

## Frederick Taylor as a Contributor to Public Administration

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### Abstract

*Seventy-five years after his death, a question remains as to whether Frederick Taylor's scientific theories of management have made a significant contribution to Public Administration. Taylor's theories focused mainly on increasing productivity in industrial manufacturing environments. The primary concern was for a pragmatic approach to efficiency where planning and standardisation aimed to optimise the human element in production. The article examines how practitioners of Public Administration have adopted and implemented Taylor's theories. Evidence was found in the work of Morris Cooke, a Taylor disciple who focused on public sector oriented approaches to management and political economy. Taylorism was apparent in the public sector in the years after World War II, a turning point and period when Taylorist theories were humanised. The aim of the article then is to examine how Public Administration has drawn from the field of industrial psychology, towards improving operations in public organisations. The key question is: to what extent has industrial scientific management principles been adopted in the discipline of Public Administration? In light of poor service delivery in South Africa, it is a relevant question that has implications for improving operational efficiency. A historical literature review was undertaken to determine the influence of Taylor's scientific management theories on Public Administration. The findings drawn from this review and analysis will serve to inform the need for more orderly scientific approaches to service delivery.*

**Keywords:** Frederick Taylor, Morris Cooke, Scientific Management

### 1. Introduction

Offering an alarming perspective on *The New Public Management*, Ewalt (2001) commented that if Weber, and Woodrow Wilson the father of modern Public Administration were to appear, they would hardly be able to recognize the discipline. Such a profound statement is a reflection of the times. Rapid technological change, for example, has touched every fibre of society; the discipline of Public Administration is no exception. While use of information technology is certainly one of the many characteristics of the New Public Management (NPM), other characteristics such as change management, personnel management through the use of incentives, freedom and flexibility to manage, rationalising and streamlining administrative structures are all indicative of the notion of scientific management of which Frederick Taylor is proclaimed to be the founding father (Gruening 1998, 5-6). This article examines the extent to which Taylor has contributed to the discipline of Public Administration.

Moreover, the article goes further to identify *The Psychology of Public Administration*. What is the mindset of Public Administrators?

Taking a social-scientific approach, there are two points in time that demarcate a more scientific, even psychological approach to Public Administration. The first point in time must be the beginning of the second decade of the twentieth century with the establishment of the Bureau of Municipal Research (Hopkins 1912, 235-244). Decades later, the second point in time must be the post World War II years when the likes of Marx, *et al.* (1946) and Appleby (1949) endeavoured to humanise the discipline of Public Administration and for that matter Taylor's scientific management theories. Whether they could be considered to have been "Taylorists" in their defining the elements of Public Administration is a matter to be examined in the subsequent pages of this article.

While Frederick Taylor may not have purposefully set out to influence the course of Public Administration, the strive for alternative systematic management approaches to address *foreman specific* difficulties spilled over from the shop/production environment to the office environment. Looking beyond the characterisations of Taylor being the ultimate reductionist and mechanistic management engineer, Schachter (1989, 6) encouraged going back, reading and keenly understanding Taylor's original works – his strange yet provocative works. With his work being misunderstood, Public Administration itself might be held to blame for the provocation, failing to reinterpret his authoritarian approaches in an alternative light, thus revealing the more human aspects of Taylor's work.

Interestingly, early practitioners of Public Administration drew on business concepts without thoroughly considering the needs of the public sector (Waldo 1948, cited in Schachter 1989, 15). This, no doubt, contributed *vis-a-vis* political science to the difficulty in Public Administration evolving to become a discipline unto itself. Yet as early practitioners struggled to draw from business best practices that might be employed in the public sector, that same struggle took place in the latter part of the 20<sup>th</sup> century and has carried over into the 21<sup>st</sup> century in the guise of, for example, notions of a *New Public Management*. The task here is to take up the challenge of reinterpreting Taylor and to explore how managed workplaces, for example, resulted from his early work on approaches to motivation. The key aim of this article, therefore, is to consider Frederick Taylor as a contributor to the discipline of Public Administration and whether Public Administration has drawn from the discipline of Industrial Psychology, towards improving operations in public organisations.

