employees are interrupted when taking online courses from their offices?

Another interesting finding in terms of online support was that only about one-third of organizations surveyed were interested in developing Web courses in multiple languages. The fact that more than one-fourth of those organizations offered courses in four or more languages indicates that a significant portion of training is becoming global. As it does, firms developing as well as delivering it will need to address cultural norms and expectations.

Finally, respondents seemed genuinely interested in participating in a free course-sharing community. Instructional resources that these trainers, instructional designers, and training managers preferred included articles and newsletters, professional links, expert advice, Web resource sharing tools, product guides and catalogs, answers to teaching problems, stories of instructional experiences, and pedagogical ideas. What is clear was that these respondents wanted online instructional help and support. Such performance support resources will likely decrease the need to attend live workshops and conferences.

When asked about 15 different Web-based services and information resources that they might like to access, the respondents were highly supportive of all of them. On the low end of resource priorities was information about job opportunities, courseware company listings, and online bookstores. On the high end of respondent support were survey and evaluation tools, trial and demonstration software, guides and courses for online course design, Web simulations and experiments, online teaching help, and online library support and research. Online mentoring and tutoring services, course listings, freelance teaching, workshops or institutes, and electronic papers and technical reports received at least 60 percent support. Again, this signals that organizational supports for instructors and trainers will increasingly shift to electronic environments. Fast and efficient access to these resources and tools will be highly valued by members of such a community.

Some Concluding Comments. The Web or some other form of electronic course delivery system will certainly shift expectations about employee training across different types of organizations and industries. It was apparent that most of our respondents hope to be part of that shift. As we already discovered in our college instructor survey, respondents expect to deliver more instruction online during the coming decade. In addition, most anticipate teaching online in a freelance fashion. Such trends will necessitate different instructional supports than what exist today. The Web provides an interesting new resource for interactive sharing of instructional expertise and dilemmas. As was pointed out, an online community of trainers and instructional designers might include opportunities for expert advice, guidelines for course design and delivery, links to professional associations, assessment and evaluation tools and resources, digital library resources, and online articles and newsletters. Of course, this list was generated, at least in part, from instructional support features of the past. Expectations of such a community will change as users become more familiar with Web-based training and the tools that support it.

While a few freely accessible e-learning reports have focused on areas such as e-learning products and services, market size, the stability of e-learning companies, online delivery

systems, and Internet access, this particular study addressed online pedagogy, motivational techniques, tool needs, and cultural barriers to change. In fact, this study focused on online pedagogy even more than our earlier study in higher education. And when those pedagogical strategies and motivational techniques become instantaneously shared around the globe, we enter a fascinating era of online knowledge sharing in the largest collection of instructional expertise on the planet. Organizations or individuals creating portals for such sharing are contributing to the largest instructional base in the history of mankind. Hopefully, this report provides some indicators as to what tools and systems to acquire or build, what content areas to address, who to support, how to conceptualize assessment, and who might benefit from online training in this online world.

Overall Recap. What did we learn here? There certainly is a need to train instructors and instructional designers in Web-based teaching tools and pedagogy. As this new format of learning gains in reliability, acceptability, and interactivity, support structures are necessary for those building and refining these courses, those administering and delivering them, and those taking them. Successful online organizations now require comprehensive support programs; if one aspect is nonfunctional (e.g., lack of access or confusing technology), the new system will not succeed. Support might include both live as well as online training and technical support. Additionally, to bolster course completion, learners may need some extrinsic and intrinsic incentives. And when high quality courses are developed, leased, or purchased, they need to be promoted.

This report also addressed issues of assessment and evaluation of online initiatives. We learned that there is a need to experiment with alternative forms of assessment that extend beyond the first two levels of the Kirkpatrick framework. According to our respondents, e-learning assessment includes a range of outcome variables from satisfaction to job performance to competencies to return on investment.

Our survey findings demonstrate a need for greater information about online training. Innovative portals might provide guidance on purchasing decisions, implementation of e-learning systems, expert guidance, and clarity regarding new vendors and technology. In addition, access to free e-learning reports might prove helpful. Finally, as consistently mentioned in this report, there is a need for more interactive and functional tools. The above findings help form the fifteen recommendations listed in the next section of this report.

4.2 Recommendations and Future Trends

Survey Recommendations. In this comprehensive report, there were many findings and observations related to online training environments. Listed below are 15 recommendations based on the data from this survey. These recommendations are in the order of the 11 sections addressed in the Part III of this survey report.

1. **Focused Research (see Section 3.1):** Respondents to this survey represented a wide range of organizations, job functions, and experiences. Future research
-

- might target particular industries, sizes of organizations, or job functions. Such research will help with product marketing and tool development efforts.
2. **Longitudinal Reports (see Section 3.2 and 3.3):** As with other reports, the data reported here clearly showed that the Web is emerging as one of the preferred methods of employee training. Longitudinal research might explore these trends over the coming years or decades. For instance, such research might track attitudes about organizational support structures as well as employee attitudes and achievement related to these new forms of delivering training. It might also longitudinally explore differences between organizational interest and commitment in Web-based learning, as well as the types of online delivery methods utilized and promoted. Additional research might reveal where and when blended approaches are preferred to either fully online approaches or conventional face-to-face training. Other possible longitudinal variables include the reasons various organizations are interested in Web-based training, the types of training offered, and the principal reasons behind outsourcing the development and delivery of Web-based content.
 3. **Evaluation and Assessment (see Section 3.4):** Alternative online assessment measures need to be developed that address employee skills and competencies. Given the findings of this survey, organizations should evaluate the completion rates of their courses as well as the motivational characteristics embedded within them. In addition, time to competency measures might be added to, or in some cases, replace traditional ROI measures. Along with changes in assessment practices, there is a need for comprehensive documents that survey the forms of online assessment and evaluation commonly used. Such documents might also provide case examples of success stories and potential problems in assessment.
 4. **Use of Learning Objects (see Section 3.5 and 3.11):** Organizations should consider how the use of learning objects in instruction relates to their strategic planning, including their knowledge management efforts. Such planning documents are vital since the use of reusable learning objects in online instruction will proliferate during the coming decade. Of course, the growth of this field will depend on the development of effective standards for shareable courseware. Decisions must be made regarding the size and type of objects shared, systems and tools used for sharing, and the ownership and use of learning objects.
 5. **Online Learning Policies and Procedures (see Section 3.5):** Most organizations still need to develop strategic plans related to e-learning. They might develop guidelines as to acceptable levels of student course completion, skill retention, employee satisfaction, and return on investment. In some instances, they will need to develop clear policies regarding the ownership of online course materials and applicable royalties. Organizations with significant training concerns might adopt policies related to instructors and other employees who provide freelance online instruction for other institutions or organizations. They might also attempt
-

