

WHAT IS MISSING FROM ISO 9000 INTERNATIONAL QUALITY STANDARDS TRAINING IN THE UNITED STATES?

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Index: Quality Training, International Standards, Instructional Strategies

Abstract: Carnevale, Gainer and Villet (1991) observed that employers have too often used training approaches that failed to deliver “new knowledge in a context meaningful to the learner.” This conclusion was consistent with the results found in a recent study of 406 United States companies that used training to prepare their employees for registration to the ISO 9000 series of international quality assurance standards. The vast majority of companies failed to address employee learning needs, and used few research-based instructional strategies to enhance training transfer from workshop to shop floor. Companies rarely grouped employees by their ability to learn and infrequently used the instructional strategies of analogies, behavioral objectives, imagery, and practice and feedback.

More startling than the lackluster use of these instructional strategies were the results obtained for management commitment. Although workforce training was required by the ISO 9000 standards, and failure to meet this requirement would threaten the quality registration status of companies, there was a general lack of management commitment to training found in this nationwide survey.

This paper is important because it reveals many shortcomings of training practices by companies engaged in international trade and registered to the ISO 9000 standards. Furthermore, it suggests that grouping employees by their ability to learn may function to enhance the implementation of instructional strategies in such a way as to improve training transfer and reduce nonconformances against the international standards.

INTRODUCTION

Workforce training was required by the ISO 9000 Series of International Quality Assurance Standards. Although important, there were no formal inquiries found that described how companies met the training requirements of these European originated standards. Rather, numerous trade publications were found in a review of the literature that prescribed anecdotal, ad hoc practices that failed to exhibit theoretically sound, research informed instructional methods.

ISO 9000 trade books and magazine articles only reiterated the standard’s requirement for training. They did not inform training practices in a way meaningful to workforce training designers and learners. “Training” was defined “in a very broad sense,” and included “formal courses and seminars, in-house classroom instruction, in-house practical training, etc.”(Kanhholm, 1992). All employees were to be “educated” on ISO 9000 through repeated communications in a newsletter, instruction on how to deal with an auditor, and through multiple wall postings of the quality policy (Rabbit and Bergh, 1993). A “formal ISO training syllabus” was to be established, which was to outline training intended to be “not lengthy, just a good overview, supported by transparencies, covering basically what ISO 9000 was” (Johnson, 1993).

THE STUDY

To address this lack of formal inquiry, a random sample mail survey of all private sector organizational sites in the United States registered to the ISO 9000 series of standards from 1987 to 1997 was conducted (Krueger, 1999). From the sample of 736 company sites drawn, a total of 420 companies participated (57%) in this Fall 1997 survey, which surpassed the needed size of 368 company sites to be within $p < .05$ of the population proportion with a 95 percent level of confidence (Isaac and Michael, 1997). Of those 420 participants, 14 reported that no ISO 9000 training had been conducted, which left 406 remaining for analysis in this study.

The survey questionnaire had six-point ordinal scale measures of management commitment to training, employee learning needs, instructional strategies, and training transfer. Management commitment has been seen as a prerequisite to organizational change (Joshi, 1998), and provided favorability or unfavorability cues about training to workers. Time allowances for training served as cues (Tessmer and Richey, 1997), and were measured in this research in terms of workload reductions and production deadline extensions intended to compensate workers for time devoted to training.

Learning was seen as progressive (Gist, 1997), consequently, needs assessment of prerequisite knowledge, skills and abilities was considered an important precursor to new learning and the design of training programs (Goldstein, 1993). For the purposes of this study, the extent to which employees were separated into groups by their ability to learn was measured.

Instructional strategies that used analogies and imagery were cognitive approaches that viewed the learner as actively involved in the learning process. The learner “thinks” and has internal cognitive processes that functioned to mediate the receipt, transformation, storing, retrieval and use of information (Dembo, 1991). These compared with ones that were more behavioral in nature, including the use of behavioral objectives, and practice and feedback. In this latter case, the learner was viewed as passive and learning as a function of reward. Learning occurred when stimulus-response connections were rewarded, and transfer of this learning was facilitated when training conditions approximated the situation where they were used (Goldstein, 1993).

Indicators of near and far transfer, and the number of nonconformance citations by a third party auditor measured the outcomes of training. Near transfer occurred when the consequences of training routine, job-specific “how to do” skills were highly similar to the job situation for which they were intended. To measure this, companies were asked to report the extent to which trainees were able to implement specific ISO 9000 quality procedures after training. Far transfer occurred when the consequences of training non-routine, “how to think” methods were appropriate for the complex and constantly changing nature of the job situation for which they were intended (Clark, 1992). To measure far transfer, companies were asked to report the extent to which trainees were able to explain how the new ISO 9000 quality system worked for the overall organization.

