

UNLOCKING PRODUCTIVITY: LESSONS FROM ELTON MAYO'S PHILADELPHIA SPINNING MILL EXPERIMENT FOR EFFECTIVE WORKER MOTIVATION

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Abstract: This paper adopts a theoretical approach to explore the concept of motivation and its overarching influence in unlocking workers' productivity using Elton Mayo's groundbreaking research at the Philadelphia industrial complex as exemplar. The study revealed that motivation influences workers' performance in Philadelphia Spinning Mill. It also revealed that workers are driven by needs, particularly the need for money in the form of wages, salaries, allowances, and bonuses. But beyond money, psychosocial needs such as recognition, communication and empathy from supervisors, and companionship are lacking in some workers. Satisfying these needs requires some management skills that entail needs identification, implementation, and evaluation. These management approaches were adopted in the Philadelphia Spinning Mill and were found to yield positive results. Therefore, industry managers should take a cue from Elton Mayo.

Keywords: Motivation, Productivity, Philadelphia spinning mill, Elton Mayo.

1. Introduction

Ever heard a worker say, "I can't do that job because my morale is low" or simply "I can't do that job because, there is no motivation," or "I can't do that job because, my spirit is down," or "I'm tired of this job". Scenarios like this paint, a gloomy picture of the fact that something is wrong both in the worker's life and in the organisation. What is wrong is nothing less than satisfaction and lack of motivation. However, it has been argued that the, degree to which an employee exerts a greater effort to perform does not mean that he is more motivated than those who do not exert the same level of effort (Iheriohanma, 2006). However, studies have shown a strong relationship between workers' motivation, job satisfaction, and productivity (Essien, 2006; Basse & Essien, 2019). In their study of job satisfaction and turnover intentions among civil service workers in Akwa Ibom State, Basse & Essien (2019) observed that a highly motivated worker is one who is cheerful, very committed and dedicated to duties, willingly participates in the decision-making process of the organization, and whose output is encouraging. In short, this study revealed that motivation can extract workers' efforts and enhance productivity.

Understanding the role of motivation in unlocking worker productivity is imperative. This is because workers are willing to perform responsibilities with some level of commitment, which is what motivation does. Therefore, this paper undertakes an intellectual safari in juxtaposing the role of motivation in unlocking workers' productivity by reflecting on Elton Mayo's studies at the Philadelphia Spinning Mill and the lessons that modern managers can learn. Elton Mayo and Fritz Roethlisberger are generally associated as the founders of the human relations movement in industry. The Hawthorne experiment with which their names are permanently associated remains after 40 decades the most extensive, the most significant, and the most influential behavioural science study ever conducted in a business enterprise. The study attempted to determine what made employees productive. At the core of the study were: the illumination, the relay assembly test room and the bank wiring observation room experiments. However, it is quite noticeable in the literature that Hawthorne experiment is Mayo's most renowned and famous study while the Philadelphia Spinning Mill experiment which he conducted before Hawthorne remain less pronounced yet significant in organisational studies. The Philadelphia Spinning Mill experiment, sui generis, addressed absenteeism, turnover, low morale and productivity problems which many organizations are still facing and should be reflected upon. Apart from its practical usefulness, the dearth of literature on the Philadelphia spinning mill experiment forms the motivation of this paper.

The paper is theoretical with the following aims:

- (a) To examine the motivation concept
- (b) Re-examination of Elton Mayo's Philadelphia Spinning Mill Experiment
- (c) To discuss how workers' motivation unlock productivity in the spinning mill.
- (d) To draw lessons for modern managers of industries from the study.

