

## **A Theoretical Approach to the Science of Management**

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### **Abstract**

*In this study, the historical development process of science of management has been analyzed. When studying the historical development of science of management, three basic phases forming science of management have been regarded. These phases are; Taylor, Fayol and Weber composing Classic Term; Mayo theory, Hawthorne experiments composing Neo-classic Term and Modern Approaches. Each phase is subject for an article itself. However, in this study, trying to deal with these theories briefly, it has been tried to introduce their similar and distinct sides*

**Keywords:** Science of management, classic term, neo-classic term, modern approaches

### **1. Introduction**

Science of management is a process arise of which goes back to Sumerians (5000, BC) and which experiences its maturation phase with Taylor, Fayol and Weber, continuing to exist up to present with modern management methods and principles such as, Total Quality Management, Process Management and it is a theory which will never complete its development. On the contrary to developments and changes in world economy and industry during years before First World War, especially fast economic growth breaking out in the USA, production techniques used being far away from science aroused some scientists. One of the most important scientists is the American scientist Frederic Taylor who granted a new respite to the management field with his masterpiece “The Principles of Scientific Management” written in 1911. With Industry Revolution happening at the end of 18<sup>th</sup> c., human abilities, skills and energy were defeated to machines, small scaled employers who couldn’t adapt to these changes began to work as workers in enterprising accomplishing change; and production moved from small locations to big locations (factories). Thus came out with problems regarding management and organization structure.

### **2. Science of Management**

When studying how science of management has evolved in historical development process, it’s seen that its bases go back to history of human-being. It hasn’t been possible for human beings to meet their needs by themselves in any term of history. For this reason, it has been a compulsory for them to live together (Bolat and others, 2008:22). ). In such a society arising out of obligation, meeting needs caused by social life makes it compulsory to compose an organization; otherwise, there wouldn’t be an order owing to individual demands. For this reason, it is expressed in most works written about management that management idea has arisen since human beings began to live together (Bolat and others, 2008:22). In addition to this, it will be more proper to study science of management by being distinguished to distinct terms: The first term is Classic term represented by Taylor, Fayol and Weber and their followers; the second term is Neo-classic Term during which human factor gains more value again and the last term is Modern Management Approaches described as Contemporary Term. These terms will be analyzed distinctly, mostly considering their founders/forerunners and principles they have earned to science of management

### **3. Classic Term**

#### **3.1 Taylorism and its principles**

Taylor’s ideas who are mentioned to be the first one who’s studied management subject as a scientific research field for the first time are described in literature as “Theory of Scientific Management.” Taylor’s ideas about management subject have seriously affected many scientists and researchers. Taylor’s ideas about management subject have been carried out for many years not only in private sector but also in public sector. However, Taylor’s ideas having gained high importance have been criticized irrelevantly at the same time. Some authors accused him of being Management engineer who assesses workers as working machines.

Claims that he doesn't give value to human factor and that he only considers production and result have become widespread. Besides, his thoughts that duties and functions during production process must be distinguished from each other with certain lines and thus can be reached to efficiency providing specialization and division of labor in organization have been criticized (Aktan,1999:21). Taylor, in his studies, found out that enterprisers can't satisfactorily benefit from workers and believed that forming and programming of doing works should be re-regulated by a scientific analysis and more output would be gained if they were standardized and continued his studies accordingly. When Taylor's Scientific Management Approach is analyzed, findings about human factor below can be made out; Workers are;

- lazy and have an inclination of less work
- Unproductive
- Don't struggle for the progression of enterprise
- De-motivated
- Don't have a defined mission and vision.