to clearly articulate why certain courseware tools, policies, and expectations have been adopted related to Web-based instruction.

6. **High Growth Tool Development Efforts (see Sections 3.6 and 3.7):** Few online software tools address the diversity of instructional and learning needs mentioned by participants of this survey. High growth areas revealed in this survey included tools for online course evaluation, instructor demonstrations, student task collaboration as well as story telling, trainer task collaboration, learner critical and creative thinking, instructor feedback and annotations, and Web resources specific to one's field. As both this and our previous survey report indicated, there is a dearth of pedagogically interactive and motivating activities within Web-based learning environments. The first organization to develop a suite of pedagogical tools or templates addressing motivation, teamwork, and critical or creative thinking (e.g., tools for debate, role-play, brainstorming, timeline, etc.) will add significant value to the present state of learning management systems and instructional courseware. Finally, as online learning globally extends around the world, tools for language support will be increasingly requested and required.
 7. **Tool Development Partnerships (see Sections 3.6 and 3.7):** Courseware companies might seek partnerships for tool development and testing with universities and institutes that have well-established learning technology, information science, and instructional design departments. In serving as a testbed for emerging tools, technology centers at those universities and institutes can research and showcase product innovations. They might also spearhead significant research grant proposals and help form institutional consortia. With numerous technology, content, and service providers, partnerships among firms and universities can bridge knowledge gaps and provide comprehensive as well as competitive solutions.
 8. **Training the Trainer (see Section 3.6, 3.7, 3.8, and 3.11):** Corporations and other learning organizations need to consider not just the learners but, if facilitators, mentors, or synchronous instructors are utilized, the trainers of those learners. It will be difficult to train in the online world without a new skill set. External supports such as Web resources, online "Train the Trainer" courses and institutes, asynchronous discussion forums and communities, online mentoring, and noted experts and consultants can offer instructional assistance. Internally, intranets can provide rich training resources and alternative avenues of such support. In effect, instructional design support and guidelines can help reduce the tension felt by those teaching online for the first time. Of course, adequate time to learn the new systems and tools is vital. While there are masses of available training resources, the use of Web-based training courses and resources is a growing area for e-learning service companies.
 9. **Freelance Instructors and Designers (see Section 3.8 and 3.11):** Our survey respondents predicted fast growth for freelance instruction. How their instruction, training, and consulting wares are bartered online remains an open issue,
-

however. Already one can list e-learning needs using “request for proposal” forms from THINQ as well as hire experts from an array of disciplines listed online at Hungry Minds University. Other innovative organizations might create tools or systems that foster instructor exchange programs, trainer-to-trainer online mentoring, trainer online job-sharing, instructional resource exchanges, and instructor communities in the area of e-learning. Expert pools and knowledge exchange programs might be common in the near future not only for corporate trainers and instructors but instructional designers as well.

10. **Organizational Promotion (see Sections 3.09 and 3.10):** Employees need to be aware of their online learning options. Marketing new courses with testimonials and up-to-date information will help convince people to take the online course. There should also be incentives for trainers, instructors, and instructional designers for high quality course design and delivery.
 11. **Organizational Support (see Sections 3.09 and 3.10):** An organization must support a range of people within its e-learning initiatives. For instance, online learners need adequate technology access and organizational policies that help them to complete their online course requirements. Instructional designers new to e-learning require training, system support, and perhaps even certification. At the same time, online trainers need new skills as well as access to examples of best pedagogical practices for synchronous and asynchronous delivery systems. Finally, training evaluators need access to data from e-learning courses and events. All these e-learning stakeholders and participants demand attention and support for e-learning success.
 12. **Information Portals (see Section 3.11):** The survey uncovered a need for online resources such as newsletters, information on training institutes, course catalogs, library resources, survey and evaluation tools, and course design guidelines for online training and instruction. As this area emerges, there is a pressing need to make sense of the available courses, course platforms or learner-management systems, Web-based delivery tools, and online resources. While a number of e-learning information portals and reports are emerging, there remain many areas for development, including the documentation of the companies in this area, the sharing of best practices and online documents, and the generation of online trainer ratings.
 13. **Online Communities (see Section 3.11):** The survey results also exposed a need for an online community of instructors and instructional designers. Trainers and instructors want expert advice, answers to teaching problems, stories of online experiences, and mentoring services. While primitive forms of such communities exist, none address all these needs.
 14. **Access to Informed Research (see Section 3.1-3.12):** Studies of Web-based learning in training settings are not as readily available as reports from higher education (Bonk & Wisner, 2000). However, summary reports from higher
-

education, the military, and non-profit institutes can inform people engaged in the development of online training in corporate settings. Corporations and training organizations might also sponsor research and white papers in areas where gaps exist in the literature. Such research might also target perceived e-learning obstacles, assessment practices, or adult motivation to complete online courses. Training departments might partner with universities, consultants, or software development companies in these efforts. Where possible, the results of such research should be shared within the e-learning community.

