

Blended Learning in Organizational Settings

An Integrative Literature Review

Jaclyn M. Bonner, M.Ed., Doris Lee, Ph.D.

Program of Instructional Systems, Pennsylvania State University, Great Valley School of Professional Studies
Malvern, Pennsylvania, 19355 USA

ydl1@psu.edu

Abstract

In the modern learning environment, blended learning is a new development with much potential. Its meanings range from a simple joining of instructor-led learning and e-learning to a blend of different delivery methods. More research is needed in the corporate realm in order to determine the chemistry involved in the exact "blend" needed for each training situation. This integrative literature review will cover the introduction of blended learning, theories, and methodologies, and scientific studies on the topic, with primary focus on the specific design issues that corporate instructional designers face when creating blended learning as opposed to other types of training programs. Pertinent discussion and suggestions regarding the future of blended learning for corporate training will also be covered.

Keywords

Blended Learning; Instructor-Led Training; E-Learning; Design Issues of Blended Learning; Multi-Modal Learning; Corporate Training

Introduction

E-learning in the world of educational and corporate settings for learning or training purposes was developed and increasingly saw primary use in the late 1990s. This was in response not only to an increased interest in harnessing the options offered by widespread Internet access, new software and hardware developments and a technologically experienced learner base, but also to the ability to streamline training budgets by cutting down on the expense of instructor-led training (ILT) (Knowledgenet.com, 2004). Though many companies have made the transition to e-learning, training professionals have grown somewhat disillusioned about the potential of e-learning. Increasingly, trainers are finding that a middle ground between ILT and e-learning may be the answer to effective training, as it reduces costs but still retains the human interaction necessary for training some subject matters. The subsequent combination of technology and face-to-face interaction is blended learning. However, certain

issues exist. A clear definition about blended learning is still lacking. Issues such as the constitution of a "perfect" blend or "mix" of e-learning and ILT all are not entirely clear. There is very little empirical-based evidence showing when to use blended learning for what type of content learning or instruction. Problems with regard to the design quality of blended learning systems are often a contested issue faced by those who propose the expansion of blended learning programs. The combining of face-to-face interaction and technological stimulation, with especial emphasis on the specific ratio between the two differing methods, also stands as an integral issue for proponents of increased blended learning usage in corporate environments.

Compared to other fields in education, blended learning has comparatively few authoritative references, due to a lack of documentation from its primary users, corporations (Rossett, Douglass, & Frazee, 2003). The term "blended learning" has various meanings, ranging from a simple joining of ILT and e-learning, to a blend of different delivery methodologies, theories, or pedagogies. A possible problem with regards to current research on blended learning may lie in the use of a catch-all definition of education and corporate work as a single entity. Further investigation of the divide between educational and corporate learning situation is needed. However, blended learning in business settings is most likely best defined as a combination of learning systems, ideas, and technologies for a face-to-face and computer-based interactive course or curriculum. Training professionals, accounting personnel, and learners responded positively to blended learning in a survey conducted by Sparrow (2005). Industry confidence in the deployment of blended learning is strong, using it especially in areas that respondents consider to be strategically important to the health of their business, such as management and supervisory skills (44.2% rely on blended learning), leadership development (41.7%) and induction/orientation

(37.4%). In terms of budget and staff, these results indicate that blended learning is perceived as the most effective method of training these skills.

In addition to the options available through the use of blended learning, the cost-effectiveness of blended learning has become a major factor in its adoption. An example of the cost-saving potential of blended learning was demonstrated by Verizon, which launched a blended learning program to increase information retention in its high-turnover employee base. Two years after rollout, the total program saved Verizon more than \$10 million annually in overtime expenses based on a reduction in course hours and improved scheduling. The estimated return on investment (ROI) is 700% from the \$5.8 million invested in the program. Similarly, ARAMARK Uniform Services invested in a blended learning solution to improve the skills of its sales force. By comparing sales results prior to training to those achieved afterward, ARAMARK showed that salespeople who participated in the training sold an average of 60% more than coworkers who did not complete the training (Galvin & Johnson, 2003). These types of results are passed on to customers in the shape of better, faster service from knowledgeable employees.

