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The Importance of Scientific Management

by

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This study examines the importance of scientific management in the public work sector. According to Finn Borum (1980), who studies system designs and scientific management, scientific management is attributed to Frederick Winslow Taylor, an American engineer, who “worked on promoting efficiency in manufacturing enterprises around the turn of the century” (p. 288). Scientific management is sometimes referred to as Taylorism; it is a philosophical system of testing and analyzing techniques used to increase the productivity of an organization. This study identifies the characteristics of scientific management and explains how they help public organizations to complete tasks. Using qualitative methods in analyzing the content from various academic authors, this paper reveals various aspects of scientific management that are beneficial for efficiency in the administration of public personnel.

Introduction

In order to truly understand principles of scientific management, it would be prudent to dissect the original source from which the foundation of scientific management was laid. This foundation would come from essays of Frederick W. Taylor published in 1911. Taylor (1911) argues that scientific management is held up by “clearly defined, laws, rules, and principles.” Taylor continues by asserting that these principles can be applied to managing homes, farms, businesses, churches, universities, various non-profit organizations, and government agencies. Taylor wrote that the principles can be applied to all social activities. This is confirmed by Mauro F. Guillen (1997) in his study of the aesthetic attributes of scientific management. He writes,

while a group of notorious engineers active at the turn of the century provided a set of methods and metaphors to make organizational practices more “systematic” and “scientific,” an equally prominent group of social and political reformers known as the Progressives extended the same set of principles to education, the government, and culture (p. 682).

Guillen’s study described how Taylor’s methods were used in the realm of architecture which denotes the many avenues in which Taylor’s principles may be used. Scientific management, then, became the standard within public administration and in turn the standard for the human resource management of personnel. Managers could then increase the efficiency of public agencies to better serve clients in the same manner as was used in private companies in the generation of revenue.

Efficiency

In his essay, Taylor (1911) focused on the issue of the lack of efficiency within the work environment. He stated that many of life’s resources are wasted, such as the forest, the soil, coal and so forth, but he emphasized that the greatest of life’s wasted resources comes from inefficiencies in human effort through actions that are poorly managed. Taylor adds that the tangible resources are easily noticed, but the waste in human effort is less salient. This appears to be true in that when problems arise due to a lack of goods, it is identifiable because it can be measured, but the measuring efficiency may be an intricate process all together. First, one would have to define efficiency and then develop methods of measuring the concept. In his description of efficiency, Taylor equates the concept with prosperity and goes about various different ways to define it. A concise definition of efficiency using the description given by Taylor would be using the least amount of input (natural resources, human effort, and cost of capital) to produce the greatest amount of output. In a business, this output would normally be a product for sale, and in government, this would most likely be services to the public. The public manager who could use the least amount of government resources through efficiently managing personnel, according to Taylor, would be securing that maximum amount of prosperity for the employer and the employee in the organization. Employees would need to learn how to work efficiently

Recruitment and Training

This brings the discussion to the next principle in scientific management: selecting and training employees for efficiency. In a discussion on human resource practices in state

government, Sally C. Seldon, Patricia W. Ingraham, and Willow Jacobson (2001) write, “the selection process is one of the most critical human resource functions because it supplies persons with specific knowledge skills and abilities needed to perform public services.” (p. 602). They discuss how various states have authorized the generation of certified hiring lists to increase the pool of applicants for management. The state may provide a list of qualified applicants and the agency would be responsible for screening applicants. This shows the level of attention put into finding eligible candidates for certain positions in an organization. It denotes that agencies are looking for applicants who fit the criteria of certain positions. One may question the criteria used by the state to determine which candidates are eligible. These requirements may include level of education, level of prior work experience, lack of criminal convictions etc. The problem here is that many applicants may not have the experience for which agencies are looking, which could have the effect of severely limiting the amount of qualified workers to handle various tasks, inadvertently leaving positions vacant for prolonged periods of time. It would be the responsibility of the agency to find the most suitable applicant to teach other applicants how to perform certain tasks. This involves finding managers who have the ability to teach others.

In a study of the work environment and social change in Scandinavia, Bertill Gardell and Bjorn Gustavsen (1980) report that Taylorism marked the impetus for the human relations movement in which, “training, personnel selection, and leadership styles were made core issues” (p. 5). They add that since the introduction of Taylorism, psychologist even

began to conduct studies to understand what conditions will best suit and motivate employees to work more efficiently. This is because it was realized that there is no perfect worker, but the worker must be studied and guided to produce the greatest possible results that can be achieved. Taylor argues early on in his essay that many are in search for ready-made competent people to best serve the organizations. Taylor (1911) writes,

It is only when we realize that our duty, as well as our opportunity, lies in systematically cooperating to train and to make this competent man, instead of hunting for a man whom some one else has trained, that we shall be on the road to national efficiency.

