THE PRESENT AND FUTURE STATE OF BLENDED LEARNING IN WORKPLACE LEARNING SETTINGS IN THE UNITED STATES

Kyong-Jee Kim | Curtis J. Bonk | Eunjung Oh

This article reports a survey about blended learning in workplace learning settings. The survey found that blended learning gained popularity in many organizations but also that several barriers exist in implementing it. This survey also includes predictions on instructional strategies, emerging technologies, and evaluation techniques for blended learning.

WITH THE EMERGENCE of Internet technologies during the past few years, there has been an explosion of nontraditional learning opportunities that is apparent across various education and training settings (Bonk & Graham, 2006; Cho, Park, & Wagner, 1999; MacDonald & McAteer, 2003). Such informal and untraditional training approaches have also proliferated in workplace learning settings (Cross, 2007; Noe, 2003). However, various limitations of e-learning as a training method in corporate settings have elevated the needs to innovate in corporate training. Such innovations include the use of blended learning, with a plethora of documented models, cases, and examples involving the mixing of face-to-face with online delivery methods (Bonk & Graham, 2006).

Accordingly, the interest in blended learning, which typically combines face-to-face training and online learning, is rapidly increasing (Boyle, Bradley, Chalk, Jones, & Pickard, 2003; Duhaney, 2004; Thorne, 2003; Thomson NETg, 2003). Millions of learners around the world, in fact, are learning in this fashion each day (Bonk & Graham, 2006), and blended learning estimates continue to climb. A recent survey indicates that the use of blended learning in all of training in the United States is projected to jump to nearly 30% by 2006, about double that of 2004 (Balance Learning, 2004). Furthermore, it is conceivable that 80% to 90% of college and corporate training classes will be blended by the end of the decade (Kim, Bonk, & Zeng, 2005) and that more than 1 billion learners around the globe will be advancing their skills in this fashion.

Although many organizations are recognizing the potential of blended learning for improving learning and performance, there are numerous issues to be addressed in delivering blended learning in workplace learning settings. First, there is a plethora of technologies and delivery methods that can be used for blended learning, but little is known about the actual effectiveness of such blends (Rossett, Douglis, & Frazee, 2003). Second, there are many blended learning models and approaches for delivering workplace learning (Bonk & Graham, 2006; Driscoll, 2002a; Rossett et al., 2003; Valiathan, 2002). Such facts can lead to confusion for practitioners in deciding the optimal blended learning approaches and how to evaluate blended courses or programs.

Given the many unknowns about blended learning, there is a lack of clear direction on where blended learning is headed and how practitioners can plan for its effective implementation in their organizations. Clearly a study of the future of blended learning is warranted to help practitioners understand how to implement it effectively in their organizations. In response to this need, a survey was conducted of training and HRD professionals (e.g., chief learning officers, training managers, trainers/instructors, and e-learning developers) in the United States. The purpose of the study examined in this article is to explore the current state and future trends in blended learning in workplace learning settings around the United States. Among the key research questions were these:

Performance Improvement, vol. 47, no. 8, September 2008

Published online in Wiley InterScience (www.interscience.wiley.com) • DOI: 10.1002/pfi.20018

- How is blended learning being perceived and practiced in workplace learning settings today?
- Is blended learning expected to grow for workplace learning in the next few years?
- How is the quality of blended learning evaluated in workplace learning settings?
- What emerging technologies might have an impact on the future use of blended learning in workplace learning settings?
- What instructional strategies are relevant to blended learning in the next few years?

This study intends to provide a compass that can mark the direction and intensity of blended learning approaches in workplace learning settings. In addition, the findings from the study offer theoretical and practical implications on how to overcome barriers to implementing blended learning.

LITERATURE REVIEW

Blended Learning: Definitions and Models

Blended learning is one of the key trends in corporate training (Graham, 2006; Rooney, 2003). In fact, people have been extensively using blended learning for decades (Bunderson, 2003), yet it has been used somewhat differently depending on how people understand what it means and what they blend. Graham (2006) identifies and categorizes three of the more prevalent definitions of blended learning currently used in the literature. First, one can blend instructional modalities or delivery media, such as using different technologies and activities (Bersin, 2004). Second, one can combine instructional methods (Driscoll, 2002b; Rossett et al., 2003). As Driscoll (2002b) stated, one "can combine various pedagogical approaches (e.g., constructivism, behaviorism, cognitivism) to produce an optimal learning outcome with or without instructional technology." Third, blended learning also commonly means a combination of online and face-to-face instruction (Bonk & Graham, 2006; Rooney, 2003). According to Graham (2006), this third perspective more precisely mirrors the historical background of the emergence of blended learning systems.