However, in any blended learning program, it is not cost but the quality of instruction that takes precedence. Among other studies that will be explored throughout this paper, one such conducted on physicians by Dean, Stahl, Sylwester, and Peat (2001) found that multiple modes of learning increased the amount learned. Klein, Noe, and Wang (2006), also revealed that "learners in a blended learning condition were more motivated to learn, engaged in more meta-cognition and achieved higher course grades than learners in classroom conditions" (pp. 693-694). Ossiannilsson and Landgren (2012) revealed that the influence of blended learning on international benchmarking projects was mostly positive, and that e-learning quality was of paramount importance. It is evident that blended learning is not only popular and a preferred method for return on investment, but also has potential effectiveness as a training method. The remainder of this paper will consist of an integrative literature review on the topic of blended learning with a focus on the topic of design issues that corporate instructional designers face when attempting to create such training.

Methodology

The procedures of the integrative literature review as posed by Torraco (2005) were used to provide an organized framework through which this review could be structured in such a manner as to form novel perspectives on the use of blended learning in organizational settings. Torraco placed especial emphasis on the scientific form of research, reviewing, critiquing, and synthesizing literature on a topic being integral to quality integrative literature reviews, thus characterizing the integrative literature review as a synthesis of previous information on a specific topic. Within such a method, the authors of an integrative literature review are still required to report the methods by which their own review method has been determined and conducted. Through the reporting of research criteria for the selection, summarization, processing, notation, evaluation, and ultimate inclusion of studies, along with clarification of specific steps taken to ascertain the veracity and authenticity of studies included, researchers can produce integrative literature reviews that introduce a cemented understanding of both new and more well-established topics.

By virtue of the methods outlined above, this integrative literature review followed the process wherein the research question was formulated, key words for searching and inclusion were notated and indicated, the studies were analysed, and the literature review as thus finalized. The research question asked in this study was: What are the empirically and/or theoretically based findings and guidelines for developing blended learning within an organizational setting? Next, a comprehensive, computerized search was conducted to identify books, refereed and non-refereed journal articles, conference proceeding papers, presentations, and organization documents that contained any of the key words.

Defining Blended Learning

The term "blended learning", at this stage, is not well defined (Oliver & Trigwell, 2005). It refers to, among other things, integrating traditional learning with a Web-based element. It may also refer to the combination of various delivery modes or of instructional technology with actual job tasks. As reported by Sparrow (2005), one of the commonly understood definitions appears to be the blend of ILT and any online element, as evidenced in a survey conducted by *Training Magazine* and Balance Learning.

Training managers and buyers responded that the top three typical components of blended learning programs are instructor-led classes (61% of respondents), online learning (45.4%), and on-the-job learning (36.9%).

A possible explanation for the popularity of instruction methods exploring both ILT and online elements may lie in the large amount of research on ILT and online element blends, as opposed to the comparative dearth of blended learning research on other methods. One such study is on the integration of technology into the Harvard Business School programs, which generally rely heavily on traditional face-to-face interaction. By introducing an online element to the existing structure, the program saw overwhelming student satisfaction and improved performance due to this blend. The results hold this blend up as a vanguard for further study; however, such a result serves to marginalize other possible conceptions of the term "blended learning" (DeLacey & Leonard, 2002). It is necessary either for the term to be clearly defined, or an entire lexicon to be built specific to different types of blended learning, before more scientific analysis can take place and be compared. At this point, the terms are not clear, and this general confusion over terms serves to stymie growth toward a better understanding of what many hope is the answer to the struggle between ILT and e-learning (Rossett, et al., 2003; Oliver & Trigwell, 2005).

While clarification is needed, Rossett, et al. (2003) and Oliver and Trigwell (2005) all suggest that the term is nothing special. Rossett et al. urge instructional designers to remember that blends are just one more method, albeit a customizable, flexible, and integrated one, to move toward the integrated systems essential to learning and performance. When considering this definition, it is easy to see the parallels between blended learning and classic instructional design models with components including analysis, design, development, and evaluation, for instance. Blended learning may simply be a new name for instructional design with an emphasis on different learning modalities for the learner.