Taylor does not simply mean training each individual to perform tasks that require a high level of expertise, but that workers should be trained in simple tasks and organized to cooperate. Many would refer to this as an assembly line type of management where labor is divided into various categories. This is popularly known as classification. Classification is a method that became popular in government by redefining the way looking at work. In a study of managing positions, Albert p. Ingraham and Carl F. Lutz (1974) assert that the focus began to be placed on the position and not the person performing the position. They state that, “the distinction between position and incumbent extends to the point where a position can exist as a vacancy without an incumbent [and an] incumbent has no place in an organization where there is no position available” (p. 14-15). More attention is given to the task being performed. Classification may be effective when it comes to studying functions and separating

tasks, but critics argue that the downfall to this process is the impersonal approach associated with it. It does not take into consideration the effect that the people and their work culture have on the tasks being performed. If morale is low, unions are formed, and workers may strike. If wages are too low, workers may strike, and if there are insufficient benefits, workers may strike. In all of these situations, work is not being performed and services are not being offered to the public. This, eventually, will focus the public eye on the agency and the managers responsible will be held accountable for their abuse of personnel and perhaps be terminated to be replaced with managers who can better handle the task of managing personnel. Even with classification, Taylor (1911) has found problems that contribute to inefficiency among workers. He terms the problem as “soldiering”. This is when workers will do the least amount of work as possible in fear of running out of work, to avoid resentment from others who have a tendency to work less efficiently, and because workers fear that if supervisors discover the maximum potential of their work capabilities, workers will be compelled to work more for no increase in wages. Many of these fears may lie in the work culture of an organization and because they exist, productivity can be hindered. It is the duty of management to dispel these myths by educating personnel on how increased productivity will lead to an increase of wages and benefit the organization as a whole. In addition, managers need to use various principles in order to gain compliance among workers.

In identifying the problems that hinder efficiency, Taylor has included various solutions in his argument that may be used to increase

productivity. Performance evaluation for example helps management to ascertain how much work can actually be done by each worker. Taylor (1911) declares,

when accurate records are kept of the amount of work done by each man and of his efficiency, and then each man's wages are raised as he improves, and those who fail to rise to a certain standard are discharged and a fresh supply of carefully selected men are given work in their places, both natural loafing and systematic soldiering are largely broken up.

This would dispel the myth that if workers increase productivity, they will be made to work more for lower wages. It may also increase morale by workers motivating others to work more instead of less because they are paid by results and not merely for the simple labor in general. In his study of organizational culture, Oswald Jones (2000) avows, “workers have always sought to improve the efficiency of their jobs thereby enabling them to increase their earning” (p. 632) This denotes workers are driven by monetary incentives, and the more money offered to an individual, the harder he or she will work to ensure that rewards are gained. Because of this, employers should make sure to compensate employees to satisfy their needs and perhaps even desired luxuries. As the cost of living rises, so should the wages of personnel. This should also keep employees loyal to the agency and deter leaving to work for competitors.

Another important principle Taylor (1911) introduces involves studying the *modus operandi*: the method of operation. Taylor claims eliminating procedures that are labor

intensive and time consuming and substituting them for techniques that are more efficient, productivity will increase. The process involves scientifically analyzing the many different methods used to accomplish a task in a time study of motions. This may involve various approaches which involve closely monitoring workers in progress. According to Sharon Corwin (2004), “workers were surveyed and timed by engineers with stopwatches in order to determine the most efficient manner of carrying out a task” (p. 139). During these tests, the workers were told what to do, and each motion was recorded down to the minute. This not only may work in engineering organizations but in government bureaucracies as well. If, for example, the Social Security Administration wants to increase the amount of clients served, employees can be surveyed to find out what issues and concerns come up most frequently, what the majority of the procedures entail throughout the day, and what information is recorded from the client. The employees may be timed in these various areas to see how much time is required and needs to be expended in each situation. The managers may then develop solutions to increase the amount of clients handled by separating the duties into categories concerning the various issues brought up by the clients. Managers may delegate the task of answering general questions to one employee, the task of entering client information into database to another worker, and another task of processing the data for the allocation of benefits to another employee. By dividing the labor, the amount of clients served would increase.