## 2. Scientific Management and Public Administration

Blessan (2010) noted that while Public Administration has passed the fad stage of scientific management, many activities such as office management, accounting and control are still subject to scientific principles. The essence of those principles, scientific management, entails systematic adoption of methods of science to

problems of management in the interest of higher industrial efficiency. As such, management is regarded as a true science, resting upon clearly fixed laws, rules and principles.

Measuring work (performance measurement), time and motion studies and cost accounting, as examples, contribute towards solving administrative problems. The origins of these activities can be traced back to the latter part of the nineteenth century when Frederick Winslow Taylor first began to determine the amount of time workers needed to produce and manufacture items. Interest in establishing a "science of work" had evolved over time, as progress was made from being a lowly journeyman, to an operations engineer, to a plant manager and ultimately to a researcher. This evolution or transformation could be assumed as having been natural and inevitable. Notably, Taylor had come from a family of intellectuals – coming from an affluent Quaker family and a father who was a lawyer and graduate of Princeton University. Taylor was to attend Harvard University but opted for a far less glamorous medium of education as a production journeyman and labourer. This, however, did not extinguish inquisitiveness, a pursuit of rationality and a sense of equality. The transformation and evolution culminated eventually in advocating for systematic adoption of scientific methods to solve management problems to achieve higher industrial efficiency (Manithaneyam 2012).

In those early days, the founding principles for Taylor's *Scientific Management Theory* were information management and knowledge transfer to inform machinists on how they would benefit from improved productivity. Managers, as well needed to know the acceptable production rate for piece work to preclude resorting to irrationally dismissing and firing a machinist for not achieving piece work targets. Taylor took to using a stopwatch to time production activities, to record motions and moments of lapses in production. The earliest time and motion studies were conducted with the assistance of Henry Gantt as well.

Thus the essence of Taylor and for that matter Taylorism was that of experimentation, evaluating problems and choosing an appropriate solution. For the late 19<sup>th</sup> century, this was novel. The managerial practice was merely to maintain the *status quo*, emulate the work style and mould of the previous foreman, and drive labourers to work fast to increase the amount of piece work produced (Schachter 1989, 24). As an operating engineer, Taylor's changing tools and dies in the manufacturing process exemplifies the earliest venture into "experimentation" as a form of scientific management.

Nevertheless, there was a curious link that sowed the seeds of Taylorism as a contributor to Public Administration. It was his link, or rather association, with Henry Metcalfe of the United States Army Ordinance Department. As early as 1880, Metcalfe established the written order card system and advocated the practice of two way communications – that is, job order cards with written instructions from administrators and report [progress] cards written by workers. Interestingly, Metcalfe argued for distinguishing between the private and public sectors and came to be

widely read by early writers on Public Administration. At best, Metcalfe came before Woodrow Wilson, the proclaimed father of modern Public Administration. What Taylor and Metcalf had in most in common was the management of information for production output. Both came to know each other and it is dared to say respect each other, both being members of the American Society of Mechanical Engineers. With that in mind, Schachter (1989, 30) noted that (Taylor and Metcalfe) as proponents of the engineering management tradition professed that there were indeed differences between the public and private sectors and that efficiency was not always the single most important goal of the public sector. It might be suggested then that Taylor's inadvertent contribution to Public Administration was the result of his interaction with Metcalfe. Furthermore, scratch the surface of Taylor's radical (for the time) ideas, there was a realisation that it was futile to force workers to go against their will, in the process of motivating for efficiency and increased productivity. As stated previously, this was novel for the time.

### 3. Reinterpreting Scientific Management

It is now necessary to note that while Taylor was experimenting and developing a science of management, Public Administration was more a less a sub-field of political science. As a sub-field, its evolution towards becoming a discipline can be said to have begun, at least in the United States, with the codification and collection of labour information and census data, necessitating the establishment of government departments and bureaus. The New York Bureau of Municipal Research (Hopkins 1912, 243), for example, was regarded to be a pioneer (the organisation that is) in government administration, establishing the first National Training School for the Public Service. The training school had been established in the Taylorist tradition of collecting and managing information with the aim of improving municipal government affairs. What the Bureau possessed most of all was a vast amount of information pertaining to business conducted in New York City. It is within that framework that a business-like approach was taken to analyse teachers' salaries, with the objective of standardising pay grades and managing the provision of educational supplies.