2. Concept of Motivation

The term "motivation" is not amendable to one acceptable definition, as there are quite a good number of them in management and organisational literature. For this paper, three definitions are examined:

- (a) Robbins (1988: 56) defines motivation as "the willingness someone has to exert high level of effort to attain organizational goal as conditioned by the effort ability to satisfy some needs for the individual". Robbins defines motivation as a force that pushes a worker to perform job roles with the expectation of being rewarded for doing so. Hence, the propelling force originates from within.
- (b) Mitchel (1982: 82) defines motivation as "those psychological processes that cause the arousal, direction, and persistence of goal-directed voluntary actions." Mitchel also sees motivation as something within a worker that directs his behaviour toward a goal, albeit willingly and without compulsion.
- (c) Similarly, Harries & Woodgate (1984:24) define motivation as "the process or factors causing people to act in certain ways and consists of the identification of need, establishment of a goal which will satisfy that need and determination of the required action".

Unarguably, these three definitions could be said to be classical and a working definitions, and worthy of adoption for this paper, because, they compose of indispensable elements central to the discussion on the twin subject of motivation and productivity. Motivation should be seen as the energy that direct behaviour toward a goal, understandably, every worker comes into the organisation with a need (material or psychological); therefore, it is necessary to have a understanding of what energises a worker; this is, to say the least one key element of motivation as would be discussed in detail. Another element of understanding is the issue of a worker's goal-directed behaviour. No worker would dissipate energy without satisfying a pressing need. Since

needs are insatiable, how can they be manipulated to meet the goal of the organization, which is the goal of the relationship between the worker and the organization? In dealing with motivation, human resource managers must have deeper knowledge of its three elements. These are:

- (i) What energises human behaviour?
- (ii) What directs or channels such behaviour?
- (iii) How is this behaviour maintained or sustained?

For a clearer understanding of the discourse, each element is examined.

(i) What energises human behaviour?

Every worker is a biological being with feelings, thoughts, emotions, motives, and aspirations. In a study: Unboxing the influence of beliefs, emotions, attitudes, and social influence variables on workplace behaviour, Essien & Essien (2022), found, a strong correlation between these variables and workplace motivation. Motives are innate urges or forces inherent in man that direct behaviour toward meeting some needs (psychological: power, recognition, aspiration, and self-actualization, etc. or material: money, accommodation, car, etc.). Unmet needs create tension in humans, and it is this tension that propels behaviour toward reducing tension. Hence, it is the desire to reduce internal tension or imbalance caused by unmet biological or psychological needs that, pushes or drives behaviour, such as finding food to eat, water to drink and work to do etc. When a particular behaviour successfully reduces a drive, the behaviour becomes more likely to be repeated; when the same need state arises again.

(ii) What directs or channels such behaviour?

As previously stated, behaviour are driven by needs. Some of these needs are biological or physiological, while others are social. Biological or physiological needs include the need for food, sleep, sex, and taste. Social needs may include the need for love and belonging, companionship, security, self-esteem, and self-actualization (Maslow, 1943). Porter (1961) expanded Maslow's social need to include autonomy. Individual behaviour is directed toward where and how the individual's needs would be met. Aside from meeting biological needs, which are the primary needs of everybody, socio-psychological needs are individually directed. For instance, the aspiration to become an army officer, an engineer, a medical doctor, or a lecturer is the goal directed. Whatever an individual desires and aspires to be, efforts are directed toward meeting the goal and the aspiration.

(iii) How is this behaviour maintained or sustained?

Productive and positive performance behaviour of workers is sustained through the manipulation of the reward system and constant reinforcement of satisfied need. This involves the ability of the manager to recognise which reward or incentive satisfies a worker and the withdrawal of same will cause an imbalance to propel behaviour toward a goal. This suggests the need for adequate and thoughtful incentive plan.

3. Motivation Factors

Previous researchers have identified factors that account for workers' performance in organisations (Herberg, 1968; Nwachuchu, 1998; Ungbro, 2001; Lawler et al., 2005). These factors include: worker's ability, attitude, and the type of technology used. Aside from these, a better reward system (incentive), a good and conducive working environment, and skills have also been identified (Bassey & Essien, 2019). Herzberg (1959) saw the need for achievement, recognition, responsibilities, career advancement, and enjoyment of the work as satisfiers. Therefore, Unubgro (2001) concluded that workers' performance is affected by the interaction between ability and motivation. Symbolically represented as productivity or production model: $P = f(A * M)$.

