

Chapter 2

Principles of Scientific Management and Occupational Analysis

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ABSTRACT

As work has become more technical and analytical due to the increased availability of digital information technology, more team-based due to organizational restructuring, increasingly more customer oriented, has made the workforce more diverse, it is necessary and important to show our readers that both principles of scientific management and occupational analysis are driven by the predominant philosophy, behaviorism. Observed behaviors on the part of employees/or trainees in occupational analysis come from searching for the one best method of doing one's job (occupation). Once this one best way is identified, instructors or employers are responsible for training the employees by using the carefully selected science. Although other philosophies do affect occupational analysis, behaviorism coupled with principles of scientific management does remain the predominant guiding principle for occupational analysis.

2.1 INTRODUCTION

As soon as Taylor (1911) published his book on *Principles of Scientific Management*, his principles have been widely studied, borrowed and even applied in the field of Career and Technical Education (CTE). Taylor made the comparison between traditional management and scientific management. Regardless of which type of man-

agement, the principal object of management should be to secure the maximum prosperity for the employer, coupled with the maximum prosperity for each employee (Taylor, 1911, p. 9). While traditional management focuses on the work of the employees, scientific management focuses on the training and development of each individual in the establishment, so that employees can do (at their fastest pace and with the maximum of efficiency) the highest class of work for which their natural abilities fit them (Taylor, 1911, p. 12). Taylor's

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rationale has been although there are many ways of doing the same job, among the various methods and implements used in each element of each trade, there is always one method and one implement which is quicker and better than any of the rest. Further, this one best method and best implement can be discovered or developed through a scientific study and analysis of all of the methods and implements in use, together with accurate, minute, motion and time study (Taylor, 1911). Occupational analysis in CTE shares the same philosophy as principles of scientific management. Occupational analysis addresses standard procedures, narrow span of control, and specific job descriptions instituted to improve efficiency. A standard course is offered in almost every land-grant university, which deals with occupational analysis for students in the field of CTE. In this course, students learn to analyze occupations by breaking down tasks into steps of procedures. In most cases, students are required to use *Dictionary of Occupational Titles* issued by the Department of Labor to assist them in analyzing occupations in order to improve efficiency. The object in analyzing occupations is to emphasize conformity and predictability of employees' contributions to the organization. In doing so, employees are trained to look for structure, rules, and search for the one best way in order to maximize prosperity for both employers and employees. Critics (Berman, Bowman, West, & Van Wart, 2006) argue that principles of scientific management in relation to occupational analysis in CTE may impede achievement of quality performance with their narrow span of controlled job design in today's organizations where customization, innovation, autonomous work teams and empowerment are required (p. 11). Although there is some truth in this criticism, to institute efficiency, occupational analysis has to rely on principles of scientific management. The principles outlined by Taylor (1911) serve to guide occupational analysis in which employers and trainers (human resource

developers, instructional designers, learning specialists) should engage in doing the following:

- First, develop a science for each element of employees' work.
- Second, scientifically select and then train, teach, and develop the employee, whereas in the past employees chose their own work and trained themselves as best they could (prior to Industrial Revolution).
- Third, cooperate with the employees so as to ensure all of the work being done in accordance with the principles of the science which has been developed.
- Fourth, there is an almost equal division of the work and the responsibility between employers and employees. The employers take over all work for which they are better fitted than the employees, while in the past almost all of the work and the greater part of the responsibility were thrown upon the employees. (p. 37)

By following these principles, employers can find the one best way to improve efficiency. Although occupational analysis is changing from emphasis on functional, technical, job-related competencies to a broader range of skills, cross-functional training, and diagnostic, problem-solving capabilities, searching for the one best way (science) in occupational analysis has always had its place in CTE. Without looking for the science of doing one's job, functional, technical, job-related competencies cannot be guaranteed, let alone institute efficiency. Critics may have misunderstood what John Dewey said regarding the goal of CTE. Dewey (Wang & King, 2009) opposed CTE which was limited only to acquisition of job skills. He believed that the underlying principles of the work processes and social significance of work must be included. He further indicated that through vocational studies, culture should be made truly vital for many students (p. 12). From Dewey's analysis, it is obvious that

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