Case Study of BELL E-learning: Award-Winning, Interactive E-learning on a Nonprofit Budget

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Abstract—**BELL (Building Educated Leaders for Life) is a nonprofit organization offering academic tutoring to elementary school children from low-income, urban communities. BELL launched a blended learning training for the tutoring staff working in its summer program in 2008, and won *Training Magazine*'s Blended Learning and Performance Project of the Year. The e-learning from that blended learning training is discussed in this paper.**

Index Terms—**BELL (Building Educated Leaders for Life), asynchronous e-learning, blended learning, Moodle**

I. INTRODUCTION TO BELL & PROJECT

Founded in 1992, BELL (Building Educated Leaders for Life) is a rapidly growing nonprofit organization that provides summer and afterschool tutoring with the mission of enhancing the educational achievements, self-esteem, and life opportunities of elementary school children living in low-income, urban communities. The children BELL serves are called scholars. BELL served over 7,000 scholars in the 2007-2008 academic year and over 4,000 scholars in the summer of 2008 in 5 cities.

One key to BELL's successful growth is its strong training program for both the instructors who work directly with scholars and the site managers of the tutoring locations. Because BELL training is standardized at a high level of quality, the organization can grow into new regions with the confidence that the new regions will be equipped to implement the program model even when staff have no prior experience working with BELL.

Prior to 2008, BELL's training was conducted exclusively in a classroom-based format, but in 2008 BELL rolled out blended learning that combined classroom training with technology-based training in the form of both asynchronous web-based e-learning and synchronous webinars using conference calling and web conferencing. While the webinars are exclusively for site managers, the e-learning is for all instructional staff as well as site managers. This paper will discuss the blend of BELL's e-learning and related classroom training that was used to train Teachers and Teaching Assistants during the summer of 2008.

A. BELL's transition to blended learning

In 2007, BELL's summer training for Teachers and Teaching Assistants consisted of three consecutive days of ten-hour classroom training. That summer, BELL served three regions: Baltimore, Boston, and New York City. BELL's full time Training team of four traveled to manage the classroom training events in each region.

This training configuration was onerous and was identified as a potential bottleneck in BELL's plans to expand aggressively. Therefore, the organization's Board and senior management charged the Training team with developing e-learning to reduce the amount of training time required in the classroom, so that the Training function could become more nimble and efficient in support of BELL's strategic goals.

The resulting new training program was rolled out for summer 2008 and consisted of 13 modules of e-learning followed by one day of classroom training. Almost 800 instructional staff and their managers completed the e-learning, in all five of the regions BELL served: Baltimore, Boston, Detroit, New York City, and Springfield, Massachusetts. The figure below lists the e-learning modules.

BELL Summer Modules
BELL Overview
BELL Summer Program
BELL Summer Literacy
BELL Summer Math
Assessment & Evaluation
Child Development & Learning
Classroom & Behavior Management
Collaborative Teaching
Enrichment
Family Engagement
Interactive Read Aloud
Mentoring
Reaching All Scholars
Working With Boys

Figure 1. Listing of BELL's Summer 2008 e-learning modules

B. BELL's E-learning Project Goals

BELL's project had three overall goals. The first was to improve outcomes for BELL scholars by providing world-class, standardized training to the staff who worked directly with BELL scholars so that they could provide the highest possible quality tutoring. The second was to cut the cost of training so that a higher percentage

of BELL funds could be directed towards our scholars. Finally, the third was to enable BELL to expand quickly to new regions or to partnerships so that as many children as possible could profit from the opportunities BELL provides, by making training nimble enough to serve a rapidly growing number of staff in a rapidly growing number of regions

C. BELL's E-learning Design Requirements

BELL designed and developed its e-learning modules both with an external consulting firm and in-house. The e-learning needed to be self-paced, simple, and web-based, as BELL's part time, seasonal tutoring staff completed the e-learning on their own time, on their own computers. Therefore, the design phase considered the logistics of running the e-learning on a wide variety of computers with a range of Internet connection speeds.