Hierarchy and Management Style

Taylor (1911) briefly touches on a concept what many would refer to as a hierarchy in that there is a division of the amount of

responsibility a person should have depending on the amount of education they hold. In a study of scientific management in practice, C. Bertrand Thompson (1915) discusses the responsibility of planning in relation to managers. Thompson states the responsibility of management is that of

“ functional foremanship," by which such details of administration as determination of the sequence of operations, machines, tools and methods to be used, time to be taken, relative importance of orders, recording of operations, instruction of workmen, moving of materials and maintenance of equipment and tools, are the special functions of separate foremen, each of whom is responsible for the proper handling of his detail with reference to a varying number of men, and all of whom bring to bear their specialized knowledge on each man (p. 271).

These duties require that those in management contain a high level of sophistication, education, and leadership skills to effectively coordinate the various task associated with the management of personnel. It is the manager who has replaced the role of the expert in that he or she must have complete knowledge of the functions to be performed by subordinates and be able to train personnel in the most efficient method of performing certain tasks. The manager must also know the strengths and weaknesses of employees to best decide where they should be placed and what duties they should be assigned. Thompson makes mention of another theorist, Harrington Emerson, who made improvements in the realm of efficient management. His description of management duties solidifies the

hierarchical structure of an organization. According to Thompson, Emerson differs by organizing administrators who give expert advice concerning the most efficient method of production in a category called “staff”, the managers who take this information and use it on workers in a category called “line” and the lowest level of subordinates as “operators.” Employees with advanced levels of education would be staff, employees with intermediate levels of education would be line, and those with minimal levels of education and skills would be operators. This is the hierarchy according to Emerson.

Taylor (1911) declares the average worker may not comprehend the scientific methods under which they work, so those in the position of management should guide workers to progress under the system in place. Taylor adds that managers should set the example by initiating work assignments and handing them off to their subordinates, working side by side to increase interaction and rapport between management and personnel. This method dissuades those who may try to influence co-workers to procrastinate because the direct presence of management. It may also help personnel to identify more with the organization for which they work. Oswald Jones (2000) affirms the human resource management objective is to create a work culture where the commitment of employees is developed through strong organizational identification. If the employee has a sense of belonging within the workplace, he or she is more likely to want to do what is best for the organization. The employee would feel that what is best for the agency is best for him or her and vice versa. As equally important, this would increase the retention of employees. Retention is essential

because agencies lose invested time and money but into training new employees when retention is low.

In a study of management style and retention in labor, Ian Taplin and Jonathan Winterton (2007) found most of the reasons workers stay committed to their organizations pertain to age, level of skill, pay, working conditions, job satisfaction, working conditions and social atmosphere. They assert that younger workers are more likely to quit than older workers are, and there is not much management can do about this. Giving employees greater discretion in the way they are orchestrated may also have benefits to management. Taplin and Winterton add retention of workers is also related to the amount of control workers have over their work hours. In addition, they confirm, as was alluded to by Taylor, that the more information the worker has about the organization and his or her role in relation to the management, the more likely it is that he or she will identify with and commit to the organization. This would mean managers would need to open up a clear line of communication and constantly update the operators on the progress of the agency and receive feedback as well. Some may say that this is not scientific management, but it is the science of management to find out what it is that works best, whether that be running the workplace in a purely impersonal style of operation or taking work culture into consideration by creating work ethics based on Total Quality Management where workers have an equal share of information and control of what policies are put into place concerning the operation of the agency.

Conclusion

The importance of scientific management becomes evident when considering the effect it has in the workplace. This study has discussed how scientific management has been used to solve the problem of wasted human effort. Scientific management, in its attempt to promote efficiency in the workplace, becomes important to offer the greatest amount of service to the public in the least amount of time while expending the least amount of resources.

This study has showed that scientific management identifies the importance of performance evaluation in that it brings about the discovery of the most productive methods of personnel operation. Scientific management was showed supporting the study of motions, positions, and task for classification to expedite the process of production.

This study has reported the importance of using scientific management in training individuals to perform efficiently as opposed to searching for individuals who are already experienced. The discussion has included that the principle of scientific management to hire managers who can direct subordinates efficiently and effectively while establishing rapport is critical to the organization. Scientific management has been depicted as increasing positive relationships between management and subordinate personnel, which implies that scientific management sets the foundation for Total Quality Management.

Scientific management shows the importance of educating personnel and paying them well to encourage efficiency and increasing retention. Focus was drawn to the importance of hierarchy for the best approach of developing and implementing policy, having competent leaders to guide subordinates.

In summary, scientific management, by developing methods to promote efficiency, is important to the management of personnel in the public sector because it better serves the needs of the agencies, management, subordinate personnel, and the public client, but expediting the amount of goods and services offered.