

2003 Excellence in Practice Citation

Electronic Learning Technologies



General Motors Service Parts Operations

Warren, Michigan

Raytheon Professional Services

Troy, Michigan

Executing a Blended E-Learning Performance-Based Training Solution

SUMMARY

Our company was incurring increasingly high costs for our product repair services. The company develops and sells a steady stream of new product models, and these frequent model changes require technicians to participate in a service training program.

In 1999, our technician-training challenge came from a realization that the instructor-based training model, where one instructor stands in front of seven or eight technicians for days at a time, would be too expensive to maintain as the number and complexity of the product models increased. To accommodate an expected increase in demand for training, the company would need to expand its training infrastructure nationwide, and technicians would have to be away from their retail facilities for longer periods.

To address this situation, the company set a goal to improve the quality, scope and efficiency of the training for technicians. After evaluating our training program, we decided to restructure the delivery mechanism by implementing electronic learning technologies that bring training closer to the technicians. The new delivery methods, which include video, web-based, computer-based, and interactive distance learning technologies, allowed a substantial reduction in the number of training facilities while increasing the availability and effectiveness of the training provided.

During the past four years, we have seen real improvements in our training program: a significantly larger percentage of technicians participate; they spend less time away from their retail facilities; and they report higher satisfaction with the training experience. Our analysis shows that improvements in technicians' work are positively influencing the bottom line.

BACKGROUND

In 1998, our company undertook an evaluation of our training system to determine how best to enhance the ability of our service technicians to repair products efficiently. At the outset of the evaluation, instructor-based training at training centers across the United States had been the primary method for delivery. This training method, while desirable because of its traditional acceptance, was becoming ineffective and inefficient. At an increasing rate, our company was releasing new product models that were becoming more complex technologically. As a result, participation of technicians in the training programs was a critical factor for their success in product service. To accommodate an expected increase in demand for technician training, the company would need to expand its training infrastructure nationwide, and technicians would have to be away from their retail locations for extended periods of time.

The results of the study, completed in early 1999, indicated that implementation of a blended learning solution involving emerging technologies had the potential to provide a much more cost-effective approach to training. This blended approach, which involved thousands of retail facilities across the United States, had never been attempted in our industry on a scale as large as ours. We recognized it would require a tremendous change in the behavior patterns of the technicians, with all the difficulties implied, including:

- Technicians would be asked to use computer- and web-based training, instead of leaving their retail locations for several days to participate in training at a training center. We were concerned that many of them would not be sufficiently familiar with computers to be comfortable with these media.
- Technicians would be asked to watch videos and attend satellite-based, interactive distance learning sessions in their retail locations. We were concerned that local retail managers would not allow their technicians to complete the on-site training while products requiring service sat down the hallway.
- Technicians would be required to complete computer- and web-based training to prepare for facilitated, hands-on classes. We were concerned technicians might not learn enough from the media to take advantage of the opportunity to practice without redundant instruction.

Use of technology to improve the cost of training is not a new idea. What makes this approach unique is how each media component's strength is used to accomplish the skill development desired for the technicians. Our program includes:

- Video presentations that introduce system and component elements.
- Computer- and web-based training that teach knowledge and theory behind a system or system element.
- Interactive distance learning that uses a standardized approach to diagnosing difficulties in a system or component, helping the technician translate the knowledge and theory learned into understanding used to interpret customer concerns.

After technicians complete these electronic technology components, Hands-on classes allow them to apply their learned diagnostic skills to real product concerns on real products, under the watchful eye of a trained technical facilitator. With this new training structure, technicians have the opportunity to fail and learn from their failures before having to exercise their new-found skills on customer products.

This wide-reaching program, which was introduced through a year-long transition period in 1999, now reaches tens of thousands of service technicians at thousands of retail locations across the United States. Implementation included not only developing new material, but also revamping the training delivery structure. Development of the new material was started immediately, and during the rest of 1999, the first full set of materials was distributed to the retail facilities. Hands-on delivery commenced just as quickly. Training center staff had to be trained not to do stand-up instruction, but to facilitate instead. The staff would work with the technicians not by supplying the answer, but by reminding them of what they had learned, and asking them leading questions to help them think through the process steps. Staff preparation was completed mid-way through 1999. As development for a given course of study completed, the instructor-based training was transitioned to the new blended approach involving video, computer, interactive distance learning, and hands-on classes. By the beginning of the new millennia, the full curriculum was available using the new model.

Acceptance took a little longer. Over time, we got positive answers to the questions regarding whether the program would be used by the technicians and acknowledged by their managers. Using well-defined feedback processes based in part on consistent and conscientious application of both Kirkpatrick Level 1 and Level 2 testing of all course components, we have been able to strengthen the effectiveness of the training provided in each of the media. We have also been able to show the training's broader business impact to the company and to the retail locations . This approach has thus proven not only to decrease training cost, but also to improve quality.