From this point there are only indirect links and unfounded assertions that Taylor in some way proposed that scientific methods should be applied to the public sector. On at least two occasions (1912 and 1915) the journal *The Annals of the American Academy of Political and Social Science* had requested an article for publishing in their journal. Unfortunately, Taylor never submitted an article to be published by the journal. For a fleeting moment during the Watertown Arsenal Strike (Managing Metrics 2012), Taylor suggested that worker satisfaction was the solution to the labour action. Emphatically, Taylor never published any of any scientific theories for application in the public sector.

The most definite link between Taylor and Public Administration will be found in the work of his mentored disciple Morris Cooke (Cooke 1915). Like Metcalfe, Cooke was an active member of the American Society of Mechanical Engineers and there is no doubt as to Cooke's interest in Taylor's scientific management theories and subsequent application to Public Administration. Embracing the application of Taylor's principles, Cooke approached the analysis of work by purposefully differentiating between public and private goals; as for being heralded as a disciple of Taylor, personal correspondence between the two substantiates a mentor/mentee relationship (Stevens Institute of Technology Online).

Towards reinterpreting Taylor's work, from the earliest days of Taylor's experimental approach to motivation, Taylor's portrayal as a cold, authoritative, scientific motivator overshadowed any hint of a humane dimension to scientific management. The humanisation of Taylor and Scientific management will only come about in later decades in the works of Marx and Appleby.

### 3.1 Marx and Appleby

Fritz Marx was one of a number of scholars who emerged after World War II to profess a more humanistic and inclusive approach to Public Administration – inclusive stressing that the discipline had evolved by drawing on psychology, anthropology and sociology, just to mention a few contributing disciplines. Marx had taught at the Pennsylvania School of Social Work, New York University (NYU) and Harvard. Being one of the lead authors in the seminal work *Elements of Public Administration*, the text was a turning point in time on the matter of scientific management theory and its application in Public Administration. Although Frederick Taylor is not referred to in that seminal work, Chapter 5 in the text is entitled "Administration: Art or Science," and the discussion is reminiscent of the early experimental Taylor, referring to *the Aims of Scientific Research and the Science of Administration*. It is not surprising that that particular post-war text noted that:

*Administrators are interested in the techniques of systematizing the process of securing and sifting through relevant information so that the factors involved in arriving at a policy decision can be stated and the consequences of alternatives can be analyzed and balanced. [sic]*

This certainly sounds Taylorist, akin to that early quest to manage the dissemination of information to all stakeholders involved in the production process (Schachter 1989, 26). Further to the immediate quest to determine to what extent scientific management theory (Taylorist thought for that matter) has permeated into Public Administration, Appleby (1949), in *Policy and Administration*, alluded to the importance of information management and noted that: "Administrators blur the politics-administration distinction, in their withholding or giving only selected

information to legislators formulating public policy.” [sic] The relevance here is to further emphasize the value and importance of information management. While information management is an example of scientific management, there remains the potential for information to be used to the detriment of public policy when it is purposefully and nefariously withheld.

With Marx and Appleby in mind, there seems to be an advancement of the notions that information should be valued and managed as part of the science of management. The concern is not merely for scientific [Taylorist] management principles and mere focus on motivational theory and organizational development. Early on, Taylor was concerned with information presented to workers that would motivate them to be productive. Timed piece work production information was presented to the production foreman, in order to have reasonable production expectations of subordinates' production output. In the post-World War II period and into the 1950's period of the military industrial complex and post-modern era, Taylor's scientific management was part and parcel of the “inclusive approach” to post-modern Public Administration. In the reinterpretation of scientific management, the focus is on information. It, nevertheless, is debatable whether Marx and Appleby were Taylorists in their practice of Public Administration but there are hints of an awareness that the discipline needed to draw from other disciplines and relevant sources (Chandler & Plano 2012, 19-21). The science of management came to be valued in the public sector as much as it was valued in the private sector.