Where: Productivity (P) = Function (f) of Ability = (A) × Motivation = (M)

In this model:

(a) Productivity (P): Refers to the output or efficiency of an individual or team in completing tasks. Output is measured by the quantity of goods produced given available resources or raw materials, while efficiency deals with the quality of the goods so produced. This takes care of elimination of wastages.

(b) Function (f): Represents the relationship between ability, motivation and productivity. This function can be thought as a multiplier or catalyst that combines ability and motivation to produce productivity.

(c) Ability (A): Encompasses the skills, knowledge, and competencies required to perform a task. Ability can be developed through training, experience, and education.

(d) Motivation (M): Represents the driving forces that initiates and sustain an individual's behaviour towards achieving a goal. Motivation can be influenced by various factors, intrinsic and extrinsic or both. This model suggests that productivity is a function of the interaction between ability and motivation and can be translated into productivity matrixes as demonstrated thus:

(i) **High Ability (HA) + High Motivation (HM) = High Productivity (HP)**

(ii) **Low Ability (LA) + High Motivation (HM) = Low Productivity (LP);** due to limitations in ability.

(iii) **High Ability (HA) + Low Motivation (LM) = Low Productivity (LP);** due to lack of motivation.

(iv) **Low Ability (LA) + Low Motivation (LM) = Low Productivity (LP);** deficiency in all two dimensions.

This model therefore highlights the importance of both ability and motivation in determining productivity. By understanding the interplay between these two factors, individuals and organisations can develop targeted strategies to improve productivity. Such as developing workers' skills and abilities through training and education, boosting motivation through recognition, rewards or personal development opportunities and by optimizing the work environment to support both ability and motivations

4. Some Theoretical Approaches to Understanding Motivation

This discourse is incomplete without delving into organisational theories of motivation. Theories serve to provide basic insight and understanding into the underlying subject matter. Its ability to enhance a clearer knowledge and prediction of variables is not overemphasised.

(a) Hierarchy of the Needs Theory

One of the foremost motivation theories is that of Abraham Maslow. Maslow (1943) argues that within every human being, there exists a hierarchy of five needs namely:

i. Physiological Need: Hunger, thirst, shelter, sex, and other bodily needs.

ii. Safety needs: These include security and protection needs from physical and emotional harm.

iii. Social or love needs: these include affection, belongingness, acceptance and friendship.

iv. Esteem Needs: These include factors of internal esteem, such as status, recognition, and attention.

v. Self-actualization: This includes growth and achieving one's potential and fulfilment. The drive to become what one is capable of becoming.

Maslow noted that the next need becomes dominant as each need is satisfied. Even though no human need has ever been fully satisfied, a satisfied need no longer motivates. Man is a horde of needs. As he satisfies one need, another emerges.

(b) Three Needs Theory

The three-need theory of motivation was propounded by David McClelland (1953). He stated that three major motives or needs exist in work situations. They are:

(i) Need for Achievement (**nAch**).

This indicates the drive to excel, to achieve in relation to set standards, and to strive to succeed. People with these needs prefer challenging jobs and wish to improve on their previous successes.

(ii) Need for Power (nPow):

This is the need to influence others' behaviour, be in-charge, be in status-oriented, and be in competitive jobs.

(iii) Need for Affiliation (nAff):

This is the need for friendship and interpersonal relationships. People with these needs prefer cooperative situations over competitive situations. They excel more in situations of mutual understanding and teamwork. Thus, managers should ensure that workers with these characteristics are given jobs that help them realise their motives and potentials.