15. **Other Online Learning Reports (see Section 3.12):** Other than perhaps Brandon-Hall.com and the Masie Center, few firms provide consistent and comprehensive access to e-learning reports and related resources. E-learning reports and white papers can help organizations understand complex terminology, provide vendor guidance, and summarize research and development efforts. The type of tools and content available for Web-based instruction can be confusing. Additional assistance in this area would be welcome.

These 15 recommendations offer a glimpse into the many directions of online training in this online world. Understandably, they address varied audiences and topics. Some of the above recommendations target trainers and instructional designers, others concern the use and support of e-learning tools at the organizational level, and still others are intended for e-learning vendors and tool builders. Across the recommendations, there is a sense that electronic forms of learning and instruction cannot be ignored since some form of digital learning will not likely disappear anytime soon.

As budgets spent on e-learning initiatives widen, shrink, and perhaps rise again, there is a need for additional reports that might target specific problems faced by training managers and directors, instructional designers, trainers, and students. For instance, with millions of software engineers and computer programmers being trained online each year (Kiser, 2001b), there is a need to understand the factors that facilitate course distribution and completion. What can be done instructionally to enhance learner completion rates, especially in self-paced technical courses? What types of tools, activities, and content areas exhibit higher success rates? And why? Answers to these and many other questions are needed right now.

For courses with an instructor, expert mentor, or facilitator, the pedagogical decisions of the instructor as well as interactions with students are vital to course success. In effect, there is a need for instructor training as well as a sharing of that training. Some of this training will be provided externally and some internally. How should internal and external training be balanced? Instructors and trainers entering this new teaching spectrum will need many forms of support. Certainly the need for online “train the trainer” programs and firms will likely explode during the next few years. Finally, the removal of geographic space as a barrier to training will force global organizations to deal with language differences as well as unique cultural expectations during the training.

Many organizations are embracing or tinkering with e-learning. Yet these same firms are confused by the choices they face from online courseware, content vendors, and managers of internal development efforts. There are just too many unknowns here. Consequently, there is a pressing need to share rationale for different e-learning strategic plans and decisions. Of course, there is also a need to share the impact of those decisions. What system to buy? Should we lease or buy it? What features are provided? How to implement it? How might we promote a course? How will content be delivered? What is the role of the instructor? While there already are a myriad of questions, each new e-learning technology (e.g., live e-learning, videoconferencing, asynchronous e-learning with learning management systems, etc.) brings with it a new set of questions and concerns.

As with most studies, additional research is needed to confirm and extend the findings reported here. Interviews and focus groups might provide more detailed and specific information. Other research might explore the costs of different e-learning platform options, ways to increase course completion, changing attitudes regarding e-learning, actual e-learning assessment practices, and the types of technical support provided for students and trainers online. We hope to address some of these issues in upcoming surveys and other research and tool development efforts.

Future Trends. There are many directions for online training in this online world. Consequently, accurate predictions of next steps are difficult. Without a doubt, technology will increasingly play a role in employee training. According to Martin Renkis (2001), CEO of Trainersoft Corporation, 18 percent of total training is expected to be technology-based in 2002. Moreover, these numbers are anticipated to increase to 35 percent by the end of the decade. Over the next few years, Renkis envisions the emergence of wireless technologies, PDA devices, and fast authoring tools combined with task-based employee-led training that is selected when needed within networked organizations. While the acceptance of e-learning will continue to be slow, he forecasts quicker growth for blended and synchronous e-learning as well as monitored learning and “personal online coaching.” Renkis also claims that learning strategies or “business plans for learning” will be more common in the next few years.

Predictions of next steps or hot topics for e-learning are not easy. Will intelligent tutors find ubiquitous presence in online courses by the end of the decade? If so, just how “intelligent” will these be? When will they emerge? In what format? Perhaps more importantly, will e-learners be allowed to select the forms and types of interaction and feedback? At the same time, will e-learning trainers and instructors have online skill ratings? Will instructors even be needed? Will reliable technologies emerge for rating and evaluating learner online performances? Will virtual certificates and degrees be more widely recognized and accepted? And to what extent will online degrees, programs, and universities replace traditional ones?

Some consistent themes and topics were uncovered after reviewing the trends found in recent e-learning conferences, popular magazines, and reports. As noted below, there are

at least a dozen e-learning trends that will significantly impact future directions of online training in the next five to ten years.

1. **Mobile Learning:** While most online training reported in this survey took place from office workstations, wireless online learning will allow adults to fit Web-based training into their busy lifestyles.
 2. **Virtual Universities:** The emergence of new models of education and innovative virtual degree and certificate programs will continue to expand the learning avenues and choices for adults in the workplace.
 3. **Electronic Book Tools:** As books and other resources increasingly are offered in electronic formats, tools will be developed for trainers and learners to utilize these books in interactive and collaborative ways.
 4. **Standards:** The development of courseware and content standards such as those from ASTD should elevate the quality as well as interoperability of online materials.
 5. **Knowledge Objects:** With the acceptance and continued enhancement of shareable courseware standards, the sharing and reuse of course materials will flourish during the upcoming decade.
 6. **Knowledge Management:** Organizations will increasingly need to create strategic plans and organizational structures that properly link knowledge management and e-learning goals and initiatives.
 7. **Language Support:** Improvements in learning management systems (LMSs) and online content will provide multiple language support and, at the same time, adapt online technology and courseware support to a myriad of cultural differences and expectations.
 8. **Mentoring:** The use of online mentoring as a vehicle to enhance course quality, feedback, relevancy, and interactivity will soon be common and expected within Web-based training experiences (Adler & Rae, 2002).
 9. **Artificial Intelligence and Assistance:** More responsive and interactive online learning environments with virtual assistants, butlers, and guides will finally materialize to help online learners as well as course trainers.
 10. **Pricing and Implementation Guidance:** Technical reports and services will be designed to help determine how to price e-learning technology products, services and training, as well as how much to pay for those tools and services. E-learning implementation guides and tips for organizations and instructors will also proliferate.
 11. **Product Categorization and External Evaluation:** Reports and guides reacting to the propagation of e-learning vendors, conferences, and institutes will help distinguish and categorize the available e-learning products and services as well as the range of online training formats and activities.
 12. **Economic Impact Predictions:** While venture capital for educational technology has plummeted (Red Herring, 2002), government and industry reports will continue to optimistically project the economic impact and growth potential of e-learning.
-