A few agree at least that for true blended learning to occur, each form or method employed must enhance the other (Williams, 2003; Gibson, 2006). This interaction may be a type of redundancy, which allows different users to connect to material at different times and in different ways (Rossett et al., 2003). Another potentially positive aspect to this element of blended

learning is that strong aspects of one method can lessen the weaknesses of another (Gibson, 2006). There are those who would then argue that the term should be changed from "blended learning" to "blended training."

Kim (2007) describes three dimensions of learning: Formality (Formal or informal), Reality (Virtual or face-to-face), and scheduling (Self-paced or teacher-set). These three dimensions can be combined, according to Kim, into eight different permutations of learning styles. Blended learning, Kim then states, is the combination of two or more of these learning styles, if one is physically "classroom based". A blended learning program, by extension is then defined as a coherently designed program applied to multiple learning activities, ranging from course fragment to an entire curriculum.

Woolnough (2006), in interviews with a handful of corporate training directors, identifies the term "blended learning" as a misnomer due to the fact that "training is an intervention from an organisation, whereas learning lies in the domain of the learner" (p. 12). In reality, the instructional designers only have control over training, which should be ultimately designed for learning to occur; however, they cannot control the learning itself, which is in the mind of the learner. A thorough learner and needs analysis, applied correctly, can merely outline the scope of the learning that should take place, but cannot force it to occur. Oliver and Trigwell (2005) also agree that the term "blended learning" in general should be abandoned. With regard to the "learning" portion of the term, they build on Woolnough's idea by noting that learners will have different experiences in the same context, as evidenced by experiments with theories such as constructivism. This philosophy maintains that learners build their own truths out of their personal experiences and models constructed from previous experiences. All new learning builds on previous models, adding or reshaping them to accommodate the new learning. They assert that the term "blended learning" is not merely a misnomer, but disregards the findings of constructivist theories and denies the perspective of the learner. In business, a clear-cut definition of blended learning is essential to the success of a blended learning training program. Blended learning, however, is a complex subject, and in practice can be more difficult than a definition might imply.

Blended Learning in Practice

Clearly blended learning, no matter how it is defined, is worth further investigation based on the effectiveness that has been measured thus far. As mentioned earlier, Dean et al. (2001) conducted a study on a group of mid-career physicians in an executive MBA program. In his analysis of the study, Singh (2003) concluded that by using a mix of e-learning, ILT and self-paced materials, a program can be completed in half the time, at half the cost, and most importantly, with a 10% better learning outcome than the traditional classroom format. While these physicians were highly motivated toward their goal and may not represent the same user demographic as corporate trainees, this study shows that it is possible to create a more effective learning experience using a multi-mode delivery system.

Also noted earlier was a study by Klein et al. (2006) that examined 600 students enrolled in either classroom or blended learning courses. The study focused on a number of variables in this experiment. These variables included learning goal orientation and perceptions of barriers and enablers, in addition to the blended learning, which they define as meeting with an instructor occasionally and depending on Web-based distance learning for the bulk of the learning interaction. The study uses motivation theory as its backbone to focus on the learning process, rather than on the technology involved. It also notes that in alignment with Knowles' recommendation for adult learners, blended learning "provides increased learner control, self-directedness and requires learners to take more responsibility for their learning" (Knowles, 1990, as cited in Klein et al., 2006, p. 669). These factors led to greater success for blended learning students in the end, with, among other positive outcomes, higher course grades than traditional classroom students. This is in agreement with prior studies revealing that the level of knowledge acquisition for students in blended learning is higher than students in either traditional ILT or distance learning (Hysong & Mannix, 2003; Sitzmann et al., 2006, as cited in Klein et al., 2006). Additionally, dealing directly with corporate training, the Thomson Job Impact Study from NETg, an organization specializing in blended learning solutions, shows that compared to a single training option of e-learning, blended training groups were 30% more accurate in task performance and performed the tasks 41% faster (Thomson, 2002). These results may seem self-serving for an organization that makes a profit

from the success of blended learning; however, the study included large corporations as well as higher education representatives, lending credibility to the study.