Taylor's observed that this unproductive work order and environment existing in enterprises may give big damages at a degree that can reach to losses at an extent effecting national economy, he has also observed that some radical decisions must be taken in order to turn these factors causing inefficiency and effecting production negatively into neutral or to minimize them and he's formed The Principles of Scientific Management accordingly. Principles refer to Taylor can be summarized as follow (Şimşek, 2009:95-98):

1. Workers and managers must work according to scientific principles rather than working haphazardly when carrying out organizational activities.
2. Organizational activities must be performed in a coordinated and consistent way, not in an inconsistent and incoherent way
3. Organizations and their methods, rather than submitting low unproductiveness, must reject this and must try to provide the highest productivity.
4. Each labor must be parted to sub-factors forming it. When defining activities which workers must carry out, not only intuition and experience, but also scientific methods must be used as well.
5. People whose mental and physical skills are sufficient for works being standardized must be chosen, that's to say, the most suitable staff member must be chosen.
6. Specialization in every part of a defined labor must be provided.

In order to carry out these hypothesis he has suggested, Taylor overlooked subjects such as solidarity, faithfulness to the employer's seeing to his workers, emotional responsibility, motivating and giving value to workers; he's defended the idea that "if you wish success, if you want more production, you will pay for it" by only focusing on the material side of the case. Taylor considers only the payment factor for workers' motivation factor. Taylor's these thoughts stress on building structures indispensable in Quality Management such as the Theory of Organization and Management, labor design and standardization, work's being done by a qualified person, work's being shared, worker's education, responsibility of management and business consciousness; but at the same time, he is criticized as he doesn't sufficiently focus on worker's motivation. This has laid the groundwork for the studies of scientists such as Fayol and Weber who have regarded these critiques as base for themselves and have built their thoughts on Taylor's teachings

### **3.2 Henry Fayol- Management Process Approach**

Fayol takes base Taylor's teachings for his studies. What makes Fayol's studies important and what motivates him is the fact that Taylor has made his studies in small enterprises and couldn't meet the needs of big enterprises. He's tried to make easy the labors of big enterprises by earning Taylor's values such as labor defining, standards and specialization of workers, functions such as organization, planning, controlling and coordination in management. On the contrary to the representatives of scientific management's aiming to increase productivity by dealing with the form of works' being done and work design more at factory level, Fayol tries to develop a good organization design and its management principles by analyzing the whole organization. Management Process Approach, like Scientific Management, takes productivity, economical efficiency and rationalism as basis (Şimşek, 2009:99-100). Considered from this point, it is seen that Fayol thinks as Taylor does; and that they complete each other like the circles of a chain. Views of them both about the human factor in enterprises from the same angle and claims that workers, instead of the ability to manage, have desire to be managed and generally avoid taking responsibility. In addition to this, Fayol expresses the necessity of carrying out penal sanctions. However Fayol has given more value to human factor than Taylor, for whom the importance of human agent in production isn't considered satisfactorily (Fayol, 1916).

Fayol has established bases of a management concept organizationally by earning management agent new and holistic terms and earned principles like division of labor and specialization, authority and responsibility, discipline, organizational benefits which are indispensable principles in every step of scientific management coming up to today and the principle that organizational benefits are above individual benefits which make up the base of Quality Management; However, he rejects or overlooks factors such as bonus and worker's right to speak in management compared with Quality Management

### **3.3 Max Weber- Bureaucracy Approach**

One of the other models and theories composing Classic Management Thought is "Bureaucracy Model." Apparent and close assumptions on which Bureaucracy Model grounds fit with scientific management and executive theory assumptions. On the other hand, there is a similarity between the features of ideal Bureaucracy Model and the principles of the two other approaches. Besides, these three theories have formed at the same environmental conditions and have developed at the same term. Because of all these causes, these three models are in "Classic Management thought" (Baransel, 1993:101) Weber has researched which type of organization form societies require as a result of accelerating urbanization and industrialization; at the end of these researches decides that Bureaucracy Model is the most suitable and ideal form of organization and management (Akat, İ., Budak, G., Budak, G., 2002; Bolat, 2008:34). Bureaucracy Model put forward by famous German socialist and scientist Max Weber and which forms a part of Classic Management Theory introduces the idea that duties should be regulated to form a hierarchic system in Bureaucracy Model as an organization structure (Weber, 1921). ).

