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Thursday, 01 December 2005 00:00

Look to ADDIE and her proven track record when it comes to developing and implementing effective training initiatives.

Alarmingly. . .

In certain skill-level assessments throughout the U.S. and Canada, 80% of those assessed scored less than 50% in the basic technical skills needed to perform their jobs. Additionally, assessments of maintenance department training programs indicated that the majority were not effective in resolving these skill problems. The primary causes of ineffective training included lack of targeting within training programs and failure to use training-effectiveness metrics.

Training can be a substantial investment, but it is an investment in your company, your people and the future. Effective training programs can improve equipment reliability and increase production levels. It also can support incorporation of new technologies, implementation of new procedures or the transfer of knowledge. Effective training programs can transform "on-paper" benefits into a real return on investment (ROI).

To generate real skill-level improvements, employing a systematic approach to the development and implemention of the training program is essential. A proven effective approach is one based on the ADDIE Instructional Design Model. The success of this approach in improving skills and meeting industrial training requirements has been demonstrated in commercial manufacturing operations, as well as in nuclear power, aerospace, health and defense industries. It has gained acceptance in each of these fields by improveing training effectiveness.

Through enhancement of the ADDIE model, greater successes in a shorter period of time, as well as increased responsiveness to changes, can be realized. The traditional model is a closed loop system with the evaluation results (the effectiveness metrics) used to update/upgrade the analysis, and so on. By creating a continuing analysis process, that is a process that continually considers and incorporates employee, equipment, facility, technology and similar changes, the entire ADDIE loop is renewed through both fresh perspectives and effectiveness improvents based on evaluation results. The results: better adaptiveness to change and quicker realization of skill requirements, which can very quickly impact equipment reliability and production capacity.

Some characteristics of this internally looped, five-phase training program development process include:

- It identifies the skills and skill levels that are required for your specific plant/operation.
- It identifies the skills and skill levels that are available at your specific plant/operation.
- It identifies what training should be provided for each position (based on analysis of the gap between required and available skills).
- It provides continuous analysis of skill requirements, skill availability and gap- targeted training objectives.
- It facilitates the design and development of training programs with explicit learning objectives and appropriate content.
- It implements training presentation formats that are the most effective for achieving training objectives.
- It ensures that employees master the learning objectives before they begin working in their assigned positions.
- It measures training effectiveness and uses the results to maintain and improve training.

The modified ADDIE training design/development process

Analysis is the process of determining, and responding to changes in, personnel requirements, job performance problems and learning from industry experiences. It begins with fact-finding needed to make informed training development decisions. This ensures that apparent concerns are verified and can be resolved through training.

Where the facts confirm/identify a specific training need, job task analysis uses existing job data and employee skills/experience to identify and rate job tasks/job skills gaps.

Tasks rated difficult and important and lacking appropriate skills are selected for training. Their exact methods of correct performance and underlying competencies are determined through task analysis. When compete, this process reveals reliable information on effective and safe work practices. The knowledge, skills and attitudes identified provide a task-specific content reference for both new and existing programs.

The Design process uses the task requirements and performance information collected during analysis to specify the knowledge, skills and attitudes that will be provided in the training. Skill requirements (knowledge and practical) are defined for each task. By defining how individual

tasks are performed, they focus training development efforts and support task training and qualification.

Learning objectives are developed for groups of task-related knowledge and skills. These types of written statements define exactly when, what and how well the employee must perform during training.

Based on prior experience, lessons learned and instructional training, the most effective presentation methods are defined for the various sets of learning objectives (internal instructors, consultant and/or vendor instructors, community/technical colleges, employee self-paced, classroom, OJT, computer network, etc.). Tests are produced to ensure that these competencies are reliably evaluated. Together, these measures serve as the program design basis.

Decisions on the training setting, employee entry qualifications and organization or learning objectives also are made. The design process concludes when all the tools for development of a training program are defined.

Development organizes the instructional materials needed for employees to achieve the learning objectives. During the development phase, a review process by subject-matter experts that can include a table-top review, a written comment and revision cycle, and, if desired, a training pilot, is an important step. During the review process, critical input is essential to ensure that the training materials are clear, accurate and effective in addressing the desired objectives.

Instructor and employee activities are defined based on presentation methods. These activities describe how the instructor and employees will perform during training to achieve the learning objectives. Existing, suitable training materials and lesson plans are selected and new ones produced as required. The resulting training materials are reviewed for technical accuracy, tried out with a group of employees and revised as necessary. Performance-based training materials are the products of this phase.

Implementation is the process of putting training programs into operation. It begins by defining scheduling criteria and activating the training plan. Based on training delivery methods, instructors are selected and trained, and the availability of employees, facilities and resources is

confirmed and used to create the training program schedule.

Training is delivered as planned, and employee and instructor performance is evaluated. These evaluations serve two purposes:(1) to verify that employees have achieved the learning objectives; and (2) to identify and resolve any instructor performance and presentation method problems. Key records are maintained to support management information needs and to document the performance both of employees and instructors.

Evaluation encompasses two distinct areas: (1) ensuring training's continuing ability to produce qualified employees; and (2) measuring plant-related aspects, such as equipment reliability, production outages and production capacity. The latter area of evaluation is essential to monitor the effectiveness and the ROI in the training program.

By monitoring such indicators as employee job performance, plant and procedure changes and production/operating experience, evaluation metrics help maintain and improve the training program. It is the dynamic process of assessing performance, identifying concerns and initiating corrective actions. The program feedback it yields enables training to respond adaptively to unforeseen problems or changing conditions. Completing the evaluation phase and incorporating its results produces the performance data and feedback vital to any training systemÕs continued effectiveness.

Conclusion

Training must on target. In other words, it must meet the expectation of both management and employees. The ADDIE process outlined here is not new. ItÕs been used successfully for many years. In light of its proven track record, even now, it continues to be taught in colleges and universities.

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