#### **4. Industrial Psychology in Public Administration**

The application of Industrial Psychology in Public Administration will be most apparent in the area of Human Resource Management (Unizulu: Online). This would not be unusual, considering that Taylor's Principles of Scientific Management (1912) deals with motivating workers. Industrial (Organisational) Psychology is the scientific study of the workplace, where rigor and methods of psychology are applied to issues involving personnel management, coaching, assessment, selection, training, organisational development and performance (SIOP 2012). In answering whether Public Administration has drawn from Industrial Psychology and whether scientific management theories have found their way into Public Administration, Pitts (2003) studied diversity, race and performance in public organisations. The research studied and evaluated whether an organisation in the public sector, specifically a department of education, indeed had a *Representative Bureaucracy* that matched the general population to which it provided public services. As it relates to a motivated workforce, the general theory that was being tested was that passive representation (meaning a matching bureaucracy) will lead to active representation and the formulation of policies that would benefit the interest of diverse groups. In short, a bureaucracy of colour would be more likely to service and represent the preferences of citizen/stakeholders of similar colour and background (Selden & Selden 2001). In

this study, the units of analysis were the relationships or significance between diversity, representation and performance among teachers, administrators and students, while segmenting variables heterogeneously by Black, Latino, White, Asian and Indian races. Variables were constructed to test the impact of diversity on organisational performance and the statistical technique used was multiple regression. The relevance here to the discussion and Taylor is that a scientific approach was taken to measure the effect of diversity on motivation and performance.

Although the formulation of the variables and the regression model for the study is not discussed in depth here, the most significant finding resulted from an examination on how managers (shop foreman) and employees (machinists) contributed to achieving organisational outcomes. What was indeed found was that management representation (the shop foreman) contributed positively to performance. In other words, when managers matched a targeted population by race, the organisation did perform better. However, racial representation, in many instances, did not figure significantly towards achieving outcomes. In other words, matching race and representation did not assure achieving an outcome of quality service delivery.

As in Taylor's early experiments and attempts to disseminate and manage information to the machinist and the shop foreman, Pitts' research involved measuring the impact of the supervisor towards achieving outcomes and the impact of line employees on achieving outcomes. Importantly, this was done in terms of race. Taylor's approach of informing the machinist of the benefits on how improving productivity would be in their best interest and informing the shop foreman of the optimal amount of piece work to expect (determined by experiment, measurement and timing) for his day was no less scientific than running regression or using linear programming to measure relationships. Admittedly, it is not known whether Pitts had Taylor in mind while conducting the matching bureaucracy study. However, the use of a scientific method to study and model a public organisation does, at best, reveal the permeation of Industrial Psychology and a social scientific approach to managing the public organisation.

## **5. The Psychology of Public Administration**

At this time, studying the minds of practitioners (supervisors, line managers and workers) involved in public administration is a limitation and constraint. It would be necessary to study their behaviours, as they move in and about government departments performing the wide variety of tasks that characterise a bureaucracy. Still, there is a desire to understand those involved in public administration, especially to determine the extent to which scientific [Taylorist] management principles influence public servants – line workers through to senior managers. Recognising the many sub-fields or schools of thought of psychology (clinical psychology, pseudo

psychology, or positive psychology), functional psychology is used here as a framework to discuss *The Psychology of the discipline Public Administration*. The aim is discuss the mindset of the public administrator, in terms of scientific Taylorist theories.

Functionalist and early psychologists such as William James (1842-1910) noted that the mind, in its state of consciousness would not exist if it did not serve some practical, adaptive purpose. Assumably, Frederick Taylor would have been an advocate of functionalism in his motivating and experimenting to achieve the greatest highest production output and motivating workers to do so.<sup>1</sup> The challenge would have been to persuade workers to adapt to serve a practical purpose – albeit, seemingly to the benefit of the business/factory owner. Of course, the workers reward would be wages earned.

In keeping with scientific management, functionalism involves empirical thought and research. Like most functionalists, Taylor would have been interested in the conscious states of the supervisor (shop foreman) and the worker (machinist), with a goal of improving thought processes. Although he never went as far as to study the conscious state of mind of workers, his concern over worker's anxiety exemplifies some reverence for their mental well being (Schachter 1989, 44). Certainly, there was a desire to provide workers with information to inform them of the benefits of being productive. Additionally, information was provided to the production foreman to enable him to make informed decisions relating to the expected maximum output for piece work. What can possibly be said of the functionality of today's public administrator, and is there acceptance or resistance to scientific methods and principles?