Hewagamage, Premaratne, and Peiris (2007), advocated the extensive use of Learning Management Systems (LMS) in blended learning. An LMS is a computer system designed to organize content, student records, student performance, and learning material. In a study conducted at the University Of Colombo School Of Computing (UCSC), the e-Learning Center was used to create a blended learning system using LMS as a primary base. Prior to the installment of the LMS, technology was used on a very limited scale in PowerPoint lectures, not qualifying as blended learning. However, the typical course structures instructors at UCSC were accustomed to were not discarded; instead, the older course structures were used in the LMS in the form of recorded lectures, message boards for question and answer sessions, reference additions, and end-of-lesson online quizzes. Instructors at the university could then access the results for each student, allowing them to monitor progress. The resulting blended learning system was a success in producing better learning quality and higher grades and technology integration in students.

Fong (2007) gave examples of blended learning in which subject material, evaluations, and records were based online, rather than through a computer system. The video recording of lectures, already common on video websites such as Youtube and Metacafe, was tested at the City University of Hong Kong. A course website was created for the university, with students able to use the system from home to access lectures, quizzes, test-prep materials, and teacher feedback. Students were able to communicate with other students, while teachers were able to monitor every activity of the students on the website via computer. Fong mentions further that the system maintenance, being on the web, was quick and streamlined compared to the time-consuming process of updating an LMS module or an entire curriculum. Students could receive new information, content, and results via the internet for comparatively little cost. Student satisfaction and grades both increased after the system's implementation, which increasingly has become a primary model for many other universities, corporations, and other organizations.

Wang, Fong, and Choy (2007) used a programming course to demonstrate out-come based teaching and

learning in blended systems. The three explicitly point out the inherent difficulty in programming, showing a new approach is needed for a technology-based subject matter curriculum. The implementation of Outcomes Based Teaching and Learning (OBTL), a student-based teaching system in which content objectives are readdressed as outcomes which students should strive to achieve, used a blended learning system to coordinate the course requirements. Wang et al. further emphasize that the use of this style of learning greatly improved the ease and efficiency of the programming courses, thereby increasing student satisfaction. In addition, Barker (2007) emphasized the importance of constantly taking advantage of new tools such as wikis, blogging, and communal messaging boards through the use of multiple learning channels.

Models and Theories

A few models and theories have already begun to emerge in this new blended genre. Singh (2003) reviews the Octagonal Framework developed in 2001 by Khan specifically to plan, develop, deliver, manage and evaluate blended learning programs. The framework has eight dimensions: institutional, pedagogical, technological, interface design, evaluation, management, resource support, and ethical. Each dimension represents issues that need to be addressed by instructional designers. Variation theory (Bowden & Marton, 1998; Marton & Tsui, 2004, as cited in Oliver & Trigwell, 2005) indicates that any type of blend creates variation for learners, which in and of itself helps them to learn. The theory argues that without variation, there is no discernment between items. Further study must be conducted on this phenomenon to understand if variation is the true reason behind the success of blended learning; Oliver and Trigwell (2005) admit that the improvements in blended learning may be due to the novelty of the training or Hawthorne effect wherein when people are observed in a study, their performance temporarily changes.

Picciano (2007) demonstrates a unique model of blended learning through a bar system, with each end representing the two extremes of traditional learning systems: face-to-face interaction and complete e-learning. This model, emphasizing the middle ground as most important to blended learning, was expanded by Picciano to show four different extremes of learning. The four extremes are organized via two intersecting bars. At each end of the bar are two different models of learning. The intersection of the bars represents an

exact balance of each of the four extremes. Picciano states that the best result for blended learning, depending on the situation, is not in the center but is instead dependent on the user, with the area encompassed by all four extremes important to user satisfaction.