To this end, BELL avoided high resolution images that required a long time to load, audio tracks with no learning purpose, decorative animations without a learning purpose, and video hosts.

In addition, throughout the design process, BELL emphasized creating a high level of interaction to engage learners, a variety of activities to prevent monotony, relevant images and scenarios to help learners understand that the training was applicable to their jobs, practical information that would raise the quality of BELL's program, and an inspiring look and feel to drive the motivation of learners working for a mission-driven organization. BELL wanted to both build its staff's skills with implementing BELL's program model, and convince staff to commit to BELL's mission, vision, and program.

Finally, BELL designed its e-learning to meet the needs of a wide range of learners, spanning multiple generations, diverse educational and professional backgrounds, and varying levels of experience with technology. Learners ranged from teenagers to seniors, technophobes to digital natives, and college students to veteran educators.

II. CHALLENGES

In designing this project, BELL faced a number of challenges, as discussed below.

A. Designing for Unknown Computer Technology

Because administering computer technology is not core to BELL's mission, BELL did not provide computer labs or computer technology for staff to complete the e-learning. Staff completed the e-learning at home, at libraries, at school computer labs, and at other people's homes. This meant that the e-learning needed to be designed to run on most computers, with the possibility of dial-up Internet connections and the assumption that most users would not have expensive graphics cards, video cards, or a variety of software. In addition, because BELL could not assume that all learners would have CD drives, disk drives, or the ability to install new software on computers that did not belong to them, the e-learning needed to be web-based.

B. Wide Variety of Learners

In addition to the normal variety of adult learning styles and needs, BELL was aware that staff using the e-learning had a range of specific backgrounds. For example, while BELL's Teaching Assistants are frequently college stu-

dents with limited classroom teaching experience, BELL's Teachers are often experienced educators with graduate degrees. In addition, because elementary school teaching is a profession that does not require daily use of a computer as a function of the job, many BELL Teachers have limited experience with computers, while at the other end of the scale, many Teaching Assistants grew up playing video games and are inseparable from their Blackberries, iPhones, or Sidekicks.

Even among BELL Teachers, there is generally a split between newly certified teachers, who are familiar with the latest educational theories and may have taken an online class in graduate school, and veteran teachers, who have decades of practical classroom teaching experience but may not have used computers at all when they were in school. This divide meant that the e-learning needed to include detailed and explicit directions to help learners who were new to computers, but needed to do so in a manner that did not frustrate digital natives.

C. Accountability for Self-Paced Learning

With learners completing the e-learning on their own time, BELL needed to build in accountability for learning the content. Progress reports and comprehension checks monitored the username's work on the e-learning, and the classroom portion of the blended learning deterred potential cheaters with the knowledge that there would be an in-person mode of accountability for actually meeting the learning objectives.

D. Inherent Challenges with E-learning

E-learning inherently has the potential to be isolating for learners, de-motivating, and dull. BELL needed to build in balances against these challenges.

E. E-learning as a Driver of Program Quality

As with any training program, BELL's goal was to increase program quality by providing a superior training experience. BELL needed to focus the e-learning on increasing the staff's skills, as well as plan for ways to measure the e-learning's impact on program quality.

F. Resistance to Change

BELL's classroom training had been highly interactive and engaging in the past, and many staff were not pleased to see it cut by two thirds and replaced with e-learning. These staff wanted to have the option to do classroom training in lieu of e-learning, but that was not a possibility. This meant that communication around the e-learning launch had to persuade staff about its value and the fact that it was indeed mandatory.

III. SOLUTIONS

In response to the e-learning project's goals and challenges, BELL created e-learning that was a prerequisite to the classroom training portion of the blended learning solution. Therefore, the e-learning introduced BELL's program, policies, and curricula. It was structured in modules that provided information and then challenged learners to apply the learning. Information to emphasize in activities was chosen during the design phase by using feedback from managers.