In addition to the 12 trends listed above, one irrefutable prediction is that forecasts of the future trends within e-learning will continue to increase. Clearly there are many important areas wherein the impact of e-learning will be felt. In our study, the survey respondents perceived the need for novel ways to instruct, but also wanted the means to ensure that this instruction is adequate, efficient, and ultimately profitable. Online training may change attitudes about learning, the speed in which that learning takes place, the available assessment measures, and the ultimate participants in the training process. Hopefully, this report and others like it will have a role in raising the awareness of what this field is as well as enhancing online training standards, pedagogy, and overall quality. The next few years will undoubtedly be interesting times to determine the impact of online training. We hope you enjoy those times.

5. REFERENCES

- Ader, J. (2001, July). Between luxury and necessity: Financial services firms live on the cutting-edge of video technology. *E-learning*, 2(7), 37-38, & 40-41.
- Adler, C., & Rae, S. (2002, January). Personalized learning environments: The future of e-learning is learner-centric. *e-learning*, 3(1), 22-24. Retrieved January 24, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=6687>.
- Agre, P. E. (1998). Designing genres for new media: Social, economic, and political contexts. In S. E. Jones, S. E. (Ed.), *Cybersociety: Revisiting computer-mediated communication and community* (pp. 69-99). Thousand Oaks, CA: Sage Publications.
- Allen, M. (2002, January). Discovery learning: Repurposing an old paradigm. *e-learning*, 3(1), 19-20. Retrieved January 24, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=6709>
- American Psychological Association. (1993). *Learner-centered psychological principles: Guidelines for school reform and restructuring*. Washington, DC: American Psychological Association and the Mid-continent Regional Educational Laboratory.
- American Society for Training & Development. (2001). *ASTD Institute e-learning courseware certification*. Retrieved January 1, 2002, from: <http://www.astd.org/ecertification/>.
- Anderson, T. (2002, January). Is e-learning right for your organization? *Learning Circuits*, American Society for Training & Development. Retrieved January 24, 2002, from: <http://www.learningcircuits.org/2002/jan2002/anderson.html>
- Baldwin, T. T., & Danielson, C. C. (2000). Building a learning strategy at the top: Interviews with ten of America's CLOs. *Business Horizons*, 43(6), 5-14.
- Baldwin, T. T., & Danielson, C. C. (2001). *Formulating learning strategy in organizations: Challenges facing the Chief Learning Officer*. Kelly Executive Partners, Bloomington, IN: Indiana University.
- Baldwin, T. T., Danielson, C., & Wiggernhorn, W. (1997). The evolution of learning strategies in organizations: From employee development to business redefinition. *Academy of Management Executive*, 11(4), 47-58.
- Barron, T. (2001, May). E-learning weathers a bear market. *Training and Development*, 55(3), 46-52.
- Bittner, A. (2000). Lift truck moves online. *Occupational Health and Safety*, 69(12), 45-46.
-

- Bonk, C. J. (2001). *Online teaching in an online world*. Bloomington, IN: CourseShare.com. Retrieved January 1, 2002, from http://www.publicationshare.com/download/faculty_survey_report.pdf.
- Bonk, C., J., Angeli, C., Malikowski, S., & Supplee, L. (2001, August). Holy COW: Scaffolding case based conferencing on the Web with preservice teachers. *15*(8), *USDLA: Education at a Distance*. Retrieved January 1, 2002, from: http://www.usdla.org/ED_magazine/illuminactive/AUG01_Issue/article01.html.
- Bonk, C. J., & Cummings, J. A. (1998). A dozen recommendations for placing the student at the centre of web-based learning. *Educational Media International*, *35*(2), 82-89.
- Bonk, C. J., & Dennen, N. (in press). Framework for frameworks in Web instruction: Fostering research, design, benchmarks, training, and pedagogy. To appear in M. G. Moore & B. Anderson (Ed.), *Handbook of distance education*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Bonk, C. J., & Dennen, V. P. (1999). Teaching on the Web: With a little help from my pedagogical friends. *Journal of Computing in Higher Education*, *11*(1), 3-28.
- Bonk, C. J., Hara, H., Dennen, V., Malikowski, S., & Supplee (2000). We're in TITLE to dream: Envisioning a community of practice, "The Intraplanetary Teacher Learning Exchange." *CyberPsychology and Behavior*, *3*(1), 25-39. (Special Issue on Education & the World Wide Web).
- Bonk, C. J., & King, K. S. (Eds.). (1998). *Electronic collaborators: Learner-centered technologies for literacy, apprenticeship, and discourse*. Mahwah, NJ: Lawrence Erlbaum
- Bonk, C. J., Kirkley, J. R., Hara, N., & Dennen, V. (2001). Finding the instructor in post-secondary online learning: Pedagogical, social, managerial, and technological locations. J. Stephenson (Ed.), *Teaching and learning online: Pedagogies for new technologies* (pp. 76-97). London: Kogan Page.
- Bonk, C. J., & Reynolds, T. H. (1997). Learner-centered Web instruction for higher-order thinking, teamwork, and apprenticeship. In B. H. Khan (Ed.), *Web-based instruction* (pp. 167-178). Englewood Cliffs, NJ: Educational Technology Publications.
- Bonk, C. J., & Wisher, R. A. (2000). *Applying collaborative and e-learning tools to military distance learning: A research framework*. (Technical Report #1107). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. Retrieved January 1, 2002, from: [http://php.indiana.edu/~cjbonk/Dist.Learn%20\(Wisher\).pdf](http://php.indiana.edu/~cjbonk/Dist.Learn%20(Wisher).pdf).
-

Bonk, C. J., Wisher, R. A., & Lee, J. (in press). Moderating learner-centered e-learning: Problems and solutions, benefits and implications. To appear in I. Giles & P. Robinson (Eds.). *Asynchronous learning: Institutional, pedagogical and assessment issues in higher education*. Stylus Publishing.

