Inexpensive Interactive Training

How one company introduced technology and increased productivity.

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Successful training programs can increase worker productivity and technology utilization. When workers are given the opportunity to learn how to use equipment properly, their fears diminish and their performance increases dramatically. Interactive learning, an especially effective educational system, allows students to progress at their own pace and become familiar with new technology in a deliberate and non-threatening way. This form of instruction also reinforces the educational process with immediate positive feedback.

The following discusses an inexpensive Skil/Chek™ Training Course that the Retail Systems Division of Dennison developed to teach 17,000 retail marking-room employees about optical character reader (OCR) print technology and label-inspection techniques.

■ found the training programs easy to administer;

■ experienced measurable productivity increases from employees who had taken the course;

■ reduced new system start-up costs;

■ saw trainees quickly become comfortable with the equipment through self-paced instruction and immediate feedback built into the course.

Introducing the new technology

Dennison provides preprinted label stock and the equipment needed for customers to imprint OCR price and inventory data codes on labels and tags. The system requires that imprinted images be produced within certain production tolerances. Otherwise, the device used at

we developed our self-contained training course using a tape recorder and A.B. Dick's latent-image process, which enables invisible information to be printed on paper. This approach provided all the benefits of interactive learning inexpensively and efficiently.

Our first step in designing the course was to review the specifications, operator's manuals, and sophisticated inspection gauges associated with OCR label printing. We supplemented this data with input from engineering about how the machine was designed; from sales and marketing about customer needs, concerns, and desires; and from service representatives who provided the system training. From this information, we began to determine what and how much the trainees really needed to know.

We also determined that the course should reflect the needs as well as the attitudes of our three customer groups: top management (concerned with customer satisfaction, the importance of having correct information entered to avoid costly errors, and general expense control), marking-room managers (responsible for operator training, but lacking the time to train operators themselves), and price-ticket machine operators (assigned the critical task of correct data input and require instruction of new course material in a nonthreatening format).

To meet the needs of each of these groups, the following course criteria were established.

■ *Top management*—The course would stress accuracy, demonstrate trainee competency, and would be cost/time efficient.

■ *Marking-room managers*—The course would take only about five minutes of their time to administer.

The course helped Dennison become an industry leader in OCR label-printing equipment, reduced the number of service calls the company made, and reduced the time field service representatives spent training customers.

More important, Dennison's customers:

■ reduced the error rates on OCR labels;

■ reduced equipment downtime and had fewer service calls (operators were able to correct many conditions themselves);

the checkout counter to read the labels will not recognize the data or, of greater concern, it will send incorrect information to the computer.

The multilingual course we developed was tailored to the company's customers' marking-room employees. These workers often had limited educations and spoke little or no English. Personnel turnover among the employees in the marking rooms in many cases was high.

Our customers varied greatly in their training equipment, facilities, locations, and budgets, therefore precluding the use of computer-aided instruction (CAI). So,

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■ *Price-ticket machine operators*—The course would provide an adult learning experience and would appear simple, straightforward, and stress-free.

Although the specifications for the course included comprehensive instructional and marketing/design considerations, the course itself is remarkably uncomplicated. Its booklet was produced totally in graphic form so that all that was required to adapt it to a different language was to change the audiotape.

The course itself comprised four primary components:

■ ten pages of interactive instructions and quizzes, with a final test page that was returned to the marking-room manager;

■ a label-inspection gauge;

■ felt-tipped latent-image developer pens;

■ an audiocassette instruction tape. (We produced English, French, and Spanish versions for our customers.)

We structured the entire program so that employees could proceed at their own pace and review material as often as necessary prior to taking the final test. The average time it took to complete the course was only 30 minutes. This non-threatening format helped students overcome any anxieties they may have had about learning new skills. How the students felt about the learning process was as important as the content of the course itself.

CAI without the computer

To provide the interactivity our course needed, we used A.B. Dick's latent-image process. After completing the quiz, the trainees compared their answers to the hidden data using a special felt-tipped marker that reacts with the invisible printing. Once revealed, images are permanent.

The latent-image process is especially useful in educational situations because it ensures that the student is always working with correct information. The student learns immediately whether or not the answer selected is correct. If incorrect, the student continues to develop the invisible images until the correct answer is found. The developer pen leaves a yellow highlight mark on the paper so the instructor can measure the student's progress. Although we didn't build it into our program design, the latent-image approach may also allow the instructor to add additional information into the answer section that would be useful to the student's understanding of the material. It's an easy way to extend the classroom instruction

into the evaluation phase—with immediate instructor feedback as well.

When coupled with self-paced booklets or audio programs, the student can proceed through course materials in much the same way as with CAI. This system is also a tremendous prototyping tool for CAI because it enables complete testing of instructional formats and specifications prior to computer programming phases.

We produced a field-test version of the training course using two-color masters prepared by a local printer. We applied the latent-image answer blocks using our in-house spirit duplicator and tracked the results answer by answer.

The latent-image process was developed to work with mimeograph and spirit duplicators. These systems work well when run-length requirements call for a few hundred or several thousand. We required large quantities of our booklets for our finished course and used an outside printer.

Job aids extend program reach

Job aids are necessary when teaching skills that require inspection or discrimination. They help reinforce course material and provide a common link between the classroom and the work environment. Carefully designed aids also become practical timesavers that further enhance productivity.

The inspection gauge we developed for our customers evolved from a more complex version used by our field service personnel. When Dennison started inspecting labels in our R&D and engineering departments using the more sophisticated templates, it took as long as one hour to check one label. With the inspection gauge we developed, even novice field service personnel could inspect the same labels in less than one minute. The job aid eliminated guidelines that the end-user could not control anyway, or that were negated by the hardware itself.

It is not accidental that our interactive training program accomplished a change in behavior. Setting high standards, we spent a great deal of time analyzing the course design to make sure it related to specific business needs. As a result, we were able to ensure our customers that the high-technology equipment could be matched to human resources.

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