Blended learning can take many forms, and accordingly various frameworks have been suggested in the literature to categorize them. First, blended learning can be designed and delivered at four levels (Graham, 2006): activity, course, program, and institutional. Activity-level blends are typically not planned but occur during the training experience, such as deciding to use the Web for a supplemental activity after a face-to-face (FTF) session or experience. Course-level blends are typically preplanned by the trainer or instructor, such as having some learners attend from remote regions using Web conferencing while others are presented live. In a program-level blend, an entire set of courses for a certificate or degree program has both an FTF and online experience or an online program has a residency component. For example, the online MBA program at Indiana University incorporates the latter: online students come to campus for a one-week summer residency twice during their study (Magjuka, Shi, & Bonk, 2006). Finally, with an institution-level blend, an organization or institution decides how the blend will occur. For instance, the University of Phoenix has two types of blended learning programs, a distance and local model (Lindquist, 2005), both of which are five-week courses. In the local model, the first and last weeks of the course are FTF, and the remaining three weeks are online; in the distance model, students come to live classes for half of the first and last weeks and, in effect, spend four weeks online. In addition, when they complete one course, they move immediately to the next, as the end of one course is coordinated to be back-to-back with the first meeting of the next five-week course, thereby making more efficient use of learners' travel schedules.

In addition, blended learning models can be categorized according to how, what (the content), and where (a face-to-face classroom or online) the activities are organized, such as an anchor blend, a bookend blend, and a field blend (Rossett & Frazee, 2006). In the anchor blend, the learning is started (i.e., anchored) from what the learners are familiar with–classroom instruction—and online instruction occurs after it. For example, there might be FTF cost accounting training, and then the learners go online for sample exercises or simulation experiences. Such an approach offers many advantages. For instance, performance on the accounting exercises can be immediately evaluated by the system and appropriate feedback is provided, so the learners do not have to wait days or weeks for the instructor to evaluate the work. In addition, there is instant application in the live setting of what the learners have learned. In effect, starting with a live experience allows learners to feel more comfortable with the course content, requirements, and instructors before any tasks are assigned. Such an approach should result in higher retention and satisfaction rates.

In the bookend blend, an online experience is wrapped around an FTF one. Here, the learners might meet online for preassessments, introductions, explorations, preliminary readings, or discussions prior to the start of the class. Typically the preclass online activities prepare learners for the live session. Useful online tasks often involve icebreak-

ers, for instance, so that students know each other better when they attend live meetings. After the live instruction, there might be postassessments, online reflections, or explorations or the start of an online community where learners share their best practices. Importantly, the post-session online experience can facilitate an attitude of life-long learning. A key advantage of the bookend approach is the shortening up of the live experience, thereby saving on travel costs, time away from work, and instructor time. In addition, it allows learners and instructors to meet in multiple delivery formats, which can help learners engage in a richer learning environment.

The field blend is less prescriptive since it entails using online resources where and when needed. For instance, someone being trained in a live classroom may access online materials on the job (i.e., on demand) when needed (e.g., schematics for fixing a plane, programming shortcuts, customer service procedures for specific types of complaints, sales techniques for new products).

As Rossett and Frazee (2006) point out, the field blend is the most learner centered and flexible of the three approaches. However, with the loss of structure, it may be the most difficult to plan for operation. For example, Shell EP uses a field blend approach for its employee training. Its training model has shifted from delivering predefined content to delivering learning activities driven by actual workplace problems (Margaryan, Collis, & Cooke, 2004). Central to this learning model is sharing of experiences. As they work through real problems, employees share their experiences and reflections and accumulate such contributions in an online repository as content objects. They can then use these as resources for follow-up activities, where they compare and contrast their submissions on problem descriptions and solutions with those submitted by others. This activity-based blended learning approach facilitates knowledge sharing and enhances the transfer of learning.

IBM uses a four-tired blended learning approach similar to a bookend blend model in management training, where the learner moves from online and computer-based experiences to increasingly human and live ones (Lewis & Orton, 2006). First, learners might start with basic competency assessments to determine the type and level of training they need. Next, they are sent to Level One training, which entails performance support and best-practice reference materials found online. Included here are quick views of cases or situations, Webcasts of archived trainings, electronic books, online documents, and online learning objects. Level One provides a basic awareness of and information about an area.

At Level Two, the learner engages in more interactive learning with online simulations, "QuickCases," and scenario-based learning. The focus at this level is content understanding and practice of it. The third level introduces collaboration with other human beings in the online environment. Here, the learners collaborate in asynchronous discussions, e-labs, online communities of practice, and live virtual classrooms. In effect, at Level Three, the learner receives both human (peer and expert) and computer feedback. Finally, at Level Four, learners attend live classrooms for role play, mentoring, coaching, and practice of what they have learned. In effect, the fourth level is where higher-order thinking skills and proficiencies are developed.

Cisco adopted a bookend approach to take advantage of the benefits of both FTF and online learning environments in training network engineers. In this approach, learners go through online course materials available on the Web before they come to a classroom for FTF hands-on activities with guidance from the live instructor (Dennis et al., 2006). Cisco's blended learning approach aims to provide standardized course content by delivering it on the Web and also to provide immediate and corrective feedback from a live instructor and promote interactions among learners in a live classroom. Furthermore, the learners are offered both interactive online exams and hands-on performance assessment for the quick scoring and warehousing of scores from online assessments and also for immediate guidance from and support by a live instructor (Dennis et al., 2006).