Elsenheimer (2006) has presented a tool to assist instructional designers in the "orchestrated application and integration of instruction, tools, performance support, collaborations, practice, and evaluation" (p. 26). The Blended Learning Analysis and Design Expediter (BLADE) presents structured analysis questions and defined learning elements to get just the right blend for learners. The analysis questions focus on learning objectives, evaluation types, learner characteristics, content, budget – all the front end analyses that typically take place during a needs assessment. The BLADE then categorizes these learning elements into component categories, perhaps several, based on application. A user can then select an appropriate component for training depending on the category to be trained. For a novice, the tool has too many new terms and lacks enough explanation to give credence to the choices; however, for an expert instructional designer, it may expedite the process of creating blended learning.

Design Issues

Quality in blended learning, a particularly large issue in many corporations considering blended learning systems, is an issue often faced by proponents of blended learning. Ginns and Ellis (2006), state that ensuring quality and student satisfaction requires a rigorous modification process, with organizations routinely observing student satisfaction through complaints and questionnaires. The evaluation of quality is difficult in that there are varying standards of what is a "quality" blended learning program, creating difficulty for the administrator. It is suggested by Ginns and Ellis that subscale testing, involving groups of students answer rating surveys and then plotting the results using a mathematical algorithm, should be used by universities and corporations alike when evaluating a blended learning program. However, quality and its evaluation is still a major issue for all blended learning systems.

Another large issue is that of "finding the right blend," a blended learning catchphrase that indicates that creating training is akin to brewing an excellent cup of coffee. Though coffee may seem trivial in comparison,

seamless blending of whatever elements the designers choose to work with (be it delivery method, theory, etc.) creates training where the variations are invisible, and therefore natural, to the learner. Williams (2003) reports first-hand knowledge based on a case study at Clerical Medical where a training course evolved from ILT alone to a course blending ILT and computer-based training (CBT). The simple act of creating different types of learning was not the challenge; rather Williams argues that only when seamlessness occurs, multiplying the effect of the learning, can blended learning be considered a new learning technique. If the learner notices the variation, it distracts from the objective of the lesson and places attention on the change, rather than on what is to be learned.

Kim and Choi (2004) echoed this finding in their case study of Hyundai Motor Company. The company and Educasia, a leading provider of customized business and management training for global companies, created a blended learning program focused on developing future leaders with a mix of online ILT and live ILT. After comparing this new curriculum to the control curriculum of the previous years (which was entirely live ILT), they found that 98% of the class participants completed and passed the online versions of the course in the first three months. This is an increase over the previous year's result of 94% who completed the offline courses. While both pass rates show mastery of the material, the additional 4% shows that blended learning has the potential to make extremely strong training programs into exceptional programs, a hard task when it comes that close to perfection. Surveys and interviews with program participants listed one area for improvement as finding the optimal mix of online and offline to meet learner preferences and confidence levels with the technology. Another weakness was creating seamless alignment and links between the two types of learning to avoid overlaps and inconsistencies, as in this case they were developed by two different instructional designers and the variation was apparent to the learner.

Duhaney (2004) makes the somewhat obvious but important point that because this "seamless" quality is important to users of blended learning, this puts a great onus on the instructional designer to give careful thought to the blend for the proper teaching and learning experience. Duhaney cited Toba (2002) in that poor instructional design has been the reason for any frustrating failures in blended learning. In addition to blending the elements of a new course to the benefit of the learner, in some cases the instructional designer

also must gauge how to blend these new techniques into a preexisting model. Duhaney noted that by introducing blended learning methods gradually the instructor and the learners become more comfortable using them and will know when the correct blend has been achieved, much like seasoning a recipe to taste.

Although the blend may need to be seamless so that the variation is not receiving all the attention from the learner, it is important to build obvious redundancy into the learning and communicate this link back to previous knowledge. Gibson (2006), an associate director at a blended learning provider, points out that because every element of a course, be it a methodology, model or media, has strengths and weaknesses. An instructional designer needs to "combine methods that have strengths that complement each other as well as weaknesses that don't overlap" (p. 37). By doing so, the ID can capitalize on the strengths and minimize the weak points of the program. Rossett et al. (2003) agree that redundancy is important, and not just in the same lesson, but in different formats over time. By expanding the links over various elements, such as an ILT classroom interaction, followed by an online discussion, a peer review and various awareness components like posters and newsletters, the ID creates a campaign of sorts on a topic. Human resources professionals often use this tactic for launching new initiatives to an employee populace – why not employ it for training also?

