

Influence taylor's scientific management theory



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Introduction

The modern world has been marked by specialized management that is characterized by effective planning methods in order to attain certain objectives, division of labor which has served to increase specializations and innovations in work places, and a formalized interaction between the employees and their managers in their work places. These formal manifestations can be attributed to the twentieth century from the works of Taylor who came up with the concepts of scientific management. Taylor has been accorded the legacy as the founder of scientific management principles. He was a mechanical engineer and his works served to provide efficiency in the management of industries which at the time had no formal management and were characterized by various anomalies (Taylor, 1911, p. 64). The workers came up with their own decisions on how the tasks were going to be accomplished in the factories. This was however changed by Taylor through development of scientific management. He sought to improve the worker's productivity in their areas of work.

At various times he was criticized for destroying the worker's morale and turning them into machines. This went to an extent of workers downing their tools at Watertown Arsenal which led to the House of Representatives Committee conducting an investigation into his works so as to establish the truth. It was concluded that his concepts of scientific management were a good tool for the management of organizations but at the same time offered the managers with increased power which had no checks and balances. This led to the ban of his concepts of scientific management by the Senate at that time. This was after a survey showing that his methods received a high level

of hatred from the working population. The survey showed that scientific management did not put into consideration the workers' social needs in their areas of work and it failed to appreciate the differences that existed between the working populations in any industry. In addition, the scientific management concepts viewed the workers as ignorant and therefore did not take into consideration their contributions in terms of work related suggestions and ideas (Taylor, 1911, p. 65). However, after various improvements into these concepts it has come to be productive in the present day running of organizations. This essay discusses the Taylor's scientific management and how it has influenced the modern day business practices.

Historical origins of scientific management

The 19th century factory system manifested itself in lack of formal management, unofficial relations among the workers and even with their employers and casual jobs with no formal arrangements where the leader just hired a group of men in the industries and could fire them if he deemed it fit due to their inability to work or for not following his directions. A need arose by the late decade of the 19th century as competitions between different factories went into the rise, emergence of improved technologies in the factories and formations of trade unions that pressurized the factories to improve the working conditions of workers in the factories or risk industrial actions against them. The government had also realized the efforts in the factories and wanted to reap maximum benefits (Taylor, 1911, p. 12). This therefore called for improvements in the organization and management of these institutions. This was the period that Taylor established himself with

his novel ideas of organizational management and various technical innovations. For instance, he devised a stopwatch that was used for timing the workers during the working hours so as to determine their best possible times.

Taylor had a brief career in engineering after which he went into consultancy services for various industries. He vigorously advocated the application of systematic management by the factory managers (Taylor, 1911, p. 17). He introduced time studies to measure the worker's performance, piece-rate systems that served to instill obedience in the workers and other production systems that provided the managers with the capability of knowing what was happening on the ground. He diffused his thoughts and coined the term "scientific management" which was somehow metaphorical. He proposed that he had invented principles of management that could be applied universally to replace what was known as the "rule of thumb" methods. His book became a success and was embraced by many during those times. This period of development of scientific management became known as the progressive era in the US (1890-1920). It was a period that had many reforms which were meant to overcome the problems that had been created by the just ended industrial revolution. This era also experienced its problems. Among them was; lack of formal training for the business leaders in ways of running the day to day activities of their institutions and workers performed their duties due to internal fears of imminent job losses as a result an increase in the industrial output or due to inefficient management systems in the organizations (Taylor, 1911, p. 4). This resulted to poor relationships between the workers and their employers which ultimately

caused a reduction in the efficiency in the industries. The then president of the US, Roosevelt even went further to call on the factories to increase their efficiency in production so as to be at par or ahead with other competing nations. This ultimately led to emergence of the scientific management movement.

Taylor and scientific management movement

After his works at Philadelphia, Taylor moved to Bethlehem Company which dealt with steel and continued exploring his ideas. He was not alone in proposing the scientific management but there were other players who set in to streamline the concepts. For instance, according to Shenhav (1999, p. 94), there was Brandeis who was an attorney and later became a Supreme Court justice. Later there were others like Frank and Gilbreth who were able to conduct studies on the human motion while doing work with an intention of finding ways that could add to increase workers' efficiency during working hours.