Given the variety of models for blended learning, the question rises as to which model is best suited for organizations with varied learner backgrounds and organizational contexts. Rossett et al. (2003) have identified six factors for determining the decision on the design of blended learning experiences: (1) how stable the content is, (2) how much time is available for the development and implementation, (3) whether human interaction is essential for the learning goals, (4) budget size, (5) whether the learning resource can be reusable and referenced in the future, and (6) whether the nature of the activities and learners' situation is individual or social. Considering these factors should lead to pragmatic blended learning decision making.

Blended Learning: Benefits and Barriers

In examining the many recognized benefits of blended learning in the literature, some theorists (Osguthorpe & Graham, 2003) contend that the use of blended learning will result in improved pedagogy by taking advantage of the benefits of the two instructional settings: FTF and online.

The literature suggests, however, that there are often barriers to diffusing innovations (Rogers, 2003). Studies

have identified some barriers to implementing e-learning in organizations as well as benefits. The conceptual framework for investigating the factors impeding or hindering the use of blended learning in the study examined here was based on a framework detailing several key barriers to e-learning by Mungania (2003). His study of the perceptions of 875 corporate employees suggests seven barriers in e-learning: (1) personal barriers, (2) learning style barriers, (3) instructional barriers, (4) organizational barriers, (5) situational barriers, (6) content stability barriers, and (7) technological barriers. It is critical to determine if these same barriers also exist in implementing blended learning.

Clearly, there is mounting concern and attention related to blended learning in corporate training settings. Although many blended learning models and frameworks are available in the literature, it is not certain how they are used in practice by HRD professionals. One of the aims of this study was to survey trends in the use of blended learning models and frameworks by practitioners. Such research can provide vital data for training and HRD professionals engaged in strategic planning for blended learning as well as those who may be more hesitant until they get a sense of what other companies are doing in the area of blended learning as well as projecting to do in the near future.

METHODOLOGY

The Research Instrument

The study was conducted using a Web-based questionnaire. Four investigators participated in developing the survey instrument. The instrument was initially constructed from the theoretical framework based on the literature and then went through several revisions after receiving feedback from other investigators on our research team as well as from external colleagues to ensure the validity of the instrument. The resulting questionnaire contained 31 items: 29 closed-ended questions (e.g., multiple-choice and Likert-scale types) and 2 open-ended questions to elicit general comments on blended learning. This questionnaire was divided into three sections: (1) respondents' demographics and backgrounds with blended learning, (2) the status of blended learning in the respondents' organizations, and (3) future predictions related to blended learning in their respective organizations.

Procedures

This survey took place between November 2005 and March 2006 using SurveyShare, a Web-based survey tool. This particular survey was a part of an international study of the future of blended learning in corporate training settings in which participants from China, Korea, Taiwan, the United Kingdom, and the United States were surveyed (Kim et al., 2006). To survey the target population, the questionnaire was posted to several online forums and listservs for professionals in the fields of training, e-learning, and human resource development (HRD) identified in an Internet search. The message posted included the introduction to this survey study and the address to the survey site. The participants visited the online survey site to participate in the study. They took the survey anonymously, and the data were stored in the database provided by the Web-based survey system used for this study. A reminder message was posted 1 to 2 weeks after the initial posting of the survey as an effort to increase the response rate. This procedure resulted in 118 completed surveys. Some descriptive analyses (e.g., frequencies, means, and standard deviations) were conducted on these data.

We chose to send out our questionnaires using online forums and listservs in order to reach a wide audience. We believe that sampling using e-mail allowed a diverse selection of participants. The information on the number of people participating in those forums and listservs at the time of the study was not available, so a response rate could be not established. Although potential participants could easily ignore the message or delete it, a study by Selwyn and Robson (1998) suggests that e-mail questionnaires have better response rates than postal questionnaires. In addition, since those in the target population of the study had taken e-learning courses, it could be assumed that they had Internet access to take courses online. Therefore, there was a smaller chance for bias in the sampling process in terms of the accessibility to online questionnaires. In effect, the advantages of wide dispersion prompt completion, electronic administration, and likely familiarity with online forms outweighed the admitted limitations with Web-based surveys compared to other forms of data collection.

RESULTS

Respondent Demographics and Backgrounds

Our survey sample was drawn from individuals employed in organizations of various types and sizes, including government, business, and nonprofit organizations, across the United States. About 13% of the respondents were from small-sized companies, with fewer than 100 employees, and another 20% were employed in large organizations, with over 10,000 employees. Respondent organizations belonged to various business and industry sectors (see Figure 1).

About 40% of the respondents were female and 60% were male. They held various positions related to training and HRD in terms of their job functions and levels (see Figure 2). Most of the study participants were playing an

