Knowledge as "quality non-conformance": A critical case study of ISO 9000 and adult education in the workplace.

Fred M. Schied
Pennsylvania State University

Vicki K. Carter
Pennsylvania State University

Judith A. Preston
Pennsylvania State University

Sharon L. Howell
Pennsylvania State University

See next page for additional authors

Author Information

Fred M. Schied, Vicki K. Carter, Judith A. Preston, and Sharon L. Howell

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Fred M. Schied, Vicki K. Carter, Judith A Preston, Shari L. Howell

The Pennsylvania State University

Abstract: This study examined the rationale behind the adoption of ISO 9000 standards and determined the ways in which knowledge was conceived and used. The study focused on the impact of the process seeking ISO 9000 registration and the way in which learning processes come to be defined as defective.

Introduction: Adult educators have increasingly become concerned with the ideological dimensions of learning in the workplace (Briton, 1996; Foley, 1994; Gowen, 1992; Hart, 1992; Howell, Preston, Schied & Carter, 1996; Kincheloe, 1995; Rubenson, 1992). Most of these concerns have focused on workplace learning conceptualized as a process of human resource development or, more recently, human performance technology. American businesses have turned to quality measurement processes which formalize and standardize the production of knowledge in the workplace. Interwoven within the various quality management movements and closely tied to so-called "postindustrial" forms of production, these processes, as certified by an international quality standards organization, view learning as part of production (Carter, 1994; Hunt, 1993; Rothwell, Sullivan & Mclean, 1995).

This paper is an overview of a larger ongoing study that examined the role of ISO 9000 in controlling and shaping learning and work processes in business and industry. These standards, identified as the 9000 series in the jargon of ISO, have become increasingly important and influential in shaping educational and training activities for American businesses. Literature suggests that especially for those businesses involved in international trade, ISO 9000 certification will become virtually mandatory early in the next century (Clements, 1993). Indeed, there is every reason to suspect that educational institutions will also begin to adopt ISO standards (Doherty, 1995; Tovey, 1994).

Methodology: Since space restrictions prevent a detailed discussion of the project's research design, this is necessarily a brief overview. The study was conducted over a two year period using ethnographic methods of participant observation, informal and formal interviews, and other unobtrusive methods of data collection. The research team first collected and analyzed primary corporation ISO documentation including training manuals, strategic planning documents, and ISO 9000 work procedures.

In line with Spradley (1980), the research team's participation ranged along the continuum of degrees of involvement and types of participation from moderate involvement and participation to high involvement and complete immersion. One research team member participated in the ISO training process and implementation over the total period of ISO registration. In a series of visits

to the plant, researchers conducted open-ended informal interviews on the shop floor. In-depth interviews based on phenomenological techniques were conducted off-site. Purposeful sampling was used to select the formal interviewees (Patton, 1990). Corporate documentation, interviews (both formal and informal) and participant observation provided researchers with a thick and rich description of the plant's climate and worker culture (Seidman, 1991). Taken together these sources provided a holistic picture of the working life at the company during the ISO 9000 registration process. Trustworthiness was ensured by source and analyst triangulation. Data were sorted, coded, and interpreted on an ongoing basis throughout the two year period (Kincheloe, 1991; Patton, 1990; Spradley, 1980).

ISO 9000 in the Global Context: ISO 9000 standards, from the Greek 'iso' meaning equal, were designed to equalize quality systems within multi-site organizations, multi-national corporations, and across national borders. ISO theoretically assisted in the pursuit of high quality products at low costs within a global economic structure. The assumptions behind these standards were that having one basic level of quality worldwide allowed for the interchangeability of parts for multiple vendors, keeping prices low and allowing for flexibility in manufacturing processes. Meeting ISO 9000 standards, it was assumed, meant that an organization, by listening to its customers, would achieve a high degree of customer satisfaction through uniform methods of quality assurance. The standards themselves focused on augmenting the level of quality delivered to customers while pursuing economic efficiency. Thus, if there were good quality assurance processes in place, good quality products would follow. Despite their origins in manufacturing, these standards are rapidly beginning to be applied to all types of non-manufacturing environments, including educational and training settings. (Frazer, 1992; Huyink & Westover, 1994; Stamatis, 1995; Taormina, 1996)