Taylor's principles of scientific management

After systematic analysis of his experimental works, Taylor came up with four principles which lay the foundation for scientific management. The first involved finding an alternative method to take over the "rule of thumb" practices of management. The alternative was to be scientific and would provide a chance for the managers to be in a position to analyze the problem facing management in their organizations. The use of a scientific approach was to put into use the systematic experiments. He believed the application of these experiments would come up with a solution to the problems faced in management and during the process of production. According to Locke

(1982, p. 50), Taylor has received acclaimed fame for his ideas that a scientific approach can be applied in the process of managerial decision making. The second principle involved scientifically selecting, offering training sessions and providing work development to each worker. This was as opposed to the former methods that involved disorganized management and leaving the workers to rule themselves as well as train themselves on various duties in the factories.

By application of this principle, Taylor noted that the highly qualified person will occupy the top positions in the organizations and thus will lead the others in a systematic and efficient manner. By application of systematic management, a payment system was developed that considered the amount of output the worker had as well as the worker's efficiency in production of quality goods and services. This principle increased efficiency in work places and improved the system of management. The third principle involved the managers developing formal working relations through establishing teamwork to ensure that the methods developed scientifically were being adhered to by the work force. To develop this principle, Taylor measured the workers performance with stop watch and motion studies in order to come up with an efficient process that would lead to accomplishments of the work tasks in good time. His experiments were crucial in determining the quantity of work that a hard working man could perform in a day (Taylor, 1911, p. 23). This was to do away with the tendency of workers to perform their duties slowly in the factories. His experiments would indicate the standards that are to be achieved by the workers so as to increase performance.

The fourth and final principle involved ensuring equal division of work between managers and their employees. By so doing, the managers would utilize the principles of scientific management in the planning of duties in their organizations while the workers on their side would actualize the duties in a timely manner. It is worth noting that these principles were put into use in various factories across the world. Their application usually had a positive effect by enhancing their productivity by three or more times. Taylor had a strong belief that scientific management would enhance the efficiency in the industries which would then lead to increased wages, production of low cost products and thus improved standards of living for the employees and their families. However, his ideas did not go well with the trade unions which were on the rise during those times to fight for the rights of the factory workers. Due to this, its influence was lowered until the end of the First World War when it picked up. According to Shenav (1999, p. 68), engineers in the Ford industry were able to standardize their job routines being guided by the principles of scientific management. They were able to increase their production and the Ford gained recognition all over the US for its production of quality motor vehicles.

Taylor's scientific management had a big influence to the development present day management theories. His ideas influenced two fields of management which are the human resource management sector and the accounting departments within an organization. He contributed to cost accounting procedures in the manufacturing industries. While working at Simonds Company he formulated a system of accounting for the company. Later on he perfected his methods coming up with a standardized costing

technique for railroad systems. His ideas formed a foundation for development of techniques for budget control in any organization so as to ensure a free flow of cash for production costs and for payment of wages and salaries. This ensured an improved management in these industries. The second and third principles of the scientific management as discussed above influenced development of human resource management. Other scholars followed these principles to come up with various aspects of human resource like managing by objectives by Drucker which can be traced to the Taylor's application of the differential piece rate systems to ensure workers efficiency (Shenhav, 1999, p. 34). Taylor receives attribute even to the teaching and development of management courses. He lectured on management at Harvard, therefore shaping the minds of future business owners and managers who apply his teachings up to the present day world.

Criticisms of scientific management

Despite scientific management improving production even up to three times, it also had its own setbacks. It was accused to have led to monotony of worker lead to workers being bored at many times. The concepts also perceived man as a machine that achieved maximum satisfaction through monetary rewards (Locke, 1982, p. 35). His rate cutting ideas could as well be utilized by cruel managers to mistreat their employees without many benefits to them. There was an up rise against scientific management by workers leading to strikes. As a result, parts of it like the use of stop watches by the managers to time their workers were banned.