Borman, R. (2001, July). Avoid making cross-cultural boo-boos. *E-learning*, 2(7), 12-15.

Bosnjak, M., & Tuten, T. L. (2001, April). Classifying response behaviors in Web-based surveys. *Journal of Computer-Mediated Communication*, 6(3). Retrieved January 1, 2002 from: <http://www.ascusc.org/jcmc/vol6/issue3/boznjak.html>

Branstetter, G. (2001). *Hot tips mailing list update newsletter*, Hippo Direct, Retrieved July 1, 2001, from: <http://www.hippodirect.com/tools/EmailTips.asp>.

Brown, J. S., & Duguid, P. (2000). *The social life of information*. Boston, MA: Harvard Business School Press.

Burke, B. (2000, October). How small business can benefit from e-learning. *E-learning*, 1(5), 24-27.

Carr, S. (2000, February 11th). As distance education comes of age, the challenge is keeping the students. *The Chronicle of Higher Education*, pp. 1-8, Washington, DC. Retrieved January 1, 2002, from: <http://chronicle.com/free/v46/i23/23a00101.htm>.

Cho, H., & LaRose, R. (1999). Privacy issues and Internet surveys. *Social Science Computer Review*, 17(4), 421-434.

CIO Advertising Supplement (2001a, June 15th). New ways to learn. *CIO Magazine: Strategic Directions: Knowledge Management & E-Learning*, June, pp. 16-18. Retrieved January 1, 2002, from CIO White Paper Library: http://www.cio.com/sponsors/061501_new.html.

CIO Advertising Supplement (2001b, June 15th). What it means to manage knowledge. *CIO Magazine: Strategic Directions: Knowledge Management & E-Learning*, June, pp. 6-8. January 1, 2002, from CIO White Paper Library: http://www.cio.com/sponsors/061501_mean.html.

Cohen, E. J. (2002, January). The emerging standards effort in e-learning. *e-learning*. 3(1), 26-28. Retrieved January 24, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=6787>.

Crawford, S., & Becker, B. (2001, November). Winning strategies: Proven tips to do a lot with a little. *E-learning*, 2(11), 12-14 & 16.

- Cummings, J. A., Bonk, C. J., & Jacobs, F. R. (in press). Twenty-first century college syllabi: Options for online communication and interactivity. *Internet and Higher Education*.
- Devaney, T. (2001, February). Can we bank on e-learning. *Red Herring*, 92, February 14, 2001.
- DeVeaux, P. (2001, May). Renaissance man: Author, entrepreneur, and educator Glenn Jones shares his views on how to better teach the world. *E-learning*, 2(5), 19, 20-21.
- Dillon, C. L., & Walsh, S. M. (1992). Faculty: The neglected resource in distance education. *The American Journal of Distance Education*, 6(3), 5-21.
- Doherty, P. B. (1998). Learner control in asynchronous learning environments. *Asynchronous Learning Networks Magazine*, 2(2), 1-11.
- Downes, S. (2001). Learning objects: Resources for distance education. *International Review of Research in Open and Distance Education*, 2(1), 1-35. Retrieved January 1, 2002, from: <http://www.irrodl.org/content/v2.1/downes.html>.
- Edvinsson, L., & Malone, M. S. (1997). *Intellectual capital: Realizing your company's true value by finding its hidden brainpower*. NY: HarperCollins Publishers, Inc.
- Eklund, B. (2001, February). Cramming with e-learning advocates. *Red Herring*, 92, February 14, 2001.
- E-learning Newslines (2002, January). ASTD certification institute launches e-learning courseware certification program. *e-learning Newslines*, 3(2). Retrieved January 17, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=6834>
- The Forrester Report (2000, August). *Online training needs a new course*. Cambridge, MA. Information on report retrieved December 23, 2001, from: <http://www.forrester.com/ER/Research/Report/Excerpt/0,1338,10060,FF.html>.
- Fortune Magazine (2000, November). *E-Learning: Leading strategies for executive education and corporate training*. Special Section: S1-S42. Document originally retrieved at: <http://www.fortunelearning.com/pdf/eLearning.pdf>.
- Galagan, P. A. (2001). The Cisco e-learning story. *Training and Development*, 55(2), 46-55.
- Gilmore, E. R., & Fritsch, P. J. (2001, December). Interpersonal skills training: Online versus instructor-led courses. *Performance Improvement*, 40(10), 30-38.
-

Hall, B. (2000a). *Learning management systems: How to choose the right system for your organization*. Sunnyvale, CA: Brandon-Hall.com.

Hall, B. (2000b). *Live e-learning: How to choose a system for your organization*. Sunnyvale, CA: Brandon-Hall.com.

Hoffman, J. (2001a, October). *Tips for teaching synchronously*. Presentation at Online Learning 2001, Anaheim, CA.

Hoffman, J. (2001b, March). 24 hours in the life of a synchronous trainer. *Learning Circuits*, American Society for Training & Development. Retrieved January 1, 2002, from: <http://www.learningcircuits.org/2001/mar2001/hofmann.html>.

Horton, W. (2001). *Evaluating e-learning*. Alexandria, VA: American Society for Training & Development.