This quality standardization had its origins in World War II. Insights gleaned from failure of munitions and explosives amplified the problems of having different quality and production standards for similar products. Two decades later, the European Community, incorporated those lessons into international trade agreements. In 1987, the International Organization of Standardization , located in Switzerland, began to set industrial manufacturing standards for a minimal system of quality assurance that could be applied to trade world wide and released the first of the ISO registration requirements. Dealing with similar issues of quality, the United States adopted parallel standards created by the American National Standards Institute (ANSI) and the American Society for Quality Control (ASQC). (Lamprecht, 1993; Rabbit & Bergh, 1994)

The European Community justified conformity assessment as a means to ensure that products affecting health and safety that were placed on the market conformed to the requirements of member countries. ISO registration became essential for the seamless passage of goods across European borders. Therefore, contractual agreements between producers and suppliers became increasingly commonplace. To participate in the European marketplace, non-European countries have also begun seeking ISO registration (Hoyle, 1994).

Proponents of ISO 9000 claim that it is a neutral set of guidelines seeking to develop management systems that standardize quality assurance processes in the workplace. ISO standardizes by codifying how data related to quality assurance are collected and used to

improve processes, reliability, business protocols, and other quality characteristics. To become ISO registered, an organization must adhere to a three-tiered documentation process. Technical, administrative, and human factors affecting the quality of products and services are systematized so that management can document that it has control of all factors affecting quality. Systems must be oriented toward the reduction, elimination, and most importantly, prevention of quality non-conformance (Kantner, 1994; Lamprecht, 1992; Peach, 1995).

ISO 9000 in the Workplace: The study took place in a northeastern manufacturing firm of a multinational corporation. The 250 person workforce was composed primarily of line workers supported by a technical group with shift and administrative management, including a quality manager. In 1992 as a part of the corporate business plan to increase trade with the EC, the company began an initiative to achieve ISO 9000 registration. The corporate leadership introduced all workers to the ISO 9000 initiative with a brief fifteen minute overview. Workers in the plant were responsible for producing level 3 work task procedures. ISO 9000 processes required level 1 documentation to describe corporate goals, level 2 to describe corporate policies and procedures, and level 3 to define work tasks in support of corporate goals, policies and procedures.

After a pre-audit, workers from all functional areas of the plant were given ten hours training on how to write standard operating instructions. Then the trained workers went back to their respective areas to codify work activities and turn them into written procedures able to be followed by new employees. ISO 9000 standards demanded that these procedures be simple, sequential, and written in a transparent manner. Ultimately through a consensual process, a single SOI was agreed upon because ISO 9000 required conformance to a single protocol for each of nearly 600 quality related tasks. The quality manager's directions to workers were, "Do what you say and say what you do."

ISO 9000's purpose was to achieve a uniform protocol reflecting how work was actually done. In reality workers composed procedures based on perceived management expectations and the templates provided by ISO 9000. For example, if workers had developed shortcuts or more efficient ways of working, these were not described because as one worker said, "it was not the way jobs were *officially* performed." Thus where ISO 9000 demanded a single way to do a task, there were many ways individual workers and different shifts *actually* did their work. Moreover, in trying to achieve consensus researchers found that decisions were made outside of the group, sometimes by the loudest voice, and only occasionally within the group.

ISO 9000 required that workers who performed quality related tasks had documentation that demonstrated they were capable of performing a task. In this case, plant trainers certified workers on the SOIs by asking questions and observing performance. Certification became a condition of employment. The two year ISO 9000 registration process concluded with a week-long review by outside auditors who announced they would recommend registration. Immediately management began a discussion on how to use ISO registration as a marketing tool.