Duhaney (2004) further emphasizes the communication that is necessary with learners when launching blended learning. Learners need to know what they are in for, as they would in any training scenario – providing a roadmap of where the training is going and how it is getting there provides assurance to adult learners that they are not wasting their time. Adult learners on the whole may lose the intrinsic motivation for learning that was present when they were children. The ID needs to provide the reasons why certain elements are included for the adult learner to engage appropriately and reach the terminal learning objective.

In the corporate world, there is always an eye on the bottom line. This was one of the reasons behind the breakthrough popularity of e-learning. Strother (2002) agrees with Hall and LeCavalier (2000) who noted that a number of corporations saw significant cost-savings with e-learning, such as IBM, which saved \$200 million in 1999 and provided five times the learning at one-third the cost of previous methods, and Ernst and

Young, which reduced training costs by 35% but still improved consistency and scalability. There are also a number of e-learning scenarios that have tried and failed, costing corporations not only financial resources, but employee angst and maintenance problems as well. Blended learning pioneers should beware that this solution may not be as impressive on the budget sheet, but when it comes to the effectiveness of blended learning as evidenced in earlier sections, it is hard to refute. Williams' (2003) work in blended learning drew attention to this issue: the learners are the main focus, not the financial statement. Training will always take time and resources, both of which cost money. IDs may be limited on what elements they can blend because of this budget issue.

When maintaining focus on the learner, special attention must be paid to the additional burden of blended learning. Not only may the method be new, causing stress, but the workload and the way in which work is organized may require the learner to tackle learning in a different way. Kim and Choi (2004) reveal that participants' course satisfaction was lower in online courses than offline courses with regard to blended leadership training. This is because although learners were spared travel and time away from the office to attend the training, they were forced to find alternative times to access the online materials, such as after hours and during the weekends. IDs need to include any program changes due to blended learning in their considerations of learner characteristics. Williams (2003) also points out that with some elements of blended learning, the instructor or designers have little control over the distractions of certain learning environments, as they would in live ILT. Although the burden of blended learning may be heavier than previous styles, a bright spot, pointed out by Dennis (2002) and Duhaney (2004) is that with blended learning, an ID can address individual learning styles, since a number of tactics will be used.

As with any training, evaluation of the program is critical to its continuance. Bregman and Jacobson (2000, as cited in Strother, 2002) stated that evaluating corporate training is generally unwieldy because it is expensive, both with regard to resources and time, and isolating direct relationships between a certain training program and a bottom line is difficult, if not impossible. Obviously, earlier references to studies by Klein et al. (2006) and Dean et al. (2001) provide evidence that blended learning, in and of itself, has been evaluated as an effective methodology. When it comes to individual blended learning programs, IDs must select evaluation

tools that fit the different elements used. Predictably, a number of methods may be used rather than just one. Kim and Choi (2004) simply found that a mix of quantitative and qualitative testing throughout the leadership course helped them to flag when participants were struggling as well as guarantee that learners were participating in all aspects of the course.

Discussion and Conclusion

The future of blended learning is contingent on the continuation of scientific research conducted to verify the factors that make blended learning effective. Although there are certain aspects of blended learning that are rooted in factors beyond scientific evidence, such as philosophical and organizational considerations, more research is still needed in order to answer questions regarding the veracity of specific claims. By virtue of the foundation of blended learning research resting on a few specific tenets, more research with specific analysis of the statements on which blended learning is supported is necessary. Additional investigation of the difference between educational and corporate environments with regards to blended learning is also necessary to further resolve possible issues with regard to their previous status as a single entity in the scholarship.