Scientific management and its influence on modern day business practices

Taylor was of the view that employees needed to be supervised at all times to ensure that they fully performed their tasks and productivity of the factories went on the rise. His critics however disapproved the idea of taking the workers to be like machines without psychological feelings. The disapproved the idea that human ambitions are highly motivated by the rewards they receive in form of wages. To prove their point, the critics developed what is termed as organizational behavior that was meant to counter the ideas of Taylor. This took place in the 1930s after experiments were carried out to determine what really influenced the workers' morale and their efficiency in production. The Hawthorne experiments proved otherwise from what Taylor had postulated. In one specific case, a study was conducted to find out what increased the productivity of workers in the Hawthorne Works factory (Locke, 1982, p. 70). It was noted that an increase in lighting in the workshops was able to have an increase in productivity as workers did their work in well lit areas. The negative had been hypothesized to be true but unfortunately it was not. This left questions unanswered on what really caused the increase in productivity.

Left with no other options, the experimenters had to seek technical aid from Harvard University where various professionals turned up. The group consisted of sociologists, psychologists who were headed by the famous clinical psychologist Mayo Elton and anthropologists. These specialists were able to conclude that what led to the increase in production was due to the presence of supervisors throughout the period the studies were being carried

out. This observation became to be known as the Hawthorne effect and it was significant to human relations in work places and led to improvement of the study of organizational behavior (Wren, 2005, p. 279). Various other studies have been carried out after Hawthorne experiments to try and discover the real factor behind human motivation. In other experiments, McGregor postulated a theory commonly referred to as Theory X and Theory Y to distinguish between the factors influencing human motivation. According to Theory X, the workers got their motivation from rewards in terms of money that they received after the job they had done while Theory Y observed that men get their motivations from an inward desire to attain self fulfillment in any task that they are accorded.

Unlike Taylor's scientific management, this theory was able to acknowledge the ability of people to have an inner drive that enhanced their capacity to do work rather than just focusing on what they received as wages and salaries. Thus the social perspectives of a person started gaining recognition in workplaces in order to enhance productivity (Wren, 2005, p. 267). The managers of the factories started considering the social welfare of their workers while in work stations and eventually relations strengthened in the factories. This brought about team spirit and reliance on one another to attain a common objective. Several welfare organizations that were involved in fighting for the rights of the workers were formed and which are still there in the 21st century world. Taylor with his scientific management therefore laid a foundation around which various other studies have been conducted to improve the situation of the workers in their work places while at the same time ensuring that productivity is maintained to ensure success of

organizations and businesses. Organizational management has gained recognition in today's world and managers are professionals with skilled knowledge in the process of management. Major CEOs in different organizations must have attained a certain higher level of knowledge and have experience in management.

Taylor's scientific management formed a foundation for operations research which is present today in various organizations. Both operations research and scientific management aim at increasing efficiency in the workers' operations through the application of scientific means and systematic analysis so as to come up with a valid conclusion. According to Gass (2005, p. 19), the proposers of scientific management like Taylor himself, Gilbreth and Gantt were the founders of the process of operations research. In fact, some of the techniques they applied in their studies to provide efficiency are still in use even up to date. For example, Gantt in his studies used a chart that involved planning time and tasks to be performed so as to achieve maximum productivity. It came to be known as the Gantt chart and it is still in use today especially in the project management areas. Despite operations research gaining growth as a branch on its own, it incorporates Taylor's principles in its application. It continues to apply scientific methods with an aim of improving efficiency which is attributed to Taylor's scientific management.

Taylor's scientific management gained recognition in the US and around the world. His book *The Principles of Scientific Management* was a hit and a success and was sold the world over. His principles were put into test by many managers in their factories so as to increase efficiency. His book was

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translated to different languages and his influence was now felt outside the US. The Japanese led by Takuo Godo utilized some of Taylor's principles to test the productivity of Japanese workers during the Osaka Efficiency Exhibition. Takuo was able to point out that the workers in Britain were 5.3 times more productive than those in Japan while the American worker was seven times more that of the Japanese worker. In their pursuit for increased efficiency, the Japanese had to apply some of Taylor's principles (Wren, 2005, p. 289). Taylor's work went as far to influence the Toyota production system which ensured that quality products were produced while at the same time increasing the efficiency of their workers. The application of scientific management enhanced Toyota's production system leading to their success. These principles were incorporated with novel ideas as time went by to furnish them so as to reap their full benefits. The success of Toyota is seen even today due to their high exports of their automobiles to various countries all over the world.

