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Evolution of modern management through Taylorism: An adjustment of Scientific Management comprising behavioral science

Nasir Uddin^{a,*}, Fariha Hossain^b

^a*Department of Computing and Information System, The University of Melbourne, Victoria 3010, Australia*

^b*Faculty of Business and Law, Deakin University, Victoria 3125, Australia*

Abstract

From traditional approach to scientific approach and then Scientific Management to Modern phase; methodology, principles and approaches have reached its current stage. Taylor, the originator of scientific management brought a revolution in the twentieth century by introducing scientific aspects of formulating patterns and disciplines within project management. Scientific management emphasizes on profit maximization by utilizing the workers through controlled mechanism, training, monetary incentives under managers, however it has been scrutinized and criticized highly for its short term focus on profit, treating workers as a machine like forms which eventually argued to result negative performance in the long run. Therefore, a drift towards behavioral study emerged and social factors have been included to address the challenges which Taylor's method neglected. This paper through an extensive literature review showed that, the advancement of technology and globalization stimulated the modern management approach to adjust and complement the scientific management by supplementing the human factor and their contributions within an organization rather than substituting the traditional approach. Therefore together with productive activities and completion of defined tasks, a successful modern day project management model highly values employee contribution and feedbacks at all level.

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* Corresponding author. Tel.: +1-239-687-9025;
E-mail address: nasiru@ieee.org

1. Introduction

Management is a set of activities and behavior in which a superior entity plans, organizes, directs, leads and controls¹⁶ available sub-ordinate entities and other resources to achieve goals ensuring maximum efficiency and gain, through optimal usage of resources^{23,27}. There has always been a trend towards finding the right approach of defining management. And with the changing nature of business and technology at the modern era to guide and execute task, management has become an important stream of study, whether defined as exploitation science, engineering techniques, or behavioral theory²⁵.

1.1. Ad-hoc Project Management

Prior to Industrial Revolution there has been an ad-hoc process of management which was successful throughout history when we study ancient engineering wonders. A typical manager was isolated from ground level work, the foreman would be given the production duties and workmen used tools of their own choice and adopted methods that suited their own style of work²⁰. However, the Industrial Revolution threw the toughest and an absolute new set of challenges to owners and managers. Entry to the paradigm shift from small-craft to large-scale mechanized manufacturing at the end of the 18th century raised the necessity for managers to search for new techniques to manage their organizations' resources, productivity increase and workers skill improvement^{20,27}.

The classical theory of management emerged while finding an approach of predicting workers behavior and controlling their behavior from the manager's perspective to achieve organizational goals. Under classical approach workers were strictly controlled to perform as the manager's accordance following a specific set of rules were given to them¹⁵. This model treated human power⁸ as a mechanical resource based on a systematic method by contributing their maximum capacity in order to gain the optimal financial gain²⁰.

1.2. Taylorism and Scientific Management

F.W. Taylor who was an engineer and manager was one of the first to introduce the process of maximizing output through observing human behavior at work and formulating a specific set of rules to operate and utilize human skills³. Taylor published in his famous book, "Principles of Scientific Management", brought a revolution in shaping the early twentieth century factory system⁶, both in America and in Europe³. Taylor formalized the rule of thumb^{5,13} and transformed those into the science of management principles by systematically analyzing worker behavior, subdividing tasks into smaller unit and scientifically investigating and finding right training format for workers maximum production output^{5,13,20}. Taylor through his scientific analysis of finding inefficiency in traditional organized businesses established the point that, each motion of work should be executed under maximum capacity of workers with a predetermined method of work under specific training format, ensuring high profit and resulting good worker manager relationship³. Taylor thus introduced a clear vision for the division of labor depending on responsibilities and rank and introduced science in the labor selection process in organization management which according to Ratnayake & Ima²⁰ is "a complete mental revolution on the part of the workingman".

Despite Taylor's approach of profit maximization through utilization of human resources in a mechanical approach, he was criticized for introducing conflicts, boredom and negligence towards workers at the workplace²⁰.

1.3. Modern Management

Modern management evolved to solve the various problems of scientific management, addressing systematic utilization of human resources as mechanical objects²³. In order to improve the problems imposed by scientific management, one of the best case studies and research had been conducted named as Hawthorne Studies (1923-1933), which showed that workers' productivity is likely to rather rise when they are observed, their contribution is considered and mental support was provided by ensuring job-security than giving them set of rules, regulations and instructions²⁰. According to the study, transparent sharing of information among employees of different ranks, rewards, encouragement by senior management are more important to workers rather than classical approach of Scientific Management introduced by Taylor^{17,20}. One of the best examples of Twenty First century modern

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