There is school of thought (Walden University) that professes to use psychology and Public Administration to promote social justice. Undoubtedly, select South African government departments are involved in promoting social justice – e.g., the South African Department of Social Development and the Department of Women, Children and People with Disabilities and the Department of Rural Development and Land Reform. Without being specific, psychological theories and skills (referring to psychologists as part of the planning process) assures more humane social strategic planning and developing management programmes aimed at changing and impacting whole communities – that is, to achieve social justice. Indeed, this is public administrative management that places emphasis on social organisations. Without a doubt, the field of health care lends itself to a social (psychological) approach to public administration and service delivery. While planning for service delivery, the behaviours, responses and motivations of communities will be anticipated to achieve an improvement in performance (Batalden and Stoltz 1993). Similarly, the desire to improve performance was the corner-stone of scientific management in those early days of experimentation on the shop floor by Taylor.

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<sup>1</sup> Schachter (1989, 41) noted in the discussion of Taylor's Scientific Management: Functional management is needed, with each worker receiving daily orders.



Thus the *Psychology of Public Administration* is best exemplified by considering *Psychology in the Public Interest* (Mitchell 2012). In the process of applying scientific management theories, practitioners in public administration will use social science theory and methods to analyze and address social and organisational problems. The psychology of public administration embodies behaviours, state of mind and processes towards an orderly and pragmatic way of managing and achieving objectives. Additionally, the psychology of public administration in a Taylorist tradition will engage in preventing, evaluating, intervening in and developing the workforce, using and adapting technology, and empowering workers, groups and communities. Action oriented methods will be used pragmatically to produce knowledge and solutions that serve the public interest. The psychology of public administration in the 21<sup>st</sup> century is definitive and purposeful in its use of scientific principles in the public interest. This mindset is in contrast to the early days of Taylor when scientific principles were in their infancy and use in the public sector (Schachter 1989, 76).

## **6. Conclusion: Implications for Service Delivery**

The initial aim of this article was to investigate the extent to which Frederick Taylor (Taylorism) had influenced public administration by way of scientific management theories and principles. The investigation soon turned to validating that Morris Cooke, a mechanical engineer and early practitioner of modern public administration was truly the missing link between Taylor and public administration. This was unexpected. Although Taylor could not be directly linked to the evolution of public administration and its ascension from political science, Taylor's interaction and influence on Morris Cooke were the foundation for pragmatic approaches to government and public administration in an age of discovery - the late 19th and early 20th centuries. As a link between scientific management and public administration, Morris Cooke precedes Woodrow Wilson as the ultimate proponent and perhaps founding father of public administration. Indeed, Cooke is an unsung hero who, by reinterpreting Frederick Taylor, is rediscovered and warrants further investigation of his contribution to the discipline. For that matter, as it relates to South Africa, Morris Cooke was a pioneer in the electrification of the rural areas in the decades following the U.S. civil war. The electrification of the rural areas, that is the provision of electricity to South Africa's townships, locations, informal settlements and squatter camps is still a burning issue that calls for a modern day "South African Morris Cooke." Nevertheless, the question remains as to whether scientific management has had a significant impact on modern public administration. Unequivocally, the answer is "yes." This is substantiated by the practice of work design, work measurement and work study. Indeed, before scientific management, specialist departments dealing in personnel issues did not even exist. The U.S. Federal Work Study Programme is Taylorist in principle, albeit targeted at post-graduate students. In and of itself, work

study is the systematic examination of the methods of carrying out activities in order to improve the effective use of resources and establishing standards of performance activities to be carried. The implementation of performance measurement and management in the public sector does exactly that – examining methods and managing performance. Conclusively, there is a need, as noted earlier, to go back, read and keenly understand Taylor's original work. Consequently, it will be found that the notions of performance measurement, performance management, work study and the like are not all that new. Doing so, going back, furthers the aim of reinterpreting Frederick Taylor as having been a humanist as much as pragmatic and authoritative production manager.

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