(c) Motivator - Hygiene Theory

Frederick Herzberg (1959) is the proponent of this theory. His interest was in finding out what people really want from their jobs. He tended to isolate their responses to factors that cause their satisfaction and those that led to dissatisfaction. From their responses, he inferred that job satisfaction was related to intrinsic factors such as achievement, recognition, the work itself, responsibility, and advancement or growth in task capability. When the respondents felt good about their jobs, they tended to attribute these characteristics to themselves. These describe man's relationship to his job, that is, job content. These are the "satisfies" that motivate individuals to perform better. When dissatisfied, they cited extrinsic factors such as company policies and administration, supervision, salary, interpersonal relationships, and working conditions. These describe the context or environment (hygiene factors) in which humans do their work. Herzberg calls these factors dissatisfiers or maintenance factors that prevent job dissatisfaction. Factors that eliminate dissatisfaction are characteristics of hygiene factors, while those that increase job satisfaction are motivators. To motivate workers, managers should emphasize characteristics that people find intrinsically rewarding.

(d) Reinforcement Theory

B. F. Skinner is the proponent of Reinforcement theory of motivation. This theory argues that reinforcement conditions behaviour through manipulating the reinforcers. A reinforcer is any consequence that immediately follows a response that increases the probability that the behaviour will be repeated. There are two reinforcement schedules: continuous reinforcement and intermittent reinforcement. While the former aims at rewarding the desired or expected behaviour each and every time it is demonstrated, the latter rewards the desired behaviour as often enough to make the expected behaviour worth repeating (Skinner in Linch, 2024). Edward Thorndike calls it, the Law of Effect (Thorndike, 1933). Skinner's theory emphasizes the role of external environment in shaping behaviour and motivation. By designing effective and positive external environment, managers can motivate employees and encourage desired behaviour.

(e) Expectancy Theory

Expectancy theory states that the tendency to act in a certain way is dependent on the reasonableness or strength of expectation that the action will be followed by the desired outcome and on the individual's attractiveness of that outcome. In other words, an employee will perform effectively if he or she believes that money, status, or achievement is a motivator or expected outcomes. In this sense, employee performance is tied to the reward. The more attractive the reward is, the more effort is directed toward the goal (Vroom, 1964).

All the stated theoretical frame of reference has significant bearing with the subjects of motivation and productivity and is relevant to this discourse.

5. Empirical studies linking motivation to productivity

Several studies support the intricate relationship existing between motivation and job performance. A few of them will be examined in this section.

Sabo (1991) and Barlett & Ghoshal (1994) conducted a study in Lincoln Electric Company, Ohio, and observed that productivity was tied to incentives. The study revealed that, all 2300, workers of the company, most of whom were factory workers, participated in the incentive plan. However, two, shared in the annual bonus. The top two executives were paid based on a percentage of sales. Each job was evaluated by a committee to determine a fair hourly base rate. The company also had a piece-work plan in which workers earned money based on how much they produced. The company also had pay ranges (wages or salaries) so that the individual who performs at their highest capacity can move up to the top of the range for their job. Everyone was rated on a four-point scale: output, quality, dependability (ability to work without supervision), and cooperation. Findings revealed that of the introduction of this plan, the average year-end bonus has been 95.5% of base. Employees doubled their annual income through the annual bonus. The products were found to be of high quality, and the company never faced strike actions by workers.

Budman (1997) conducted a study in Tallab Inc., Chicago, and found that one of the principal reasons for Tallab's remarkable success was its ability to motivate its workforce. At Tallab, employee motivation and performance were enhanced by an atmosphere in which employees were openly told that they were valued and trusted. Managers encouraged risk-taking and innovation. They empowered workers through cross-functional teams to identify problems and develop effective solutions. Its competitive compensation plan shares wealth, contributes to employee satisfaction, and encourages peak performance.

Studies by Mohr (1986), Mgbe (1994), & Aluko (1998) show, that most Nigerian workers are extrinsically oriented and can therefore be motivated largely by extrinsic rewards such as pay, job security, co-workers' pressure to perform, supervisory behaviour or work rules, etc. Mohr (1986) noted that the motivation to work in the extended family system stems from goodwill, sympathy, devotion, and a sense of responsibility. In industry or secular work, work is carried out for gain and monetary rewards. Hence, the individual's former non-materialistic orientations have turned into a desire for more money, which marks his attitude toward his work. From all indications, this shows goes to show that workers are extrinsically motivated and that management devices strategy to motivate them. In other words, workers cannot be induced to work extra hard without receiving extra pay. To motivate and manage workers in the Nigerian economic environment efficiently, management must pay very attractively.