Huseman, R. C., & Goodman, J. P. (1999). *Leading with knowledge: The nature of competition in the 21st century*. Thousand Oaks, CA: Sage Publications.

Jacobsen, P. (2001, November). Reusable learning objects: What does the future hold? *E-learning*, 2(11), 24-26.

Jones, S. E. (Ed.). (1998). *Cybersociety: Revisiting computer-mediated communication and community*. Thousand Oaks, CA: Sage Publications.

Kaeter, M. (2000, September). Virtual cap and gown. *TRAINING Magazine*, 37(9), 114-116, 118, 120-122.

Kaye, B. K., & Johnson, T. J. (1999). Research methodology: Taming the cyber frontier. *Social Science Computer Review*, 17(3), 323-337.

Kirkpatrick, D.L (1998). *Evaluating training programs: The four levels* (Second Edition). Berret-Koehler, San Francisco.

Kirkpatrick, D.L (2001). *Evaluating training programs: Inside the four levels*. Proceedings of the 17th annual Training Director's Forum (pp. 545-572), Las Vegas, NV.

Kiser, K. (2001a, September). Closed for business. *Online Learning*, 5(8), 16-20.

Kiser, K. (2001b, January). E-learning evangelism. *Online Learning*, 5(1), 46-48, 50, & 52.

Kiser, K. (2001c, October). State of the industry 2001. *Online Learning*, 5(9), 46-48, 50, & 52. *Online Learning*, 5(1), 17-18, 20, 22, 24, 26, 28, & 30. Retrieved January 1, 2002, from: http://209.11.43.230/onlinelearning/images/pdf/2001state_of_industry.pdf.

Kulp, R. (1999). *Effective collaboration in corporate distributed learning: Ten best practices for curriculum owners, developers and instructors*. Chicago, IL: IBM Learning Services.

Lee, J. Y. (2001). *Reusable learning objects (RLOs): A framework of knowledge management in multinational enterprises*. Unpublished document. Bloomington, IN: Indiana University.

Leigh, P., & Benyola, P. (2001, October). *Future developments in electronic conferencing*. St. Petersburg, FL: Raymond James and Associates, Inc.

Letts, M. (2001). MetaText: Building a new kind of textbook. *The Seybold Report: Analyzing Publishing Technologies*, 1(7), 4-9.

Lguide (2001, March). *E-learning course publishers: A comparative analysis and industry directory*. Tacoma, WA: Lguide. (for a condensed version of these reviews, see http://www.learningcircuits.org/lguide_index.html).

Longmire, W. (2000, March). A primer on learning objects. *Learning Circuits*, American Society for Training & Development. Retrieved January 1, 2002, from: <http://www.learningcircuits.com/mar2000/primer.html>.

Lotus Institute. (1996). *Distributed learning: Approaches, technologies, and solutions*. White Paper. Cambridge, MA. Retrieved January, 1, 2002, from <http://www.lotus.com/world/emeaedu.nsf/641021c7cb140a3c852564060012ce06/0000227e>.

LTSC. (2000). *Learning Technology Standards Committee Website [On-Line]*. Document originally retrieved from: <http://iee.org/> or <http://standards.ieee.org/cgi-bin/status>

Mabe, C. (2001). *Improved profitability through total knowledge management: Why you should care about the technology behind training and knowledge management*. Golden, CO: Generation21 Learning Systems.

Masie, E. (2002, January). The trainer of the future. *e-learning*. 3(1), 50. Retrieved January 17, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=6714>

Mason, R. (1991). Moderating educational computer conferencing. *DEOSNEWS*, 1(19), 1-11.

Mason, R. (1998). Models of online courses. *Asynchronous Learning Networks Magazine*, 2(2), 1-11.

- McGreal, R., & Roberts, T. (2001, October). A primer on metadata: Fostering an interoperable environment. *E-learning*, 2(10), 26-29.
- Medlin, C., Roy, S., & Chai, T. H. (1999) *World Wide Web versus mail surveys: A comparison and report*. Paper presentation at ANZMAC99 Conference, Marketing in the Third Millennium, Sydney, Australia. Document originally retrieved from: <http://www.anzmac99.unsw.edu.au/anzmacfiles/papers.htm> [Accessed 8/01]
- Meister, J. C. (1998). *Corporate universities: Lessons in building a world-class work force*. NY: McGraw-Hill.
- Miller, T. W. (2001). Can we trust the data of online research? *Marketing Research*, 13(2), 26-32.
- Mioduser, D., Nachmias, R., Lahav, O., & Oren, A. (1998). *Web-based learning environments (WBLE): Current state and emerging trends*. (Research Report # 51). Tel-Aviv, Israel: Tel-Aviv University, School of Education.
- Moshinskie, J. (2001). How to keep e-learners from e-scaping. *Performance Improvement*, 40(6), 28-35.
- Murray, D., & Bloom, M. (2000, March). *Solutions for employers: Effective strategies for using learning technologies in the workplace*. Knowledge Review Report: The Conference Board of Canada.
- National Governors Association (2001, June). *The state of the state of e-learning in the states*. Washington, DC: National Governors Association Center for Best Practices. Retrieved January 1, 2002, from: <http://www.nga.org/cda/files/060601ELEARNING.pdf>.
- Oblinger, D. G., & Maruyama, M. K. (1996). *Distributed learning*. Boulder, CO: CAUSE.
- Oliver, R., & McLoughlin C. (1999). Curriculum and learning-resources issues arising from the use of web-based course support systems. *International Journal of Educational Telecommunications*, 5(4), 419-436.
- Oliver, R., Omari, A., & Herrington, J. (1998). Exploring student interactions in collaborative World Wide Web computer-based learning environments. *Journal of Educational Multimedia and Hypermedia*, 7 (2/3). 263-287.
- Olson, M. L. (2001, September). E-coaching. *Learning Circuits*, American Society for Training & Development, Retrieved January 1, 2002, from: <http://www.learningcircuits.org/2001/sep2001/olson.html>.
-

Online Learning (2000, December). 2001 buyer's guide. *Online Learning*, 4(11), 12-95.