In every step of hierarchy, authority and duties are determined formally by pre-determined law, method and administrative regulations. Labors' being distinguished to parts is carried out in accordance with determined rules and standards by specialized staff member. Processes and communication are done in written form; workers obey to directives as they are based on legal authority. Again, according to Weber, the legal structure of contemporary state is licit in human's esteem. This lawfulness covers social lawfulness beyond legal lawfulness. In order to speak of a contemporary state, administrative and legal rules, the compulsion power of an administrative organization and legal government application must be observed in a politic society (Akın, 2010:2). When considered from this point, it is seen that Weber's approach is effective in all public institutions and associations, especially forming the structure of a state. Bureaucracy Approach is sometimes so exaggerated that it makes workers in special enterprises and clerks in public completely asocial.

Authority and limitations required for the functionality of everybody and every unit are sometimes so clear that it may contribute to the growing of the problem by abiding to existent rules in states when defined rules cannot meet the needs. This approach which doesn't support human factor to behave instinctively and emotionally very much defends that productivity can be increased in business life by starting with clearness. In addition to Taylor and Fayol's approaches, It also stresses the necessity of earning a hierarchic structure to every part of enterprise by giving more clearness and clarity to organizational and business life. Weber, with his Bureaucracy Approach, puts forward that pure Bureaucracy is superior to organization forms in terms of punctuality, continuity, discipline and reliability (Byrt, 1973:47; Baransel, 1993:172). This makes Weber's Approach highly rationalist.

### **3.4 General Evaluation of Classic Management Thought**

When above-mentioned three approaches are analyzed as a whole, these approaches seek answers to questions such as; what are the basic functions of management? From which factors organization structure is composed? How can productivity and effectiveness be maximized? What are the factors effecting productivity and unproductiveness performances of workers? How can these factors be avoided? with experiments and observations carried out in either big or small scaled firms. When the arise time and conditions of approaches are considered, it cannot be said that they are unsuccessful, but it cannot be overlooked that each of these approaches perceives human inanimate, ready to be managed and as a machine not having social needs for success. Although Fayol focuses on social needs and motivation, this is not efficient and it doesn't change the acceptance that efficient value and importance isn't given to human factor.

## **4. Neo-Classic Term**

The first significant event for the Human Resource Theory movement occurred in 1924 when Elton Mayo and his team of Harvard University researchers began the famous Hawthorne experiments. The Hawthorn experiments consisted of a series of experiments at the Hawthorne Works of the Western Electric Company. In these experiments, the researchers sought to study the relationship between lighting and efficiency in the workplace. As expected, increased lighting levels did result in increased efficiency, but to their surprise, efficiency continued to improve as the lighting dimmed to even the faintest levels.

These unexpected results were eventually explained in terms of previously unrecognized aspects of human behavior in the workplace. Researchers hypothesized that these results were due to the employee's desire to please them. Sometime later, the employees became accustomed to the presence of the researchers and began to return to their original levels of productivity. This observation became known as the Hawthorne Effect – a change in behavior following the onset of a novel treatment. However, the effect eventually wears off as the 'novelty' dissipates. Through analysis of his data, Mayo showed the existence of informal employee groups and their effects on production, the importance of employee attitudes, the value of a sympathetic and understanding supervisor, and the need to treat people as people and not simply as human capital. One of the key findings of the Hawthorne studies was that employees didn't respond to classical motivational approaches as suggested in earlier works; instead, the studies found that employees were also interested in the rewards and punishments of their own work group. The observations made during the Hawthorne studies became one of the benchmark events in the development of the Human Relations Theory (Hardin and others, 2011:3).