The interactive activities within the e-learning included audio and video, animation, drag-and-drop activities, mul-

tiple choice scenarios, tab screens, storyboards, hot spot graphics, crossword puzzles, jumbles, and quizzes. They were developed using Atlantic Link, Flash, and Hot Potato.

The e-learning system included 5 regional information folders, a Help area, and a CEO blog. It also featured practical downloadable resources that learners could use at their sites, and the e-learning itself was a resource, as learners could access it for reference after they began their jobs.

Text was written in a conversational style to draw in learners, photos included real life BELL scholars and staff, video and audio were taken of actual BELL staff rather than models, and animations were used sparingly to match the learning objectives. The graphics were created to match BELL's branding and also the look and feel of classrooms, to give the e-learning a relevant feel. Because BELL took on much of the responsibility for writing activities, providing photos, creating videos, and creating activities in order to speed the time to launch and save on consulting expenses, the result was an authentic feel.

Depending on the user's experience with teaching and expertise with technology, the e-learning took approximately 10-15 hours to complete. It was available 24 hours a day, seven days a week.

In the classroom training that followed the prerequisite e-learning, trainers built on the participants' prior knowledge from the e-learning to provide opportunities for participants to demonstrate their learning, clarify any questions, create learning communities, and provide participants with the opportunity to put the learning into context – learners were trained with their coworkers for the summer in the same room and with their managers present. All learners were provided with a participant workbook, and workshops were standardized through highly structured leaders' guides for the trainers, PowerPoint slides that accompanied each workshop, and a train-the-trainer with the director of training.

Details about select elements of the e-learning are provided below.

A. Accessible E-learning Platform

BELL selected Moodle as its e-learning platform because Moodle is open source and therefore cost effective, because it is web-based and therefore accessible anywhere, because it is relatively simple to administer, and because it offers a range of functions, including user tracking, activity creation, and module creation.

BELL's external consultants customized Moodle's look and feel to align with BELL's branding and annual report, and they designed user progress reports using the data from Moodle's tracking function.

The e-learning home page seen in figure 2 illustrates the numbered steps and clear directions that allowed BELL's users to navigate the e-learning easily.

B. Progress Reports

BELL's users were able to track their own progress by module and by activity, using self-serve progress reports. In addition, managers were able to view user progress by site in progress reports distributed by the Training department. These detailed user progress reports provided precise management information about specific learners, which helped managers make staffing decisions, provide

performance feedback to individuals, and understand the coaching needs of particular staff.

Figure 2. BELL e-learning home page

When BELL did an initial pilot of two of the fourteen e-learning modules during the winter before the summer launch, questions about progress were some of the most common questions during calls for technical support. The self-serve progress reports were custom-created in response to this experience, as progress reports were not a feature available in Moodle version 1.8.

C. CEO Blog

BELL's CEO contributed a blog that emphasized the value of training to prepare staff to serve the scholars well and that expressed appreciation for the staff's contributions towards BELL's mission. This visible buy-in from the highest level of management added to the perception of the e-learning's importance.

D. Drag-and-Drop Activities with Contextual Images

The following three figures show examples of drag-and-drop activities with images putting learners in the context of a classroom. These activities were designed to help BELL's staff learn by doing, and provided opportunities to practice the learning. The activities also checked the learners' comprehension of information provided earlier in the e-learning and required them to think more deeply about the e-learning content. The images are of real BELL scholars.
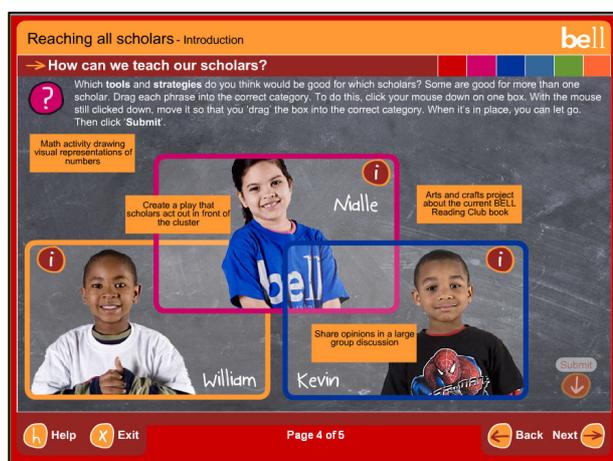