Although there are many texts on blended learning, there is a dearth of strong scientific research (Rosset et al., 2003). Even with first-hand experience in corporate training and blended learning, the opinions of some cited authors in this paper do not have empirical research to verify isolated claims. Furthermore, the scientific studies of Klein et al. (2006) and Dean et al. (2001) are based on more traditional academic settings, rather than corporate learning systems. In addition, the Klein and Dean studies had a wider focus range, also studying numerous other variables, with blended learning in the background. A more active focus on blended learning is necessary. The need for independent studies into blended learning is made immediately apparent by the fact that the majority of blended learning studies were conducted by blended learning companies. Although they perhaps were legitimate and data-revealing, there is a risk for a potential self-serving bias that makes them weak sources for true scientific study.

Beyond the previous research conclusions on blended learning, finding the correct combination of technology and face-to-face interaction in blended learning is a factor in determining its success. Blended learning

pays attention not only to the design of instruction, but to achieving the correct blend of elements in the most meaningful and fitting of ways. Blended learning, though cannot become a specialist realm. Rather, it should be accessible to all employees, thereby reducing its cost and implementation time. An element for further study would be a mathematical model for best calculating the appropriate blend for a unique but effective blended learning program. The redundancy of blended learning programs over lessons or modules without a blend of technology and face-to-face interaction is another factor in blended learning popularity. More study on redundancy specifically may assist in isolating that quality for use in other training programs. The evaluation portion of blended learning also deserves more research and study, especially when considering long-term effects of the training and its transfer into the real world.

The future of blended learning rests on the lessons learned with the methodology. Based on surveys of e-learning among higher education and corporate training professionals, Bonk and Graham (2005) made predictions of the future of blended learning. The eLearning Guild results in 2003, that 86% of respondents already use blended learning, and that a considerable increase in its use in coming years was projected, agreed with Bonk and Graham's findings. However, the implementation of blended learning requires not only projects but a strategic plan. Of corporate respondents, 60% indicated that they had a strategic plan for e-learning, but only slightly more than half indicated that it was working. This same survey predicted that case studies and scenario learning would be the most widely used method in the next 10 years, followed by: simulations/gaming, virtual team collaborations, problem-based learning and coaching/mentoring.

Affecting these choices will be the emerging technologies in training, such as delivering training via handheld wireless devices. Because of this mobility, Bonk and Graham (2005) predict that there will be more visualization in training that can be manipulated by the learner to suit their own needs, therefore demanding that the learner take control of their own learning. They surmise, among other things, that the line between workplace training and learning will disappear.

In conclusion, corporate instructional designers will certainly face many challenges in the future of blended learning. By conducting more scientific research and

documenting their experiences as they move forward, they can pave the way for more precise planning and execution, transforming blended learning from a potential development to a critical element of corporate training.

REFERENCES

- [1] Barker, P. Blended Learning with Webs, Wikis, and Weblogs. Workshop on Blended Learning 2007.
- [2] Bonk, C. J. & Graham, C. R. (Eds.). (2005). Handbook of blended learning: Global Perspectives, local designs. San Francisco, CA: Pfeiffer Publishing.
- [3] Breckling, J., Ed., The Analysis of Directional Time Series: Applications to Wind Speed and Direction, ser. Lecture Notes in Statistics. Berlin, Germany: Springer, 2008, vol. 61.
- [4] Dean, P. J., Stahl, M. J., Sylwester, D. L., & Peat, J.A. (2001). Effectiveness of Combined Delivery Modalities for Distance Learning and Resident Learning. The Quarterly Review of Distance Education, 2(3), 247-254.
- [5] DeLacey, B. J., & Leonard, D.A. (2002). Case study on technology and distance in education at the Harvard Business School. Educational Technology & Society, 5(2), 13-28.
- [6] Duhaney, D. C. (2004). Blended Learning In Education, Training and Development. Performance Improvement, (43)8, 35-38.
- [7] Elsenheimer, J. (2006). Got Tools? The Blended Learning Analysis and Design Expediter. Performance Improvement, 45(8), 26-30.
- [8] Fong, J. Web-based Logging of Classroom Teaching Activities for Blended Learning. Workshop on Blended Learning 2007.
- [9] Galvin, T. & Johnson, H. (2003). BEST Return On Training Case Studies. Training, 40(11), 24-28.
- [10] Gibson, T. (2006, May). Blended learning: the best recipe. Training Journal, 36-38.
- [11] Ginns, P & Ellis, R. Quality in Blended Learning: Exploring the Relationships between Online and Face-to-face Teaching and Learning. Retrieved from http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6W4X-4MV1P52-1&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_searchStrId=988434066&_rerun