In the 21st century, most of the activities that occur in work places base their foundation to Taylor's scientific management. The cars we are driving, the hospitals we get medication from and even in the food eateries that we frequently visit have in one way or another been influenced by the principles postulated by Taylor. Their functioning has been streamlined into enhanced efficiency through these principles. Scientific management brought a revolution to management systems which have them evolved with time to accommodate new ideas and other changing variables in the workplaces. Work places have become areas of specializations where only those with specific skills and experiences can perform a certain task. Given such facts,

division of labor is a common feature in today's society and this has served to improve on innovative ideas and effective production (Wren, 2005, p. 293). Competition has gone on the rise for the few job opportunities that are available unlike previously when the labor force was sometimes lacking.

As a result workers have continued increasing their knowledge into in order to retain their positions or even be promoted to higher posts. Companies have learnt to apply scientific methods in solving any problem that they may be facing rather than by use of a 'rule of thumb'. For instance, it has become a common venture for companies to conduct market surveys before and during a release of a new product in the market. Once a company intends to release a product to the market, it ventures into the anticipated market to find their views and opinions on the said product. The opinions are analyzed scientifically and viable conclusions are derived. The conclusions are then incorporated into their strategic objectives and planning is taken to take into considerations the conclusions. This has served to increase the efficiency of production and improving the company's profits. A failure in the management to conduct such surveys or to embrace the reflected opinions would lead to either customer dissatisfaction or production of low quality products. When this happens, customers will shy away from the products hence sales will be minimal and thus the profits. With the current competition in the market in this 21st century such a company will be edged out of the race for customers and will definitely fall out of the market and close down. This clearly illustrates that although Taylor's principles were postulated over a century ago, their effects are still being felt in the running of day to day activities of various institutions.

In present day's industrial processes, Taylor's principles also come to play an important role. Taylor had studied the appropriate scientific designs for the tasks that the workers were performing so as to ensure they never were overworked nor were they underworked to unproductive levels. In addition, Taylor proposed that the workers should be selected scientifically according to a person's skills so as to perform those tasks that the workers are in a position biologically to perform and handle well. The workers who best adapted to their positions and worked with high efficiency were rewarded with high wages in order to motivate them to repeat the same actions (Gass, 2005, p. 21).

Presently, this principle has continued to be used in nearly all organizations. As a result, they have established a human resource department that is tasked with the process of recruitment. The department first announces any vacant position in their institutions through the various media and invites qualified persons to tender for the positions. The recruits are then taken through a thorough recruitment process that involves vetting their skills and abilities as may be illustrated by the experiences they have. This process can be equated to the scientific selection of workers that were proposed by Taylor and his followers. Finally, the best man for the job takes it thus securing employment in the said company. Taylor in determining the payment to be given to the workers in wages and work incentives proposed a piece-rate system. This was to award any worker more wage if they increased production outputs and also produced quality products. A very similar situation is applied presently where even in civil service the amount of payment depends on the years of experience in service and also on the

skills and knowledge that you possess which clearly distinguishes you from the rest. Thus the higher the experience and level of education the higher the salaries will be.

Secondly, in today's institutions the human resource department has established a complex reward system that compensates the workers for their improved output in production. The various reward systems used today are like fully paid holidays for employees, pay rises for good performing workers, scholarships to pursue high education, paid leaves among a variety of others. This has ensured increased competition between departments in an organization to raise their production levels so as to enjoy the enticing rewards. Psychologically, human behavior can be reinforced through positive reinforcements and vice versa. The human resource managers are thus able to utilize this to positively reinforce the behavior of ensuring increase in production in their organizations through the rewards. The application of these ideas has led to improved production within the work places as the workers are motivated to perform their duties to perfection. This has led to production of quality products into the market that reaches the thresholds of customer satisfaction.

It is also important to note of the Fordism theory which bases its concepts on the scientific management. It was employed in mass production and incorporated the concepts of a moving assembly line with the ideas of Taylor's piece rate system and division of labor (Gass, 2005, p. 30). This theory proposed for a distinction between the skilled processes of production and the unskilled ones. This theory was instrumental in shaping the industrial process of mass production of various commodities which require line

production like motor vehicles. However, this theory also contained several anomalies as contained by the scientific management like not allowing the workers to give their views and also according more importance to the machines than the human beings who are operating them. This theory however, rewards the workers with high wages for their increased production. This theory also accords the employers with total ownership and control to the work force and therefore could be used to harass the work force.