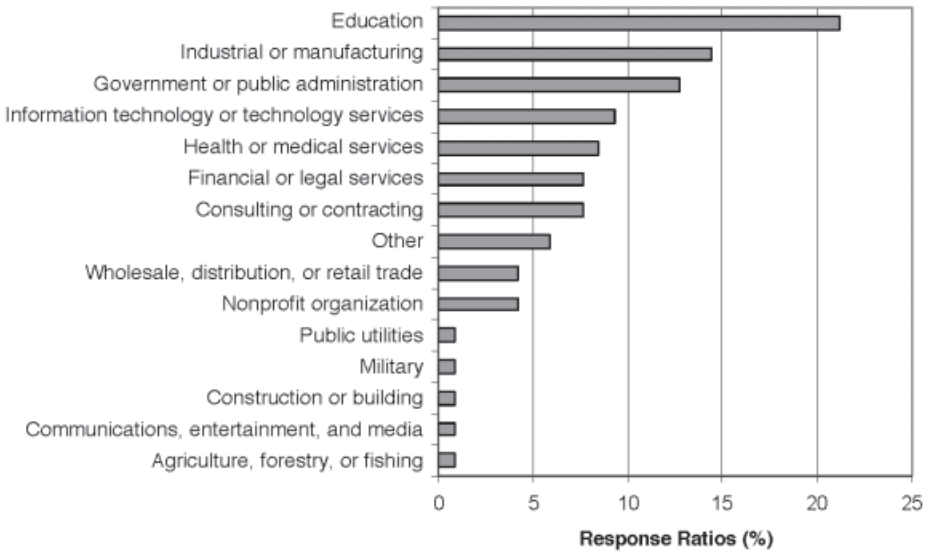

FIGURE 1. RESPONDENT ORGANIZATIONS' INDUSTRIAL CLASSIFICATIONS

active role in blended learning in their organizations. Half indicated that they were designing, delivering, facilitating, evaluating, or supporting blended learning, and another 40% noted that they were considering or planning for blended learning in their organizations.

Current State of Blended Learning

Use of Blended Learning in Workplace Learning Settings. The results of the study indicate that blended learning has become a popular delivery mode in workplace learning settings. Over two-thirds of those surveyed responded that their organizations were already using blended learning approaches for training their employees, and another 14% indicated that their organizations were considering using it. With regard to the percentage of blended learning in their training, 6% of those surveyed responded that 1% to 30% of training in their organizations was being delivered blended, and 12% answered that 31% to 60% of training was blended.

Respondents' Attitudes Toward Blended Learning. Our survey respondents had moderately positive views about the use of blended learning in their organizations. On a 5-point Likert scale, respondents rated their views on

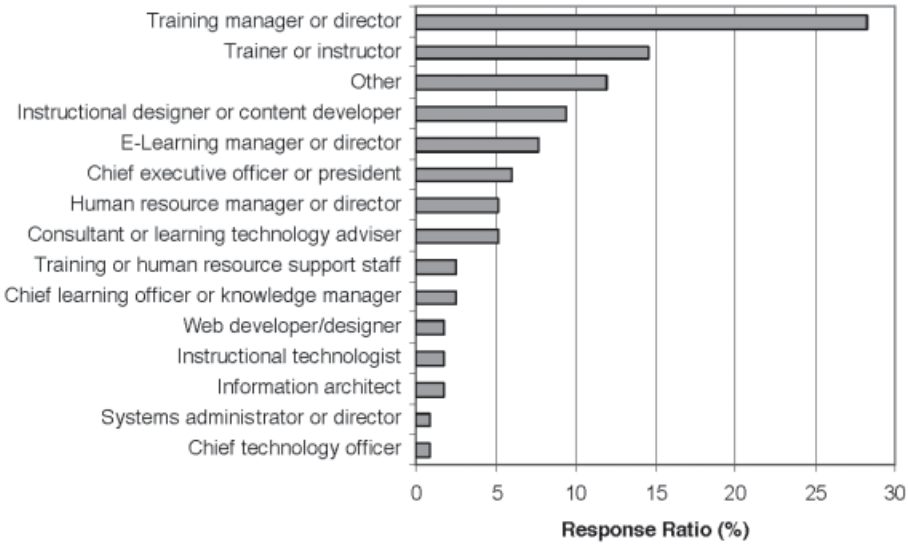

FIGURE 2. RESPONDENTS' PRIMARY JOB ROLES OR TITLES

The results of the study indicate that blended learning has become a popular delivery mode in workplace learning settings.

blended learning from the most skeptical (blended learning was "just another way to cover up inadequacies of e-learning") to the most positive (blended learning is "essential for employee training in your organization"). The mean score of the respondents' attitudes was 3.68 (SD = .936), where 1 was the most skeptical and 5 was the most optimistic.

Benefits of and Barriers to Blended Learning. To a multiple-response question on the key driver of blended learning within their respective organizations, respondents answered that improving the availability and accessibility of learning (63%) and improving the quality of the learning experience (57%) were the key drivers, followed by cost reductions (44%) and new strategic directions or visions within the organization (26%). In another question, those surveyed answered that the greatest benefit of blended learning was richer instructional content (25%), cost-effectiveness (20%), and learning appropriateness (15%). Such findings indicate that practitioners perceive blended learning as an effective and efficient mode of delivering training.

Despite the clear indications of the increasing importance and popularity of blended learning for workplace learning, the results of the study reveal several obstacles to adopting it (see Table 1). Most of all, fast-changing technology and insufficient management support and commitment were found to be the most significant issues that needed to be addressed in the next few years to implement blended learning successfully. Also, 13% of the respondents viewed the lack of understanding of what blended learning was as the most significant barrier to implementing it. This finding was interesting since 68% of the respondents also indicated that blended learning was an important part of the strategic planning for training and development in their organizations for the coming years. Without a well-grounded understanding of what blended learning is, it will be unrealistic to lay out effective strategic plans for it.