Orvis, K. L., Wisner, R. A., Bonk, C. J., & Olson, T. (in press). Problem-solving exercises in military training: Communication patterns during synchronous Web-based instructions. *Computers in Human Behavior*.

Partlow, K. M. (2001). *Indicators of constructivist principles in Internet-based courses*. Unpublished master's thesis. Charleston, IL: Eastern Illinois University.

Peppers, K., & Bloom, S. (1999). Internet-based innovations for teaching IS courses: The state of adoption, 1998-2000. *Journal of Information Technology Theory and Applications*, 1(1). Retrieved January 1, 2002, from: <http://clam.rutgers.edu/~ejournal/spring99/survey.htm>.

Phipps, R., & Merisotis, J. (1999). *What's the difference?: A review of contemporary research on the effectiveness of distance learning in higher education*. Washington, DC: THE INSTITUTE for Higher Education Policy.

Pintrich, P. R., & Schunk, D. H. (1996). *Motivation in education: Theory, research, and applications*. Englewood Cliffs, NJ: Merrill.

Raths, D. (2001, May). Measure of success. *Online Learning*, 5(5), 20-22, & 24.

Red Herring (2002, January). VCs send educational startups back to school. *Red Herring*, 109, 32.

Reddy, A. (2002, January). E-learning ROI calculations: Is a cost/benefit analysis a better approach? *e-learning*. 3(1), 30-32. Retrieved January 23, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=6711>.

Reed, T., & Francis, L. M. (2001, March). Build skill with a-learning. *Learning Circuits*, American Society for Training & Development. Retrieved January 1, 2002, from: <http://www.learningcircuits.com/2001/oct2001/francis.html>.

Reeve, J. M. (1996). *Motivating others: Nurturing inner motivational resources*. Needham Heights, MA; Allyn & Bacon.

Renkis, M. (2001, April). *The future of e-learning*. Presentation at the e-learning 2001 conference, Washington, DC.

Report of the Commission on Technology and Adult Learning (2001). *A vision of e-learning for America's workforce*. Washington, DC: American Society for Training and Development and National Governors Association, June 2001. Retrieved January, 1, 2002, from: <http://www.nga.org/cda/files/ELEARNINGREPORT.pdf>.

Rheingold, H. (1993). A slice of my virtual community. In L. M. Harasim (Ed.). *Global networks: Computers and international communication* (pp. 57-80). Cambridge, MA: MIT Press.

Rosenberg, M. (2001a). Can ASTD certification standards ensure quality off-the-shelf courseware? *E-learning*, 2(7). Retrieved January 1, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=3917>.

Rosenberg, M. (2001b). Mixing apples and oranges: Quick tips for surviving the interoperability myth. *E-learning*, 2(10), 30-31. Retrieved January 1, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=2036>.

Rowe, V. (2000, May/June). Online mentoring gives e-learning a boost. *E-learning*, 1(3), 42-43.

Salmon, (2000). *E-moderating: The key to teaching and learning online*. London: Kogan Page.

Schatz, S. (2001). *Meta tagging knowledge bits: An introduction and model for creating unique schemas*. Unpublished manuscript. Bloomington, IN: Indiana University. Retrieved January 1, 2002, from: <http://www.performanceportalportal.com/Tags.pdf>.

Shashaani, L. (1994). Gender differences in computer experience and its influence on computer attitudes. *Journal of Educational Computing Research*, 11(4), 347-367.

Sheehan, K. B., & Hoy, M. G. (1999, March). Using e-mail to survey Internet users in the United States: Methodology and assessment. *Journal of Computer-Mediated Communication*, 4(3). Retrieved January 1, 2002, from: <http://www.ascusc.org/jcmc/vol4/issue3/sheehan.html>.

Solomon, D. J. (2001). Conducting Web-based surveys. *Practical assessment, research, and evaluation*. 7(19). Retrieved January 1, 2002, from: <http://ericae.net/pare/getvn.asp?v=7&n=19>.

Stipek, D. J. (1998) *Motivation to learn: From theory to practice* (3rd ed.). Boston: Allyn & Bacon.

Tedeschi, B. (2001, November). Aftermath: Rethinking 'place' in business. *Smart Business*, 14(11), 30, 32, & 36. Retrieved January 1, 2002, from: <http://www.smartbusinessmag.com/article/0,3658,s%253D101%2526a%253D16302,00.asp>.

The UCLA Internet Report 2000--"Surveying the Digital Future." (2000, October). Los Angeles, CA: UCLA Center for Communication Policy. Retrieved January 1, 2002, from: <http://www.ccp.ucla.edu/UCLA-Internet-Report-2000.pdf>.

The UCLA Internet Report 2001--“*Surveying the Digital Future.*” (2001, November). Los Angeles, CA: UCLA Center for Communication Policy. Retrieved January 1, 2002, from <http://www.ccp.ucla.edu/pdf/UCLA-Internet-Report-2001.pdf>.

Thiagarajan, S., Estes, F., & Kemmerer, F. (1999). Designing compensation systems to motivate performance improvement. In H. Stolovitch, & E. Keeps (Eds.), *Handbook of human performance technology* (2nd ed.), (pp. 411-429). San Francisco: Jossey-Bass.

TRAINING Magazine Staff (2000, October). Industry Report 2000: A comprehensive analysis of employer-sponsored training in the United States. *TRAINING Magazine*, 37(10), 45-94.

