

# Industrial Technology Pedagogy: Need for Human Relations Skills

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## INTRODUCTION

Interpersonal relationships and communication are always developed in a specific cultural context that has its own values, norms, and even institutions to cope with different types and levels of interpersonal relationships (Mamali, 1996, p. 217).

Since the dawn of mankind, what separates man from beast is man's ability to use and develop tools and technology. The use of technology has become so prevalent that it permeates all aspects of our lives, schools, business, and our personal lives. Businesses especially have to broaden and improve their technological skills in order to survive in technology-dependant environments.

The field of industrial technology originated and was influenced by the increase in demand for technology in businesses and the lack of knowledge graduates had to perform business-oriented tasks. It was during the 1950s that these graduates began taking on industrial management jobs. Zargari and Coddington (1999) said that:

*Technological developments in industries created new occupations that required a balance between management knowledge and technical skills. This has become the technical-management profession, "management" jobs with a decidedly "technical" nature. The discipline of IT was established to meet the needs of business and industry for employees who could use the complex tools of production and at the same time, were able to manage personnel and facilities. (p. 2)*

The knowledge that graduates had was not sufficient enough for them to maintain proper work ethics and aid in the development of business or industry. Industrial technology prepared students for management-oriented positions in technology, operation of technological systems, and the maintenance of those systems. Industrial technology pedagogy is a vast field

that includes a variety of courses such as electronics, safety, maintenance, and management. Although it is important for the students to have a hands-on approach in a business environment, they should also be familiar with the softer skills of that environment referred to as human relation skills. Thus, human relations skills should also be an inherent in industrial technology pedagogy. This will ensure that students possess the pertinent hard skills, that is, hands-on approach to solving a problem and the softer skills such as the ability to communicate with their coworkers and work together in a team environment. Businesses and industries alike are not only looking for individuals who have the ability to perform hands-on tasks but also the ability to communicate effectively with their managers, supervisors, and coworkers. Moreover, individuals need to possess the interpersonal skills to excel in the workplace.

## BACKGROUND

Technology is defined in the Merriam-Webster dictionary as "the study, development, and application of devices, machines, and techniques for manufacturing and productive processes" (Merriam-Webster's Collegiate Dictionary, 2005). Since its outset, technology has taken on several different roles in history, from the first markings of the cave man to the Industrial Revolution to the creation and use of the World Wide Web. Technology education in the United States is presumed to have been founded in the early twentieth century as *industrial arts*, but there are historic roots that date the field back much further than that. Industrial arts can be depicted as an extension of those founding roots as opposed to a philosophical convergence of them. It was Lois Coffey Mossman and Frederic Gordon Bonser who had the "greatest influence on the origins of what is now known as technology education" (Foster, 1995, p. 6). Industrial arts evolved from the term manual training. Manual training had a threefold purpose in the

nineteenth century, its objectives were to “keep boys in school,” “provide vocational skills,” and “develop leisure-time interests” (Gerbracht & Babcock, 1969, p. 8). Manual training later grew to include objectives that incorporated instruction in the fundamental principles, processes, and materials of industry. Over the years, Americans began to take a “learning by doing approach” (Butts, 1955, p. 574). Industrial education/arts focused on the idea that children needed to learn about technologies for personal and commercial use to prepare them for a technology-driven society. This led to an increase in graduates taking on industrial management jobs; however, it became evident that possessing knowledge in industrial arts was not sufficient in helping to excel in the workplace; having this signified the beginning of what is now referred as industrial technology. While industrial arts programs concentrated on technology and psychology, industrial technology programs united the facets of technology and management. Industrial technology is defined as “a field of study designed to prepare technical and/or management oriented professionals for employment in business, industry, education, and government” (NAIT, 1997, p. 1). Industrial technology integrated the features of industrial arts, but married the technological and managerial skills to accommodate the needs of industry. Moreover, “Industrial Technology is primarily involved with the management, operation, and maintenance of complex technological systems” (Michigan Tech, School of Technology, n.d.). Accordingly, the focus of industrial technology pedagogy is to prepare individuals to be managers who are equipped with technological skills to operate and maintain complex machinery. However, industrial technology ignored the human side of management. Managers are constantly communicating with their employees, and having the right communication skills is imperative. “Human relation is the study of the interactions that exist between people. These relationships, both formal and informal, occur both in our personal and our work lives” (DeCenzo & Silhanek, 2002). Similarly, Lamberton and Minor-Evans (2002) provide a more robust description of human relations and its role in industry:

*Human relations includes a desire to understand others, their needs and weaknesses and their talents and abilities. For everyone in a workplace setting, human relations also involves an understanding of how people*

*work together in groups, satisfying both individual needs and group objectives. If an organization is to succeed, the relationship among the people in the organization must be monitored and maintained (p. 4).*

Understanding others enables you to be able to communicate with them better. In business you may be partnered with someone in a group who is not comfortable being in that setting but if you communicate with them, you may find out a way to be productive in a way that contributes to the organization. Although human relation is a skill that needs to be addressed in industrial technology, the importance of industrial technology should not be overlooked. As mentioned before, industrial technology is an area of study designed to teach both technical and management skills. It prepares managerial professionals for employment in business, industry, education, and government.

In sum, industrial technology originated out of the concept of manual training for the reasons that manual training did not provide students with the necessary skill to excel in the workplace. Manual training provided the students no concept of how important it was for them to understand what they were doing. Manual training also did not provide any type of organizational structure. The students were in a dictator type of environment; expressing yourself in manual training was not encouraged; neither was the concept of initiative. The product was the only thing that manual training was concerned with. Industrial technology looked at the student as the product; how that student could be a productive individual to the workforce and to society. Industrial technology allowed the students to express themselves freely and explore the creative side of their minds.

### **Key Skills the Learner Will Acquire from Industrial Technology Pedagogy**

Manual training was a concept that was great during its time, but educators needed to change its pedagogical approach. Manual training dealt with allowing the student to learn strictly from a hands-on approach. It did not focus on the student, just the end result. There were flaws with the concept of manual training and Lois Mossman and Frederic Bonser (1923) listed several components of manual training, which they criticized by investigating the courses proposed and taught in their schools. The following shows these

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