Organizations' and Practitioners' Preparedness for Blended Learning. Given that many organizations are interested in implementing blended learning, how well are they prepared for it? To answer this question, we surveyed the state of strategic plans for blended learning by participant organizations. The results show that less than half of these organizations had a strategic plan in place for blended learning, although a majority (73%) reportedly had a strategic plan on training and development. Furthermore, only 18% had a specific model or framework for it. Given the number of blended learning models or frameworks, it is worth exploring why practitioners are rarely using or modifying them in their strategic plans. The findings from our study on cross-cultural differences in strategic planning on blended learning are reported elsewhere (Teng et al., 2007).

To investigate practitioner readiness for blended learning, we asked what information they would like the most on blended learning. Twenty percent responded that they would like to receive information on the technology and tools for blended learning. Another 17% said they that they would like to get advice or consulting on blended learning. In addition, 15% said they would like to know best practices in blended learning. The results illustrate the pressing need for professional development and support for practitioners in blended learning. The findings also echo the results presented earlier concerning the key barriers to implementing blended learning.

Respondents' Predictions on the Future State of Blended Learning

Future Growth of Blended Learning. As a way to project the growth of blended learning in workplace learning settings, we asked survey respondents to predict their organizations' spending in blended learning in the next few years. Interestingly, 68% of those surveyed predicted that their organizations' spending in blended learning would increase, whereas just slightly more than 10% projected it would stay the same (M = 4.30, SD = 1.22, where 1 = *will decrease significantly* and 5 = *will increase significantly*). Only 7% of respondents predicted that their organizations would spend less in blended learning. The survey respondents generally agreed that blended learning was important for the strategic planning of training and development in their organizations for the next few years (M = 3.73, SD = 1.02, where 1 = *not important at all* and 5 = *very important*).

The Rise of Learner-Centered, Problem-Based, and Collaborative Learning Approaches. One of the most often asked questions that arises when delivering blended learning is what the optimal blends are (Rossett & Frazee,

TABLE 1 THE MOST SIGNIFICANT ISSUES OR PROBLEMS WITH BLENDED LEARNING THAT MUST BE ADDRESSED DURING THE NEXT FEW YEARS

ANSWER	NUMBER OF RESPONSES	RATIO (%)
1. Fast-changing technology	16	13.9
2. Insufficient management support and commitment	16	13.9
3. Lack of understanding of what blended learning really is	14	12.8
4. Learners lacking self-regulated learning skills	10	8.7
5. Organizational/cultural resistance	10	8.7
6. Limited bandwidth	9	7.8
7. Boring and low-quality content	8	7.0
8. Limited organizational vision and planning	8	7.0
9. Learner resistance/hesitancy	6	5.2
10. Other	6	5.2
11. High costs of delivery	4	3.5
12. More hype than fact	4	3.5
13. Lack of quality instructors	3	2.6
14. Lack of standards	1	0.9
15. Unethical vendors	0	0.0
Total	115	100.0

2006). Figure 3 illustrates the results of our survey regarding instructional strategies that are expected to be widely used for blended learning during the next few years. Respondents predicted that instructional strategies that link learning and performance by providing a collaborative and authentic learning environment would be used more often in the future. In contrast, in similarity to our previous studies related to online learning in both corporate training and higher education (Kim & Bonk, 2006; Kim et al., 2005), didactic, lecture-based learning approaches and Socratic questioning were among the least favored. Clearly Figure 3 reveals a trend in workplace learning that

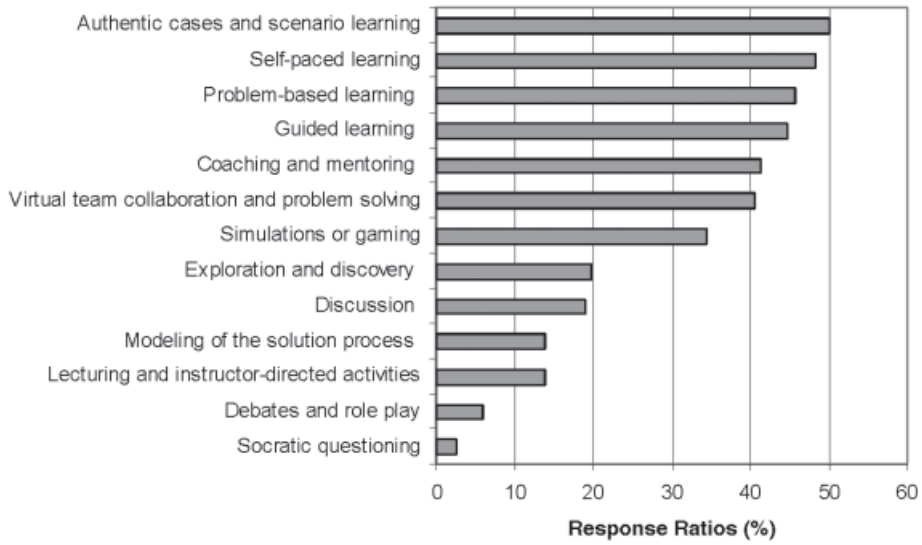

FIGURE 3. INSTRUCTIONAL STRATEGIES EXPECTED TO BE USED WIDELY FOR BLENDED LEARNING IN THE NEXT FEW YEARS

places an emphasis on learner-centered, problem-based, and team-based approaches over instructor-centered ones in a blended learning environment.