Figure 3.   A sample drag-and-drop activity in which learners match potential learning activities with particular scholars they have met in an earlier activity, according to the learning styles and needs of the particular scholars
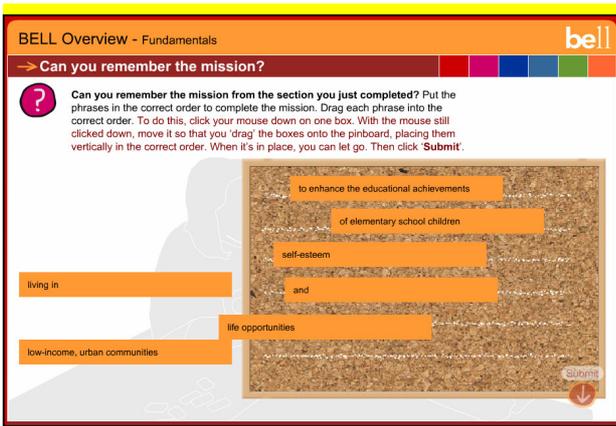
Figure 4. A sample drag-and-drop activity in which learners must put the phrases of BELL's mission in order, to help them memorize the mission
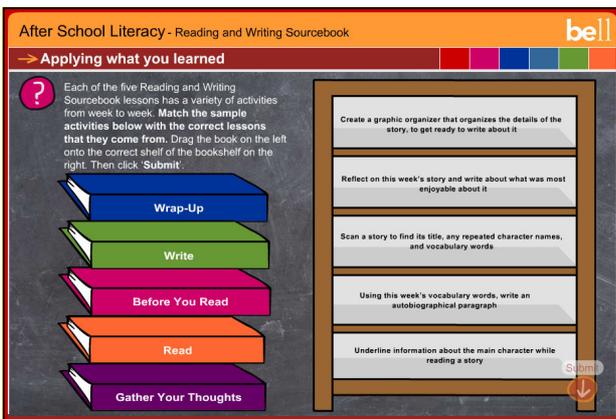

Figure 5. A sample drag-and-drop activity in which learners match elements of the literacy curriculum with specific sample activities

E. Simple Interactive Activities

BELL's internal staff used Hot Potato software to create e-learning activities that provided variety and were simple for learners to navigate. These activities were motivating for learners intimidated by fancier activities. They also provided an easy way for BELL's Training team to develop activities that allowed for presentation of material without merely asking learners to read blocks of text. The application of the learning was immediate.
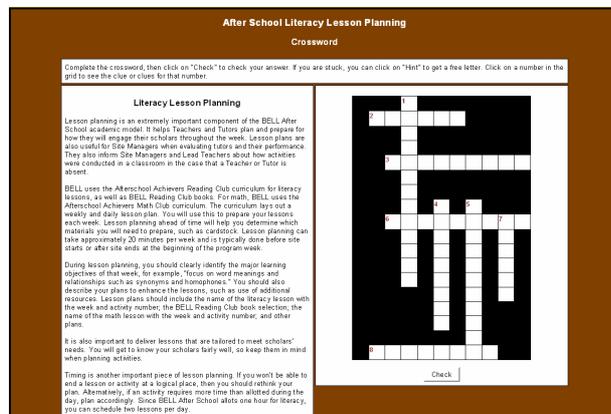