- Origin=scholar.google&_acct=C000050221&_version=1
&_urlVersion=0&_userid=10&md5=94da75b39d32244e2
e0b5b27046f9704
- [12] Hewagamage, K. P, S.C Premaratne, K.H.R.A. Peiris. Desing and Development of Blended Learning through LMS. Workshop on Blended Learning 2007.
- [13] Kim, D. & Choi, C. (2004). Developing future leaders at Hyundai Motor Company through blended learning. *Industrial and Commercial Training*, 36(7), 286-290.
- [14] Kim, W. Towards a Definition and Methodology for Blended Learning. Workshop on Blended Learning 2007.
- [15] Klein, H. J., Raymond, A.N., & Chongwei, W. (2006). Motivation to learn and course outcomes: the impact of delivery mode, learning goal orientation, and perceived barriers and enablers. *Personnel Psychology*, 59(3), 665-702.
- [16] KnowledgeNet. (2004). History of e-Learning. Retrieved February 17, 2007, from [http://www.knowledgenet.com/corporateinformation a\) /ourhistory/history.jsp](http://www.knowledgenet.com/corporateinformation/a)/ourhistory/history.jsp)
- [17] Oliver, M., & Trigwell, K. (2005). Can 'Blended Learning' Be Redeemed? *E-Learning*, (2)1, 17-26.
- [18] Ossiannilsson, E., & Landgren, L. (2012) Quality in E-Learning – a Conceptual Framework based on Experiences from Three International Benchmarking Projects. *Journal of Computer Assisted Learning*, (28)1, 42-51.
- [19] Padhye, J., Firoiu, V., and Towsley, D., "A stochastic model of TCP Reno congestion avoidance and control," Univ. of Massachusetts, Amherst, MA, CMPSCI Tech. Rep. 99-02, 2008.
- [20] Picciano, A. G. Blended Learning: Implications for Growth and Access. *Journal of Asynchronous Learning Networks*. Retrieved May 14, 2007 from <http://www.sloan-c.org>
- [21] Rossett, A., Douglis, F., & Frazee, R.V. (2003, June 30). Strategies for Building Blended Learning. *Learning Circuits*. Retrieved February 12, 2007 from <http://www.learningcircuits.org/2003/jul2003/rossett.htm>
- [22] Singh, H. (2003). Building Effective Blended Learning Programs. *Educational Technology*, 43(6), 51-54.
- [23] Sparrow, S. (2005, November). A Means to a Blend. *Training Magazine*, 17.
- [24] Strother, J.B. (2002). An Assessment of the Effectiveness of e-learning in Corporate Training Programs. *The International Review of Research in Open and Distance Learning*, 3(1). Retrieved February 12, 2007 from <http://www.irrodl.org/index.php/irrodl/article/viewArticle/83/160>
- [25] Thomson, Inc. (2002, February). Thomson Job Impact Study: The Next Generation of Corporate Learning. Bill Bonner.
- [26] Torraco, R. J. (2005). Writing integrative literature review: guidelines and examples. *Human Resource Development Review*, 4(3), 356-357.
- [27] Wang, F. L., Fong, J, Choy, M. (2007). Blended Learning for Programming Courses: A Case Study of Outcome Based Teaching and Learning. Workshop on Blended Learning 2007.
- [28] Woolnough, R. (2006, June). The means to a blend. *Training & Coaching Today*, 12-13.
- [29] Williams, S. (2003). Blended learning: tried and tested at Clerical Medical. *Training & Management Development Methods*, 17(1), 501-506.