Emerging Technologies for Blended Learning. In another question, we listed 13 technologies and asked the respondents to select a technology that was expected to be used most widely for blended learning in the coming years (see Figure 4). About a quarter of those surveyed predicted that Webcasting and video streaming would be used the most widely. The respondents also predicted that technologies for just-in-time training or performance support, such as digital libraries or content repositories and knowledge management tools, would be widely used, as would wireless and mobile technologies for delivering blended learning.

Interestingly, only a small number of respondents predicted that some collaborative learning and learner-empowering tools, such as massive multiplayer online gaming, blogs, and wikis, would be used often in the future. This is a highly interesting finding given the exploding interest in such technologies in media and in

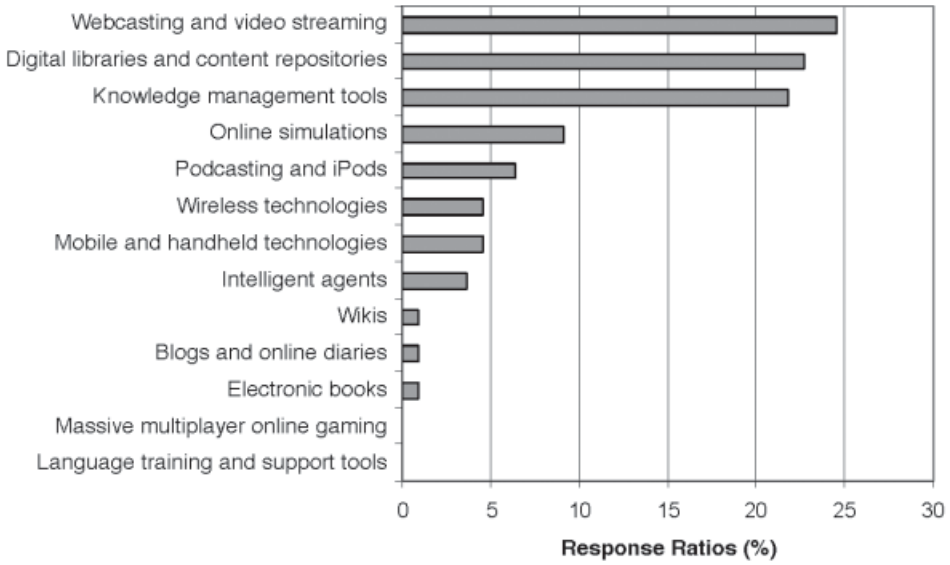

FIGURE 4. EMERGING TECHNOLOGIES EXPECTED TO BE USED WIDELY FOR BLENDED LEARNING IN THE NEXT FEW YEARS

training-related conferences and publications. This phenomenon is conceivably associated with corporate security restrictions, which are critical in workplace learning (Ardichvili, 2002). This may also be related to the trend in the design of corporate e-learning programs, which has been slow to incorporate social and collaborative methods (Macpherson, Elliot, Harris, & Homan, 2004) that allow learners to generate content on their own or through social interactions and collaborations such as in their blogs and wikis.

Measuring the Quality of Blended Learning. Another important question for delivering quality blended learning is how it will be evaluated (Rossett & Frazee, 2006). The results of this study indicate that the quality of blended learning will be measured most often in the coming decade in relation to its benefits to the organization, such as employee performance, return on investment, and cost-benefit analyses (see Table 2). It is notable that there is a trend toward evaluating blended learning at higher levels of Kirkpatrick's framework, which is commonly used for evaluating training programs (Kirkpatrick, 1994). However, it remains to be seen whether actual evaluation practices and procedures used in different corporate settings match evaluation preferences and ideals revealed in our survey.

DISCUSSION AND CONCLUSIONS

The Findings

In parallel with other survey studies (eLearning Guild, 2003; "2005 Industry Report," 2005), the findings of this study indicate that blended learning will become a popular

TABLE 2 RESPONDENTS' PREDICTIONS ON EVALUATION METHODS TO BE WIDELY USED FOR BLENDED LEARNING IN THE COMING DECADE

ANSWER	NUMBER OF RESPONSES	RATIO (%)
1. Employee performance on the job	35	30.4
2. Return on investment calculations	16	13.9
3. Comparison of learner achievement with those in face-to-face classroom settings	15	13.0
4. Cost-benefit analyses	12	10.4
5. Course evaluations	9	7.8
6. Employee performance on simulated tasks of real-world activities	8	7.0
7. Time to competency	8	7.0
8. Learner satisfaction questionnaires	6	5.2
9. Course completion rates	3	2.6
10. Computer log data of student use and activity	2	1.7
11. Other	1	0.9
Total	115	100.0

delivery method in the future of workplace learning in the United States. As in the overall trend in training ("2005 Industry Report," 2005), blended learning has not yet replaced traditional classroom training; however, the results of our study clearly indicate that blended learning has become increasingly popular. The results of this study also shed light on the current state of blended learning in workplaces, where many organizations are still confused about what blended learning is and how to implement it. Apparently there is a pressing need for training and HRD professionals to obtain guidance regarding what blended learning means and how to strategically plan for it.