Scientific management as presented by Taylor offered a chance for scientific training and education of all the workers with an intention of increasing their on hand skills and basic understanding of their working environment. He conducted researches to ensure maximum potential of the workers were utilized in performing their tasks. In modern times, this has continued taking place in various institutions. It has become increasingly necessary for continued education due to the changing patterns and trends in the production industries (Gass, 2005, p. 34). There is improvement in technology like the use of computers in performing tasks that were initially performed manually. Some of the machines that were once used in the processes of production and other tasks in the organizations have become redundant thus necessitating the use of a different and more complex machine. For example, not long ago were typewriters a common feature in offices for production of written materials.

Currently, it is quite hard to notice any typewriter in use in any office across the country. This is due to rise in computer usage which have rendered them redundant. If the office worker had no relevant knowledge of computer

usage, he/she will be forced to take classes in order to learn how to use the same machine. The same thing is happening in big production companies where large machines are acquired that have different usage and thus necessitating the workers handling it to undergo a further training. After noticing this tendency, the human resource departments have been tasked with ensuring their workers undergo on job trainings to increase their knowledge and remain relevant in the market. Several companies offer free scholarships to their deserving employees to pursue higher education after which they are promoted in their duties to higher positions. Other types of training are conducted like inviting a consultant who will facilitate the process of learning in formal seminars and meetings. Whichever type the human resource decides is beneficial to their company the aim is to increase the workers scientific knowledge and education.

The scientific management propagates for the idea of division of labor equally among the workers and their managers. This would ensure that there is mutual cooperation between the workers and managers and each is relying on the other for accomplishment of certain duties in their organization (Taylor, 1911, p. 13). This builds formal and official relations with respect which ensures that the tasks given to each worker is performed and in good time. A team spirit is cultivated within these organizations and they are able to work together as one to achieve common objectives. In modern world, this principle has been expounded and applied resulting into increased performance and enhanced efficiency in doing work. The social aspects of a human being are catered for like the need to effectively communicate ones feelings about a certain procedure in any institution.

Management has changed to democratic type where various views of each individual are incorporated into the institution's planning. The institutions frequently hold meetings where each and everyone is given a chance to air their views concerning anything that may be affecting them or even to commend a certain process being used by their organization. This has served well to increase communication in the organizations.

Communication is an important process to any organization. It serves to pass important messages from managers down the organizational hierarchy up to the subordinates. Communication as a process serves to hold the organization together. It builds team work across the various departments in an organization and leads to attainment of strategic objectives and hence meeting their mission and vision. It is therefore important to have improved communication for an organization in order to reap maximum benefits from the employees. Effective communication in an organization boosts employee's morale and increases their productivity (Busch, 1980, p. 98).

Communication which was once referred to as a soft skill in business enterprises has turned to have impacts for the business which are hard and with dire consequences. Failure to establish effective communication will lead to dissatisfaction among employees leading to high employee turnover in the organization, there is a rise in the number of employees who don't report to work as expected due to low morale, the customers will feel dissatisfied due to receiving of poor services from the dissatisfied employees and this will lead to low quality products being produced which are not up to the standards required in the market. In addition it will lead to lack of innovations in the business which is harmful to development.

Conclusion

In conclusion, Taylor's scientific management has served to shape the behaviors witnessed in today's organizations. However, various improvements to Taylor's principles have been done by various other scholars. For example, Henry Fayol was able to integrate the social aspects of workers into the principles. For the success of any organization, effective leadership is critical. It is for these reasons that effective managers are sought for by many institutions in order to succeed and pull through the high competition that has been witnessed in the present world. How well a leader is able to influence the team that he/she is leading will either lead to the success or to the failure of the organizations. In order for a leader to be able to lead, he/she must gain and apply power in order to see that work is performed to the given standards. They work at reinforcing their own organizational positions while at the same time striving to achieve the broad and strategic objectives of their organizations. Modernization and formations of workers' unions have served to shape the scientific principles as proposed by Taylor. With this in mind it is worth to note that Taylor's scientific management principles although proposed over a century ago are being felt even in the modern day practices in institutions.