Figure 6. A sample crossword activity that made the presentation of the material on the left more engaging, as it was used immediately to fill out the crossword on the right. The crossword questions focused on key learning points
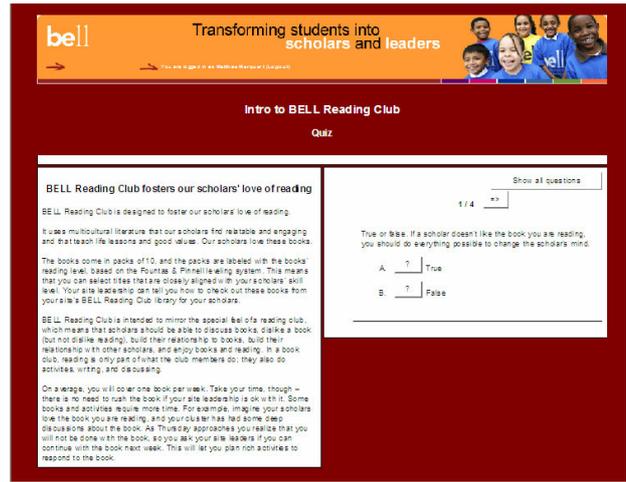

Figure 7. A sample quiz activity that made the presentation of the material on the left more engaging, as learners read the material and immediately answered questions about key learning points

F. Activities Built Within Moodle

BELL took advantage of the Moodle capability to create activities such as choice activities in which learners vote on choices, and wikis in which learners collaborate on living documents.
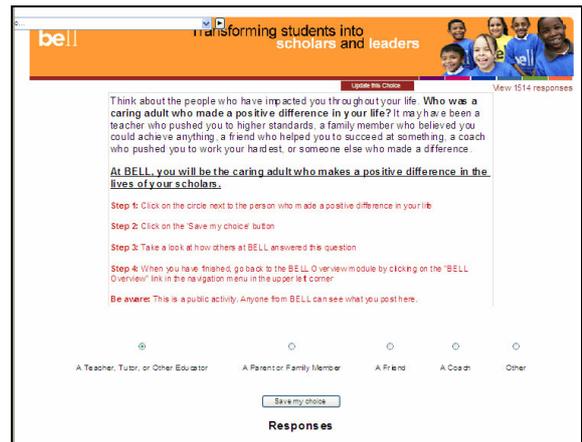

Figure 8. A sample choice activity in which learners are asked to share which adult made a difference in their lives. Learners could then view the other learners' selections, creating a community feel to the e-learning

G. Discusson Forums

The discussion forums created within Moodle built a community of learners in order to combat the isolation of asynchronous e-learning, as learners could read and respond to posts written by other BELL staff. In addition, the forums allowed for uploading assignments that applied the learning from the module. Managers could then view their staff's assignments to check for staff who needed help understanding the content. One key assignment learners completed was viewing the summer curriculum and creating their first week's lesson plans before attending classroom training, which meant that BELL's Teachers were well prepared on the first day of the summer program.

The forums gave the learners an opportunity to reflect, they encouraged the sharing of best practices, they built a

sense of teamwork, and they required public commitments to actions that learners planned to take at site with their scholars as a result of their training.
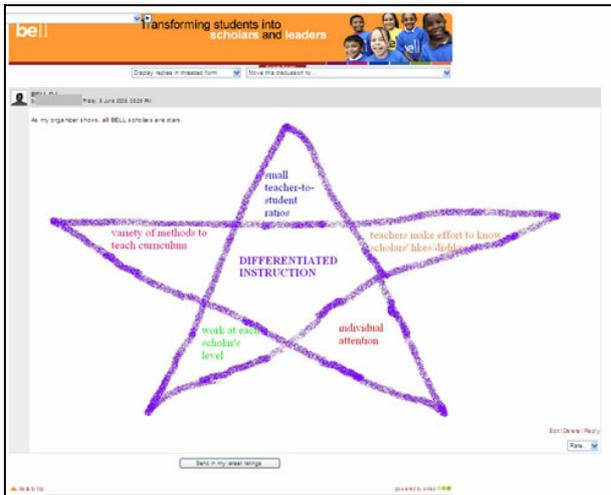

Figure 9. A sample assignment posted to a discussion forum. In this assignment, the learners were directed to use Microsoft Paint to create a graphic organizer showing how differentiating instruction is built into BELL's program design. The assignment applied learning about graphic organizers from the particular e-learning module