Our study identified several key barriers in implementing blended learning. Clearly practitioners are facing challenges in implementing blended learning because of the complexity of mixing instructional methods and technologies available for this delivery method. This challenge applies to workplaces around the globe (Kim et al., 2006). In particular, our survey respondents recognized fast-changing technology as one of the most significant issues that needed to be addressed to implement blended learning. Our findings regarding emerging technologies for blended learning can provide practitioners with a glimpse of the technologies and tools that they may need to include in their strategic plans for the coming decade. Using these results, perhaps they can better plan for the adoption of such technologies for delivering blended learning.

In terms of the future state of blended learning, our survey respondents expected that collaborative and authentic learning approaches would be more widely used for blended learning in the coming years. And they predicted that technologies that enable learners to engage in just-in-time training or performance support will be used widely for delivering blended learning. These findings appear to provide a positive outlook for blended learning approaches as a means to deliver training that will have an important impact on business results by linking training and performance more closely than ever before. It is suggested that more empirical studies be conducted on the impact of blended learning on employee performance and business results.

Implications for Practitioners and Researchers

The results of our study have significant practical implications because this study directly questioned practitioners in the field rather than scholars in academe. Therefore, our findings are expected to provide a lens for researchers to look into the current trends and future directions of blended learning from practitioners' perspectives. The study is also different from other survey studies of blended learning in that it aimed to predict the future state of blended learning as well as characterize the current one. Given many confusions and unknowns about blended learning, it is important for human performance technology (HPT), training, and human resource development (HRD) professionals to have a compass for navigating the uncharted water of blended learning by understanding its future directions.

Our survey respondents expected that collaborative and authentic learning approaches would be more widely used for blended learning in the coming years.

The findings from our study on the key barriers to blended learning have implications for researchers related to what needs to be studied next. First, it is apparent that practitioners need to be offered more professional development opportunities to help them understand how to better implement blended learning. Therefore, we suggest that research studies be conducted to develop a framework for effective and efficient professional development for HPT, training, and HRD professionals, especially on emerging technologies and how they can be integrated into blended learning. Second, given findings that there is a lack of support and commitment from management for blended learning, research studies are needed to develop organizational development theories and best-practice cases that can inform practitioners on how to obtain support and commitment from management regarding blended learning.

Note: We thank Su Jin Son and Ya-Ting Teng, members of our research team, for their valuable contributions to the research instrument development process for this study.

References

Ardichvili, A. (2002). Knowledge management, human resource development, and Internet technology. *Advances in Developing Human Resources, 4*(4), 451–463.

Balance Learning. (2004, November). Blended is better. *T+D Magazine,* 52–55.

Bersin, J. (2004). *The blended learning book: Best practices, proven methodologies, and lessons learned.* San Francisco: Jossey-Bass/Pfeiffer.

Bonk, C.J., & Graham, C.R. (2006). *The handbook of blended learning environments: Global perspectives, local designs.* San Francisco: Jossey-Bass/Pfeiffer.

Boyle, T., Bradley, C., Chalk, P., Jones, R., & Pickard, R. (2003). Using blended learning to improve student success rates in learning to program. *Journal of Educational Media, 28*(2/3), 165–178.

Bunderson, C.V. (2003). Four frameworks for viewing blending learning cases: Comments and critique. *Quarterly Review of Distance Education, 4*(3), 279–288.

Cho, Y.J., Park, H.Y., & Wagner, S. (1999, May). Training in a changing Korea. *Training and Development,* 98–99.

Cross, J. (2007). *Informal learning.* San Francisco: Jossey-Bass/Pfeiffer.

Dennis, A., Bichelmeyer, B., Henry, D., Cakir, H., Korkmaz, A., Watson, C., et al. (2006). The Cisco Networking Academy: A model for the study of student success in a blended learning environment. In C.J. Bonk & C.R. Graham (Eds.), *The handbook of blended learning: Global perspectives, local designs* (pp. 120–135). San Francisco: Jossey-Bass/Pfeiffer.

Driscoll, M. (2002a). *Web-based training: Creating e-learning experiences* (2nd ed.). San Francisco: Jossey-Bass.

Driscoll, M. (2002b). Blended learning: Let's get beyond the hype. *LTI Magazine.* Retrieved September 7, 2006, from http://www.ltimagazine.com/ltimagazine/article/articleDetail.jsp?id=11755.

Duhaney, D.C. (2004). Blended learning in education, training, and development. *Performance Improvement, 43*(8), 35–38. [DOI: 10.1002/pfi.4140430810.]

eLearning Guild. (2003). *The blended learning best practices survey.* Santa Rosa, CA: eLearning Guild.

Graham, C.R. (2006). Blended learning systems: Definition, current trends, and future directions. In C.J. Bonk & C.R. Graham (Eds.), *The handbook of blended learning: Global perspectives, local designs* (pp. 3–21). San Francisco: Jossey-Bass/Pfeiffer.