Twigg, C. A. (2000). *Who owns online courses and course materials? Intellectual property policies for a new learning environments.* The Pew Learning and Technology Program. Troy, NY: Center for Academic Transformation Rensselaer Polytechnic Institute. Retrieved January 1, 2002, from <http://www.center.rpi.edu/PewSym/mono2.html>.

Upitis, D. (1999). *E-knowledge: New ways to build the new economy.* Technical Report: Equity Research Division. Wit Capital Corporation

Urdan, T. A., & Weggen, C. C. (2000, March). *Corporate e-learning: Exploring a new frontier.* San Francisco, CA: WR Hambrecht and Co. Originally retrieved from: http://www.wrhambrecht.com/research/coverage/elearning/ir/ir_explore.pdf and http://www.wrhambrecht.com/research/elearning/ir/ir_explore.html.

Wang, F. K., & Bonk, C. J. (2001, September). A design framework for electronic cognitive apprenticeship. *Journal of Asynchronous Learning Networks*, 5(2). Retrieved January 1, 2002, from: http://www.aln.org/alnweb/journal/Vol5_issue2/Feng-Kwei/5-2%20JALN%20Wang.pdf.

Wardell, C. S., & Paschetto, G. (2000). *Secrets of success: The design, development and execution of an award-winning distance course.* Proceedings of the 16th Annual Conference on Distance Teaching and Learning (pp. 513-518), Madison, WI.

Wardell, C. S., & Paschetto, G. (2001). *Small group instruction in real-time over the web.* Interservice Industry Training Simulation and Education Conference, Orlando, Florida.

Welber, M. (2001, October), Checking the industry’s pulse: How have the attacks affected e-learning? *E-learning*, 2(10), 14-16 & 18.

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity.* NY: Cambridge University Press.

Wiley, D. A. (2001). *The instructional use of learning objects*. Bloomington, IN: Association for the Educational Communications and Technology. Retrieved January 1, 2002, from: <http://reusability.org/read/>.

Yan, J., Rothwell, W. J., & Webster, L. (2001, December). Transferring the soft-skills technology of workplace learning and performance to China. *Performance Improvement*, 40(10), 18-23.

van Dam, N. (2002, January). E-learning by design: Can a better-designed course help you learn more? *e-learning*. 3(1), 38-39. Retrieved January 23, 2002, from: <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=6705>.

6. AUTHOR BIOGRAPHY AND COMPANY BACKGROUNDS

About Author

Curtis J. Bonk, Ph.D. Dr. Curtis J. Bonk is a former CPA and corporate controller who received his master's and Ph.D. degrees in educational psychology from the University of Wisconsin. From 1989 to 1992, Dr. Bonk served on the faculty of West Virginia University. He is now an associate professor in the Departments of Counseling and Educational Psychology as well as Instructional Systems Technology at Indiana University (IU). He is also a core member of the Center for Research on Learning and Technology at IU and a Senior Consortium Research Fellow with the Army Research Institute. Dr. Bonk received the Burton Gorman teaching award in 1999 and was the first recipient of IU's Wilbert Hites Mentoring Award in 2000. During the past few years, he has been a visiting scholar at universities in Finland, Canada, and Australia. Curt has developed unique international conferencing exchanges and mentoring programs, including "The Intraplanetary Teacher Learning Exchange" (TITLE) and the "Teacher Institute for Curriculum Knowledge about the Integration of Technology" (TICKIT) (<http://www.indiana.edu/~tickit>). His 1998 book with Lawrence Erlbaum, *Electronic Collaborators Learner-Centered Technologies for Literacy, Apprenticeship, and Discourse* was cited as a "Breakthrough Book" in *Lingua Franca*. Dr. Bonk has presented his ideas at hundreds of state, national, and international conferences and seminars (e.g., Telecon, Training Director's Forum, Training, Online Learning, Ed Media, Teaching in Higher Education, e-learning, TeleLearning, APA, AERA, and the Distance Teaching and Learning Conference) and is in demand as a conference keynote speaker. He has consulted with many organizations regarding e-learning (e.g., Samsung, Simon Property Group, the Coast Guard, and The University of Texas System), especially as it relates to online pedagogy, instructional design, usability testing, and assessment. He is President of CourseShare.com, which he founded in 1999. At CourseShare.com, Curt is helping build e-learning training and evaluation programs for trainers and instructors, portals and tools for online collaboration, and Web-based survey and assessment tools (e.g., see <http://www.SurveyShare.com>). He can be reached via e-mail at cjbonk@indiana.edu and his Web homepage is <http://php.indiana.edu/~cjbonk>.

About Sponsors

About Jones International University*

Founded in 1993 and launched in 1995, JIU is the first fully online regionally accredited university. JIU is accredited by The Higher Learning Commission of the North Central Association, a United States regional accrediting agency. JIU is part of Jones Knowledge*, Inc., a leader in the development and deployment of online learning solutions to educational institutions, individuals, and corporations. Other Jones Knowledge companies include Jones e-education*, Inc., a highly flexible platform on which to build a customized, fully integrated online learning solution, Jones e-global library*, Inc., a comprehensive suite of online library research tools and Knowledge Store*, a catalogue of fully developed academic and business courses. Jones Knowledge is a Jones International*, Ltd. subsidiary. To learn more about JIU, visit <http://www.jonesinternational.edu>.

About CourseShare.com

CourseShare.com is a leader in online learning research, training, and evaluation. In particular, it specializes in online instructor training and course development. As a portal for e-learning trainers and instructors, CourseShare has developed innovative collaboration tools (see InstructorShare.com) and resources (e.g., PublicationShare.com, ResourceShare.com, TrainingShare.com, BookstoreShare.com, etc.). In addition, CourseShare offers online evaluation and assessment services including the new Web-based survey tool, SurveyShare.com, available in both free and pro versions. Finally, CourseShare provides usability testing, needs assessment, and other consulting services. For more details, see <http://www.CourseShare.com>.