H. Video

BELL incorporated video of teachers and scholars in order to meet the needs of visual and auditory learners. The video included a teacher explaining and modeling lessons, classroom footage of teachers demonstrating interactive read alouds and classroom management techniques, and polished video of BELL's program. The videos combined professional footage of classrooms with footage of real BELL staff and scholars.
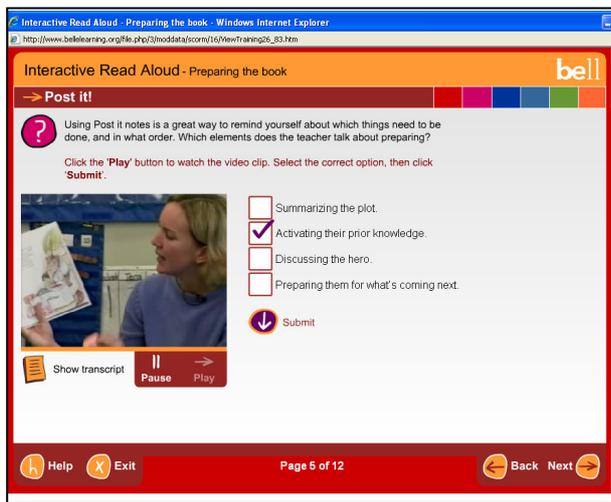

Figure 10. A sample video screen with a follow-up multiple choice question

I. Multiple Choice Scenarios

BELL's e-learning included multiple choice scenarios of classroom situations, written by an actual BELL Teacher so as to be relevant and realistic. Many of the scenarios were branching, so that correct answers led to fast completion of the e-learning for staff experienced in classroom instruction, whereas incorrect answers led to additional questions that deepened the intensity of the scenario by making learners experience the consequences of their mistakes.

Figure 11. A sample scenario screen. Note that the outlines of scholars in graduation caps and gowns indicate the amount of questions left in the scenario. As questions are answered correctly, the outlined scholar images are filled in with a photo of a scholar in a cap and gown

J. Graphics with Clickable Audio

BELL drew on real stories and examples to create e-learning storylines. These storylines brought the BELL program model to life and emphasized key points about BELL. On hot spot graphical screens like the example below, the photos were of real BELL scholars and staff, and the audio featured real BELL children and staff. This level of authenticity drew the learners in to the BELL way of teaching and gave the e-learning credibility.
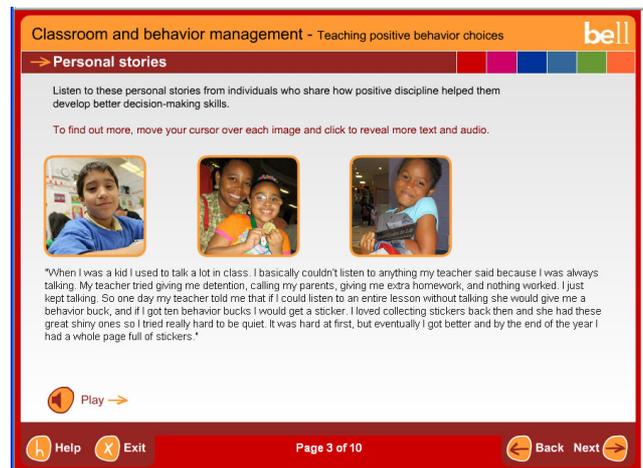

Figure 12. A sample screen with clickable audio. Note that the transcript of the audio was provided for learners without fast Internet connections

IV. EVALUATION AND RESULTS

BELL conducted an extensive evaluation of the e-learning program, with assessments starting while the e-learning was in use and stretching to nearly a year afterward.

Immediate assessments included web-based surveys after each e-learning module was completed, using Sur-

veyMonkey. Once the e-learning was completed, an additional assessment was collected at the classroom training via paper surveys, as part of an overall assessment of the blended learning training. Because the e-learning was a prerequisite to the classroom training, the paper surveys allowed staff to provide opinions on the training after time had elapsed and to assess their preparedness to work after completing their full training.