RESULTS

Management commitment to ISO 9000 workforce training was measured using the two indicators of production deadlines and employee workloads. For comparison purposes, only the bipolar extremes of the scale were reported here. Specifically, 56.8% of company sites reported the production deadlines were never extended for employees in order to compensate for the time devoted to ISO 9000 training. This compared with only 2% of companies that always made these training accommodations. This tendency was similar for the indicator that measured the extent to which workloads of employees were reduced in order to compensate for training time. For this

measure of management commitment to training, 41.6% of company sites reported never to have reduced workloads, while only 3.2% always did.

Company sites were asked to report to what extent employees were separated into groups by their ability to learn. The vast majority of sites (82.3%) reported that they never separated their employees in terms of this measure of training needs assessment.

To further assess the effects of ability grouping, Spearman rho rank-order correlation statistics were calculated for those companies that always or frequently separated their employees by their ability to learn in comparison to those that sometimes or never did. The reduction in nonconformances associated with the training techniques of behavioral objectives (-.723), imagery (-.512), analogies (-.505), and practice and feedback (-.481) were not only statistically significant at the $p < .05$ level, but far exceeded the slight correlations obtained by those companies that reported to have never or sometimes separated employees by ability when using these instructional strategies (i.e., correlations ranging from -.109 to -.147).

Behavioral objectives as an approach were measured by the extent to which specific objectives were used to guide training; i.e., precise written statements of what the employee will be able to do as a result of training. Companies tended to cluster towards the never or sometimes end of the continuum 64.4% of the time, with only 5.7% of companies reported to have always used objectives to guide ISO 9000 training. Slight but statistically significant Spearman rho correlations were obtained, positively with near transfer (.177, $p < .01$) and far transfer (.235, $p < .01$), and negatively with the number of nonconformances (-.128, $p < .01$).

Imagery was measured in this study by the extent to which employees were given instructions to form a mental picture of the quality system, imagining how it works. Once again companies tended to cluster towards the never to sometimes end of the continuum 65.5% of the time, with only 6.4% reporting to have always used this cognitive instructional strategy. The slight but significant near (.143, $p < .01$) and far (.213, $p < .01$) correlations were also evident, except when employees were grouped by their ability to learn. In the case where companies reported that they always or frequently used ability grouping, near (.480, $p < .05$) and far (.655, $p < .01$) transfer increased markedly in their association with imagery.

Analogies, which compared the quality system to the common, every day life of employees, appeared more frequently in company training. Their use tended to cluster towards the middle of the scale, with 86.5% reporting in the sometimes to frequently range. Analogies obtained slight, significant correlations with near (.121, $p < .01$) and far (.228, $p < .01$) transfer, but a more pronounced correlation with near transfer (.459, $p < .05$) when ability grouping was frequent to always used.

Similar to analogies, practice and feedback occurred in training more often. They were measured by the extent to which employees practiced the new procedures during training and received feedback from trainers. Companies tended to cluster towards the middle of the distribution for this measure. They were significantly correlated with near (.278, $p < .01$) and far (.245, $p < .01$) transfer, but once again benefited when companies reported ability grouping. Separating employees by their ability to learn frequently to always resulted in an increased association between near (.638, $p < .01$) and far (.458, $p < .05$) transfer and the practice and feedback instructional strategy.

DISCUSSION

Grouping employees by their ability to learn appeared to be an important result to emerge from this study. Companies that reported this practice frequently to always obtained stronger, positive correlations between their instructional strategies and near and far transfer, than organizations that never or sometimes practiced this method. These results appeared consistent with the substantially larger negative correlations obtained between instructional strategies and the number of nonconformances cited against companies; i.e., increased ability grouping, when implementing instructional strategies, was associated with decreased nonconformance citations by third-party auditors.

Few companies used the instructional strategy of ability grouping and represent an area for concern. Unskilled and semi-skilled entry-level workers have not reached the levels of competency evidenced by skilled workers and professionals. Prerequisite knowledge and skills have served as precursors to advanced learning. Is it reasonable to expect a first grader placed with eighth graders to perform as well?

The commitment of management to the support of ISO 9000 workforce training, as measured by the production deadline and workload reduction indicators, was another serious concern. Comments appeared on several of the surveys that addressed this problem from the perspectives of the questionnaire respondents. ISO 9000 workforce training was “not initially looked at as favorable by management” and “still does not support it fully,” being “viewed as a unnecessary investment” that “was dictated by headquarters.” Some workers consequently saw ISO 9000 “as another flavor of the month activity.”

Of course caution should be exercised when interpreting these results. Some limitations may arise from the nature of correlational research, standardized surveys, cross-sectional designs, ordinal data, and the use of nonparametric statistics.

Correlation was not causation (McMillan, 1996). The statistically significant correlations reported in this study represented necessary but not sufficient conditions to establish cause-and-effect relationships between instructional strategies and training outcomes.

Standardized survey questionnaire items were limited to the extent that they were approximate indicators of training behavior, potentially simplifying complex phenomena for measurement purposes. Measurement was limited by the small number of measures that were standardized, largely closed-ended and quantitative (Babbie, 1998).

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