Classic Management Theory also known as Scientific Management, Closed System, Machine or X Theory views worker basically as a prolongation of machine. This management theory which envisages to increase economical awards given to workers in order to urge them to work more, sees workers as single dimensional economic creatures interested only in much more money. On the other hand, according to Y theory also described as Neo-classic Theory, adherence to organizational aims and reaching to them are dependent on awards being deserved. The most important awards are meeting psycho-social needs and needs of satisfying ego (Yavuz, 2009:26-27) The explanation of results of Hawthorne experiments caused for the birth of Neo-Classic Management Theory. Hawthorne experiments covering the years between 1924-1936 researched, above all, the role of psycho-social factors on production and productivity; "relay experiment 1 and 2" experiments and observation room of mass fixture have been operative in the experiments they have made. Other experiments certainly carry importance owing to the fact that they are criteria in evaluating relay montage experiments. Hawthorne, in his first relay experiment, researched the effects of physical exhaustion on productivity/production and he observed the effects of increasing resting breaks and decreasing labor hours on production.

In the second experiment, he developed the "encouraged wage system" by ascribing a distinct feature to wage which had been used as a means of motivation in Classic Term and he analyzed the effects of this system on productivity; and the behaviors of social group and their members in mass fixture observation room. At the end of the analysis of experiments carried out, he gave rise to approaches such as the regulation of work time as to decrease psychological and physical exhaustion. Setting programmed resting breaks, the regular health control of workers and offering lunch meals, the regulation of birthday parties and attendance of management to this with various awards and forming of approaches that workers are important parts of enterprises.(Güney, 2004:226; Şimşek, 2009:113). Worker whose existence has been seen as the prolongation of machine and who could never gain the value he deserved in Classic Era has begun to gain value again in Neo-Classic Era and has prepared the base for development of the consciousness that "Yes, wage is motivating, but not efficient." Neo-Classic Approach, at the same time, puts forth that psychological and social capacity is more effective than the physical capacity of worker, as treated in Classic Era, on production and productivity and has proved it in Hawthorne experiments. To express briefly, the aim of X (Classic) theory in motivation is to control human behaviors externally and to make people benign and to form conditions in order to carry out orders without any reaction. On the contrary to this, Y (Neo-Classic) theory takes base rather self-control and self-directing in motivation (Şahin, 2004:11)

### **5. Modern and Post-Modern Management Theories**

Classic Approaches deal just with the formal dimension of organization, Neo-Classic Term's overlooking formal dimension by trying to give importance to human dimension has given birth to a holistic Approach analyzing the organization from both sides. Modern Approach stands for the middle course in scientific management. This approach perceives both human and systematic (hierarchic structure) side of the organization as a whole and tries to compose a model by regarding the needs of both sides. Considering Modern Approach completely different from other Approaches would be wrong. As this theory unites other theories and combines them by seeing that each of two theories completes one another; it also congregates them at a common denominator overlooking extreme parts existing in both situations. In other words, it takes positive sides existing in each of two theories and avoids potential negative sides by earning them a distinct and uniting dimension. On the contrary to X and Y Theories evaluating organizations as closed systems, it accepts that organization is in interaction with its environment and puts forward that each organization has a special situation endemic to that organization (Situationalism), relating with these, there may be differences in organization structure.

That's to say, each organization and human is different, has different needs, different expectations and satisfaction levels. When looked from this point, there is an approach evaluating the structure of organization in terms of systematic and situationalism.

## **6. Conclusion**

Scientific Management, as seen, denotes a process constantly developing and changing. Because, it is known that even in Adam's family, the first communities in world, works were done through being shared. But, science is based on knowledge, document and experiment. In this point, first systematic studies in the field of management are associated with Taylor. Because Taylor tried to prove causes behind workers' approaches and the target aimed when management takes decision in written form and experimentally.

Fayol's studies follow Taylor's studies. Fayol gives a little more importance to human factor and has drawn attention to workers' effect on production. However, Weber has mentioned the bureaucracy side of management by assessing science of management from a different angle. Weber's highlighted that bureaucracy is important in management and that everybody must carry out his duties in a hierarchic structure. Modern Approaches, anyhow, unites all these studies and plays an important role in management's coming to its today used form.

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