DOCUMENTATION

Needs Identification

- 1. Describe the problem or need for which this practice is designed and implemented. How was this problem identified, and how was it determined that this practice is an appropriate response?*

The performance need or problem was (and still is) for technicians to be able to accurately diagnose and then appropriately repair specific product performance issues brought to them by customers. Training in the new products, specifically how they work, what works differently from similar past products, and how to diagnose and repair these new products (new tools and techniques) is seen as key to resolving this problem. As our products get technologically more complex, and are being released at an increased pace, providing this training at the appropriate level and in a timely fashion to the tens of

thousands of technicians responsible for this task at the thousands of retail facilities located throughout the U.S. was becoming increasingly difficult.

In our previous technician-training delivery model—instructor-based training—only one-third of the technician population was trained annually. This model no longer met our needs. With the average technician receiving training once every three years in that system, the trained technician population was quickly falling out of touch with the knowledge requirements for servicing the newer products.

Given the projected increase in product introduction and complexity, the projected costs for continuing the existing training program would grow substantially. Anticipating this problem, we undertook a study to identify alternatives. The study's results indicated that use of emerging learning technologies to move the appropriate aspects of the training back from the training center to the retail location had the potential to solve both problems: greatly decreasing the structural costs, while at the same time providing easier access to training, thereby enabling more technicians at each facility to receive necessary training.

Design Values

- 2. Please describe how this practice takes into account the best interests of both the organization and the employees targeted.*

The company trains more technicians today, yet we incur smaller costs on a per-year basis than we did five years ago. Under the previous approach, roughly a third of the technician community was trained on a yearly basis. Under the current approach, over two-thirds are now reached yearly.

Technicians benefit from the new approach because training in their area of expertise is more readily available. With training materials accessible at their work location, and often on-demand, they are more confident in the decisions they need to make throughout their workday. This option was not available, or limited, when technicians were required to attend instructor-led classes, often at infrequent intervals. The increase of training availability has led to an increasingly larger number of trained technicians, and this growth has created a positive working atmosphere of technicians with high morale.

The program also offers certification to technicians who complete an established training path. The certification option functions as professional measurement among their peers and provides technicians with added incentive to complete training.

Alignment

3. How is this practice in alignment with the performance identified, as described in your answer to question 1?

We knew the blended learning approach that was recommended through our study in 1999 held the promise of resolving the challenge of delivering the appropriate level of training to more of the technicians, at a faster pace than was before possible.

We use computer- and web-based training to provide the knowledge and theory aspects of new products. This training format, which had been delivered in classrooms in off-site training centers, was made available at the retail facilities. Interactive distance learning is used to provide training on diagnostic techniques related to the new products and the systems within those products. This format was also made available at the retail facilities, and it was thus immediately available to the technicians where they worked. These elements provided 75% of the new training necessary.

Limiting the visits to the training centers to the hands-on, practice component, which accounted for 25% of the training in the blended approach, considerably shortens the time required for the technician to work at the training center, and thus increased the throughput potential considerably. The net result is that at the end of four years under the blended format, almost twice the number of technicians receive training each year, and they are spending less time away from their retail locations to receive it.

4. Please describe how this practice integrates other training, learning, and performance improvement practices, and aligns itself with organizational goals to achieve the desired outcomes.

Our blended learning program facilitates the learning process. Technology enables technicians to receive most of the training in their own retail facilities. Ambitious technicians are able to complete courses available at their facility and parlay that knowledge into a new expertise through mentorship at their facility and further training.

The program offers the opportunity to use popular media to help with the technicians' learning experience. Through our interactive distance learning system, we provide monthly seminars titled "Know-How," "Emerging Issues" and "New Model Features." These seminars allow us to keep our technicians in touch with our latest product developments, and the seminars are facilitated in an efficient, exciting way. Similarly, our web- and computer-based courses take advantage of the prevalence of computer technology and the technicians' growing aptitude for it.

Through these opportunities, technicians are empowered to integrate training into their daily routines. Using new methods, technicians are able to learn at their leisure. As technicians discover the full benefits of the training program, their increased initiative for training boosts our organization's ability to reach our training level goals, which in turn allows us to achieve positive results along our business metrics.

5. *What evidence is there of partnerships within and outside the organization (e.g., with senior management, frontline supervisors, unions, external training suppliers, consortia)?*

To achieve success in the technician training program, we work closely with several internal organizations and suppliers.

- Every six months, we meet with a council of retailers to confirm and refine objectives, report on the program's progress and lessons learned and to recommend and seek approval of program modifications. Their input has been critical in ensuring buy-in from the retailer community and in identifying necessary changes.
- We work with a broad sample of the technicians' supervisors for guidance in changes and enhancements. In many of the retail locations, these supervisors are the ones who schedule the technicians for training, and they are responsible to the retail owners for maintaining the overall level of staff training. We have worked with this group closely, providing reports from the training database on a regular basis and listening to their concerns and ideas for growth, and through this relationship have greatly improved the program.
- Our regional field managers work closely with us to set standards and drive improvements across the program.
- We have selected and work with suppliers to maintain the learning management system that tracks training completed through the blended learning approach. We also work with a supplier to translate training materials into selected languages.