After staff began working at the summer sites, the Training team collected feedback via focus groups with staff, lessons learned conversations within the Training team, a debrief meeting with the external consulting firm, a lessons learned meeting with the Recruitment department that hired the staff, and a lessons learned discussion with senior management and a cross-functional team. These focus group discussions gathered information about the impact the e-learning had on the staff's work by asking how effectively the staff felt the training had prepared them, from the vantage point of having begun their jobs. The focus groups also gathered data about whether the project itself met the expectations of BELL management.

When the summer program ended, staff assessed the e-learning again on a web-based survey, as part of an overall survey of their experience working with BELL. They were asked about the effectiveness of the e-learning in preparing them for the jobs they had just completed. In addition, their managers were surveyed about the e-learning and classroom training's impact on their staff's work, as part of a similar overall assessment of the program.

Several months after the summer program had ended, the Training team conducted focus groups again, with staff and their managers. Finally, during this entire period, the Training team also collected anecdotal feedback. Figure 13 below details the eleven types of data BELL collected.

1. Web-based surveys from each participant about each e-learning module immediately after they completed it, via SurveyMonkey
2. Paper surveys from each participant at the classroom training after the e-learning had been completed
3. Focus groups with staff several weeks after they began the jobs the e-learning oriented them to do
4. Lessons learned meeting with the internal Training team 2 weeks after the e-learning completion deadline
5. Two lessons learned meetings with our e-learning consultants 2-3 weeks after the e-learning completion deadline
6. Lessons learned meeting with the Recruitment team who hired the staff that did the e-learning and explained it to them as part of the hiring process, 1 month after the e-learning completion deadline
7. Feedback meeting with BELL's Senior Management and cross-functional team 6 weeks after the e-learning completion deadline
8. Questions on BELL's staff survey at the end of the summer program
9. Questions on BELL's manager survey at the end of the program, regarding the staff's level of preparedness after the e-learning
10. Comparison of BELL's program results from the summer before the new e-learning was implemented, with the program results from the summer the new e-learning was introduced
11. Focus groups with managers of the staff who were trained via the e-learning, 6 months after the program ended

Figure 13. Types of data BELL collected on the summer 2008 e-learning pilot

Overall, BELL's senior management team was happy with the e-learning project and its results. Highlights of the results are detailed below.

A. High Completion Rates

BELL found that 100% of staff who worked at summer sites were trained through e-learning and classroom training, and of almost 800 staff, only 3 did not complete 90% or more of the e-learning, although these three did complete at least half.

B. Well Prepared Staff

The data collected indicated that learners were well prepared to work with BELL scholars. For example, after completing training, 90% of Teachers and TAs (Teacher's Assistants) said that the e-learning gave them a good understanding of BELL's program model, and 80% of Teachers and TAs said that the e-learning was interesting to complete and easy to understand. At the end of the summer program, 95% of Teachers and TAs strongly agreed or agreed that training (blend of e-learning and classroom training) prepared them to impact scholar development.

At the end of the summer, 87% of site managers strongly agreed or agreed that the blended training solution had prepared staff to implement the literacy curriculum, and 88% strongly agreed or agreed with this statement about the math curriculum.

C. Significant Reduction of Classroom Training Cost and Time

The project cut the classroom training time by two thirds – where classroom training used to be three days, it became one day. This meant that the largest training expenses (trainers, space rentals, catering, and printing) were reduced to roughly one third of the previous year's cost.

D. Scalable Training Model Supports BELL's Expansion

This project has positioned BELL to be able to expand rapidly and cost-effectively to new regions. For example, during Summer 2008, the project helped BELL to seamlessly expand to two new summer regions. Cutting the amount of classroom training time was key because due to parallel school calendars, summer programs across the United States begin at approximately the same time, which means that summer program staff in all regions must be trained at approximately the same time. Expanding into new regions with the previous three-day classroom training model would have required significant staffing costs for the Training team in each new region, whereas one-day training can be handled with the existing internal Training team.