Kim, K.-J., & Bonk, C.J. (2006). The future of online teaching and learning in higher education: The survey says . . . *EDUCAUSE Quarterly, 29*(4), 22–30.

Kim, K.-J., Bonk, C.J., Teng, Y.-T., Son, S.J., Zeng, T., & Oh, E. (2006, October). Future trends of blended learning in workplace learning across different cultures. In *Selected Research and Development Papers Presented at the Annual 2006 Convention of the Association for Educational Communications and Technology* (Vol. 1, pp. 176–183). Bloomington, IN: AECT.

Kim, K.-J., Bonk, C.J., & Zeng, T. (2005, June). Surveying the future of workplace e-learning: The rise of blending, interactivity, and authentic learning. *eLearn Magazine.* Retrieved June 8, 2007, from http://www.elearnmag.org/subpage.cfm?section=research&article=5–1/.

Kirkpatrick, D.L. (1994). *Evaluating training programs: The four levels.* San Francisco: Berrett-Koehler.

Lewis, N., & Orton, P. (2006). Blending learning for business impact: IBM's case for learning success. In C.J. Bonk & C.R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs* (pp. 61–75). San Francisco: Jossey-Bass/Pfeiffer.

Lindquist, B. (2006). Blending learning at the University of Phoenix. In C.J. Bonk & C.R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs* (pp. 223–234). San Francisco: Jossey-Bass/Pfeiffer.

MacDonald, J., & McAteer, E. (2003). New approaches to supporting students: Strategies for blended learning in distance and campus based environments. *Journal of Educational Media, 28*(2/3), 129–147.

Macpherson, A., Elliot, M., Harris, I., & Homan, G. (2004). E-learning: Reflections and evaluation of corporate programmes. *Human Resource Development International, 7*(3), 295–313.

Magjuka, R., Shi, M., & Bonk, C.J. (2005). Critical design and administration issues in online education. *Online Journal of Distance Learning Administration, 8*(4). Retrieved July 22, 2006, from http://www.westga.edu/%7Edistance/ojdla/winter84/magjuka84.htm.

Margaryan, A., Collis, B., & Cooke, A. (2004). Activity-based blended learning. *Human Resource Development International, 7*(2), 265–274.

Mungania, P. (2003). *Employees' perceptions of barriers in e-learning: The relationship among barriers, demographics, and e-learning self-efficacy.* Unpublished doctoral dissertation, University of Louisville.

Noe, R.A. (2003). *Employee training and development* (3rd ed.). New York: McGraw-Hill.

Osguthorpe, R.T., & Graham, C.R. (2003). Blended learning environments: Definitions and directions. *Quarterly Review of Distance Education 4*(3), 227–233.

Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

Rooney, J.E. (2003). Knowledge infusion: Blending learning opportunities to enhance educational programming and meetings. *Management Association, 55*(5), 26–32.

Rossett, A., Douglis, F., & Frazee, R.V. (2003, July). Strategies for building blended learning. *Learning Circuits.* Retrieved September 7, 2006, from http://www.learningcircuits.org/2003/jul2003/rossett.htm.

Rossett, A., & Frazee, R.V. (2006). *Blended learning opportunities.* New York: American Management Association.

Selwyn, N., & Robson, K. (1998). *Social research update. Using e-mail as a research tool.* Retrieved January 20, 2008, from http://sru.soc.surrey.ac.uk/SRU21.html.

Teng, Y.-T., Bonk, C.J., Kim, K.-J., Oh, E.J., Son, S.J., Zeng, T., et al. (2007). Strategically planning for blended learning: A cross-cultural comparison. In J. Clarey (Ed.), *The real story: Blended learning* (pp. 101–114). Sunnyvale, CA: Brandon Hall Research.

Thomson NETg. (2003). *Thomson job impact study: The next generation of corporate learning.* Naperville, IL: Thomson NETg.

Thorne, K. (2003). *Blended learning: How to integrate online and traditional learning.* London: Kogan Page.

2005 industry report. (2005, December). *Training Magazine,* 14–28.

Valiathan, P. (2002, August). Blended learning models. *Learning Circuits.* Retrieved September 7, 2006, from http://www.learningcircuits.org/2002/aug2002/valiathan.html.

KYONG-JEE KIM, PhD, is a research professor in the Office of Medical Education at Sungkyunkwan University School of Medicine, Seoul, Korea. She received a doctorate in instructional systems technology from Indiana University, Bloomington. Her research interests are in the design of effective online and blended learning environments. She may be reached at kjkim@med.skku.ac.kr.

CURTIS J. BONK, PhD, is a former accountant and Certified Public Accountant who received his master's and PhD degrees in educational psychology from the University of Wisconsin. He is now professor of instructional systems technology at Indiana University and adjunct in the School of Informatics. He is president of CourseShare and SurveyShare (see http://mypage.iu.edu/~cjbonk/). He may be reached at cjbonk@indiana.edu.

EUNJUNG OH is a doctoral student in the Department of Educational Psychology and Instructional Technology at the University of Georgia. Her research interests are in group work in online and blended learning environments and design of authentic learning environments. She may be reached at graceoh@uga.edu.