Evaluation Strategy

6. *How is this practice evaluated? What factors are included in your calculations (e.g., time, costs, staff count, lost phone calls, customer satisfaction)? Are the financial costs of this practice calculated? If so, how? How often is this practice evaluated?*

Our technician training program uses Level 1-5 data for ongoing evaluation against learning and business metrics. Customer Satisfaction (Level 1) and Learner Performance (Level 2) data are gathered monthly. With these data, we have been able to identify and implement program improvements. In 2001, for example, our interactive distance learning courses Level 1 data were averaging 4.02 on a standard scale of 1-5, with 5 being best. Through our detailed intervention analysis methods, we were able to improve the interactive distance learning sessions so that, in 2002, the course average was 4.16 and, in 2003, the courses are averaging 4.37 (year to date).

Online assessments are administered at the completion of training to gauge how well the material was learned. In 2002, we administered more than 1.5 million online assessments for our technicians.

We have retained statistical expertise to perform studies measuring the training program's impact on specific business metrics. For example, we have completed

studies that measure the impact of the number of technicians trained at a retailer's location on the retailer's customer satisfaction, warranty repair and customer pay metrics. In all of these separate studies, the data showed a significant correlation between an increase in the number of technicians trained and improvements for the retailer.

From a financial perspective, the training program has produced excellent results. Since the implementation of the new training program, we have reduced annual cost of training by about 40%.

Results

7. What specific participant behaviors are observed as a result of this practice, and how do these behaviors contribute to the goals of the practice? Are the impacts of these behaviors short-term or long-term? How do these behaviors differ from the results of previous practices?

Since the implementation of the new training program, technician participation has been steadily on the rise. One of the major goals of the new training program was to strengthen the ability of technicians to diagnose product repair needs. As training reaches deeper into the technician population at each training location, the technician pool becomes better equipped to make accurate repair decisions during the first repair attempt. Our study data showed that retail locations with more training completions have a better reported first-repair success rate. This improvement is also reflected in higher customer satisfaction scores and improved warranty repair data.

Another goal was to decrease the time technicians are away from their work station for training. Now that technicians have a significant amount of training nearby at their retail location, they work training into their daily routines. Whether by completing a computer-based training module in the morning, or taking a 60-minute online assessment in the afternoon, the technicians are not more than a few steps from their station. This convenience allows the technicians and their managers flexibility in incorporating the training initiatives into their schedule.

We expect these behaviors to continue with a positive, long-term trend. Technicians have shown that they want training and are more likely to participate when it is readily available to them. As we implement emerging technologies that help training reach technicians even better, we anticipate a steady climb in the number of fully trained technicians.

Our previous training program was not conducive to producing a high number of trained technicians for a couple of reasons. Technicians often had to travel long distances to attend classes at a training center. These classes kept the technicians out of the retail facility for days at a time, expensive to both the technician and the retail location owner.

Because of these factors, managers could afford training for only a small percentage of the technicians at their retail facility.

8. *What was the impact of the practice on your organization? Are the impacts of these behaviors short-term or long-term?*

A primary impact of the blended learning training program has been improved profitability with the substantial decrease in the cost of training technicians.

Nearly as significant is our ability to manage change necessary to keep up with our new product releases. With a flexible, multi-media program, our technicians are in-step with customer needs faster and more pervasively than our previous program ever allowed.

Also, at the time before the implementation of the new training program, when our organization was analyzing our then-current program, we began to envision a program without bricks and mortar. Since, at the time, training centers and instructor-based training comprised a large part of our program, we knew that this type of change would not come without a significant culture change. Our previous instructor-based program included a network of many training facilities. We have reduced that number significantly in our current program. In the early days of the new program, training participation dipped below pre-implementation levels. Once we covered the bumpy road of the initial transition, however, participants in the program realized the program's benefits; participation surged and continues to grow.

Training program participants are now comfortable with the concept of change in their training habits. As we expect ongoing incorporation of technological improvements to our program, we anticipate long-term cooperation and flexibility from all participants.

Shared Learning

9. *What have been some of the specific lessons learned from designing and implementing this practice for the purposes of continuous internal improvement? Please discuss whether and how this practice might be transferred and replicated both internally and external to your organization.*

We recognize several lessons learned from our design and implementation of this blended learning approach:

- Early into the implementation of our new program, we learned that technology, as much as it was going to help, would also prove to be a hurdle to overcome. The technological aptitude of the technicians varied widely. We worked closely with retail managers to learn how better to develop the web- and computer-based training so that it was more accessible to the technicians and more user-friendly.
- We learned that many of the retail locations lacked a sufficient number of computers to support the program requirements. For them, obtaining additional equipment came slowly as budgets permitted. Having a better understanding of the end user

and infrastructure of the retail facilities would have provided us helpful insight into the ideal way for implementing this type of program.

- We learned that each retailer is different, and it is imperative to build relationships, and to avoid making assumptions based on past experience, without checking their validity in the new program.
- We learned that it is better to keep core competencies in house, making sure we can do all the critical pieces better than anybody else. Competencies that are not core should be outsourced.

Given the challenges we faced, this blended learning program has proven to be an effective way for our organization to deliver training to technicians. Our experience has shown that technology solutions, when implemented through a well-designed process, can dramatically improve the efficiency and effectiveness of training for all involved.

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