The Irony of ISO: For line workers, there was tremendous resistance to giving up their own protocols for getting their jobs done and conforming to sterile processes. Thus for the purposes of certification they would perform the task as expected by the trainer and as specified by the

procedure. However, based on the research team's observations, workers continued to perform tasks in their own improvised fashion. In fact one worker held out an SOI to a researcher, laughed and said, "Take a look at this, nobody follows these." Following procedures implied that workers knowledge became subjugated knowledge and needed to be purged from the workers cultural memory in favor of the ISO structure. When writing SOIs, workers were rigid and precise about noting every single motion, but were extremely resistant to following these procedures once written. Workers were often unable to articulate what they were actually doing because it was a foreign way of thinking about their job and because they became mired in the minutiae of the task. For example a worker with a strong quality assurance background had a hard time seeing her job as being linear or as a series of non-integrated mini-tasks. Similar to what Gowen (1992) found in her research, many workers saw their jobs holistically. ISO 9000 attempted to purge workers' way of looking at work from their personal repertoire in seeking conformance to standards.

Many technical workers, supervisory personnel, and middle managers also resisted. They expressed anger at having to be responsible for codifying procedures. They felt the ISO process interfered with real work. Whole technical areas wrote only write five or six procedures. Researchers discovered that some of the documentation, especially among the technical and supervisory personnel, was conjured up to eliminate the need to document complex problem solving skills that were not linear or sequential.

Workers told researchers that they were afraid of being watched by co-workers, supervisors, and internal quality auditors, and of losing their jobs. Thus their jobs became stage performances when workers thought they might be under observation. Much information about ISO processes had to be kept at the tips of their fingers and at the tips of their tongues. Lower level workers were particularly vulnerable to blame and subject to dismissal if something went wrong. Workers now became the keepers of standardized knowledge as well as their own unsanctioned ways of working. This was the knowledge and language of work they were reluctant to reveal during the period when job tasks were being codified.

The company's successful ISO 9000 registration was imbued with touches of irony. For example, line workers said, "I am continuing to do my job just the way I always did it. This is just window dressing." Even the plant manager spoke to this perception of ISO 9000 as window dressing by saying, "Now that we have this crap under our belt we can get down to doing the real work."

Conclusions: So what has ISO 9000 accomplished? For the company, the need to achieve ISO 9000 registration was driven by more than legal and customer requirements. It was used to clarify and advertise organizational goals by complying with internationally recognized standards that purport to identify elements of a successful quality organization. Conformity within industries also makes it easier to market products and reduces trade barriers dealing with issues of safety, communication protocols and quality standards.

In the quest to reduce product defects, the ISO 9000 registration procedure attempted to wholly integrate learning and knowledge into the production process while protecting the interests of management. Though not successful, ISO 9000 sought to formalize and appropriate worker

knowledge. Thus in this quality standardization process, knowledge itself became a way to oppress and control workers. Anything outside the narrowly defined standards was considered a quality non-conformance whether it be process, procedures, or people. As Tovey has noted, "by starting with a broad meaningless notion like non-conforming product, a tendency towards de-humanising the situation is largely unavoidable" (1994, p. 73-74). Further, the study demonstrated the increasing tendency toward multinational standardization of workplace education through the ISO 9000 process. The ISO 9000 process made workers assessable, measurable, comparable, and able to be judged against international standards of "quality" as defined by corporate interests.

This study contributes to the growing critique of workplace education conceived as human resource development and human performance technology (Briton, 1996; Cunningham, 1993; Foley, 1993; Wilkinson & Willmott, 1995). The study suggests that understanding how adult education in the workplace is connected to a systematized management scheme involving psychological forms of control is under theorized. Finally, the study suggests that education in the workplace is moving towards an international standardization based on corporate notions of quality that promises to become the next wave in training and development.

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