In addition to the scalable logistics, the e-learning supports the scalable implementation of BELL's program model in new regions. For example, during Summer 2008, all of the approximately 150 teaching staff in the new region of Springfield, Massachusetts were new to BELL. The majority of these were fully engaged in teaching during the school year until 10 days before program began, so there was an extremely short window of time for the staff to wrap up their academic year jobs, complete the hiring process with BELL, and get fully trained. For many, the BELL curriculum, behavior management systems, parent engagement, and holistic approach to summer learning were dramatically different than typical summer school. However, staff were well trained enough to successfully implement the BELL program, and achieved significant

results. According to an evaluation of BELL's pre-tests and post-tests using the Stanford Diagnostic Reading and Math Tests, during the six-week summer program the Springfield BELL scholars gained 9 months' skills in reading and 9 months' skills in math overall, with the greatest gains seen among older scholars. The 8th grade scholars showed 16 months' gains in literacy and 14 months' gains in math.

Another new region staffed exclusively by educators who were new to the BELL model, Detroit, also achieved significant results, with 7 months' gains in reading and 8 months' gains in math.

	Summer 2008		Summer 2007	
	Reading	Math	Reading	Math
National*	**5 months**	**5 months**	**4 months**	**4 months**
Baltimore	3 months	4 months	4 months	8 months
Boston	4 months	2 months	4 months	3 months
Detroit	7 months	8 months	N/A	N/A
New York City	5 months	7 months	8 months	9 months
Springfield 2-5	7 months	7 months	N/A	N/A
Springfield 8	16 months	14 months	N/A	N/A

Figure 14. BELL's summer program results by region, comparing Summer 2007 when orientation training was strictly classroom-based with Summer 2008 when BELL piloted its blended learning orientation training. The data shows the amount of months of skills BELL scholars gained during BELL's summer program. New regions in 2008 had all staff fully trained via blended learning, whereas staff returning to work in existing regions in 2008 were exempt from a large portion of the e-learning

V.   LESSONS LEARNED

BELL learned six key lessons in launching the e-learning program.

First, create ways that learners can help themselves with technical questions. BELL's learners could post new questions to a help forum or access the answers to previously posted questions, and a system checker on the home page allowed learners to run a self-check on whether their computer needed to disable pop-up blockers or update Internet Explorer, Adobe Reader, or Flash Player. In addition, the Training team shared clear and detailed directions with learners before they logged into the e-learning, to prevent learners from needing to ask questions. These tools significantly cut down the volume of technical support calls.

Second, create a thorough plan for how to handle the remaining requests for technical support, as learners who could not help themselves using the tools above frequently needed significant hand-holding and multiple phone calls. BELL initially tried to handle technical support calls and emails with internal Training team members, but quickly realized that these calls and emails needed to be outsourced.

Third, use real images rather than models. Learners loved seeing realistic images, and it made the e-learning feel much more relevant.

Fourth, keep the directions as simple and explicit as possible. This will help the learners without much experience with technology, and more experienced learners can easily skim the directions. Language should be as user-friendly and basic as possible – assume that learners don't know computer language.

Fifth, run a limited pilot before launching a full-scale pilot, and implement the feedback you collect right away. BELL's pilot highlighted unexpected issues that could be resolved before launching the full summer e-learning. For example, BELL's learners preferred very simple course homepages with everything numbered and directions included in the headings of every task, rather than creatively designed homepages with animations and graphics.

Sixth, over-communicate with internal stakeholders, including the learners' managers. Implementing a new e-learning project requires teamwork across all functional areas.

VI.   CONCLUSION

BELL's interactive e-learning program produced significant measurable benefits and outcomes, and met the project's goals. It engaged learners, prepared staff for their work with BELL's scholars, cut the prior length and associated costs of classroom training, and supported BELL's expansion to serve new scholars in new regions.

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