In a recent study by Basse & Essien (2019) on the factors that motivate Nigerian workers to work in the Akwa Ibom State Civil Service, majority (60.2%) of the workers stated that incentive in the form of salary and wages is their primary and main motivating factor. This supports earlier studies that obtained similar results. In other instances outside Nigeria, Behling (2008) noted that money in the form of pay or some sort of remuneration appears to be the most obvious extrinsic reward and motivator in the United States of America. He noted that money provides the means to achieve a number of different ends. According to Armstrong (1988), money may itself have no intrinsic meaning, but it acquires significant motivating power because it comes to symbolise so many intangible goals. It acts as a symbol in different ways for different people and at different times for the same person. Armstrong (1988) surmised that people certainly want money and have to be paid the right amount to keep them in most organizations. He averred that the, effectiveness of money as a means of

improving performance and productivity, however, depends upon it being seen as a reasonable sure means of achieving a goal.

Despite the overwhelming support of money as a factor in performance by the majority of studies (Mohr, 1986; Mgbe, 1994; & Aluko, 1998), other factors have also been identified to enhance performance in the literature. For instance, Vroom (1964) suggested that an employee's level of job performance is predicated on his/her state of mind and predisposition to the job. If an employee is unhappy as a result of inadequate or lack of financial incentives for his/her efforts and services, it is likely that he/she will not perform maximally. McGregor (1960) supported this fact in his independent study of human behaviour in organizations, observed that when individuals invited to take part in setting the standards they are to work toward, if they are given tasks that catch their enthusiasm and engage their talents and, if they feel and are in fact free, to create and develop the environment in which they work and their rewards to them for doing so are justly distributed, then they will work effectively and happily together.

Similarly, Mayo (1924) noted that the economic view of man being driven by financial reward alone for productivity does not hold sway any longer as a management strategy. The relationship between productivity and external factors, such as lighting, and rest pause was inconclusive. For him, an insignificant relationship appears. What then motivates workers? This could be found in socio-psychological factors. Such needs include friendships, group support, acceptance, recognition, achievement, and self-actualization. He noted that if these needs are not met, workers suffer damaging psychological and physiological effects and the organisation is impaired. This last opinion corroborates the views of Maslow and McClelland regarding the effect of social-psychological variables on job performance.

6. Overview of Philadelphia's Textile Industry

The Philadelphia spinning mill was a typical industrial complex characterised by the use of mechanised textile processing equipment. The industry was part of the burgeoning and larger textile manufacturing sector, which played a crucial role in the United States of America economy during the Industrial Revolution. As part of the vista that came with the Industrial Revolution, women comprised the workforce as men in the industries. The majority of the textile workers were women who were made to operate spinning machines in a repetitive environment, demanding, and stressful. Conditions of long working hours, low pay, and limited benefits were also present. Consequently, the mill experienced high employee turnover and declining productivity (Mayo, 1924). Moreover, the industry existed during the period when the Scientific Management approach propelled by Frederick Taylor was being influential (Taylor 1947). Relying extensively on the carrot and stick principle, managers must see workers as being driven principally by money. Taylor assumed that: "men could be related to their work rather as machines to be made as efficient as possible; that, properly used incentives would evoke more and more efficient work by the employee; and that the financial rewards from the increases in efficiency, which would result from the use of Scientific Management, could be used to increase the income of both managers and workers and thus secure the harmonious co-operation of both groups (Taylor 1947 in Parker et al., 1977: 86)". This assumption was fanciful in theory but impractical in an industrial context, as in the case of the Philadelphia Spinning Mill. The mill experienced high employee turnover and lower worker productivity primarily due to the adoption of the scientific management approach. Hence, the Philadelphia spinning mill provided the context for the understanding of motivation and productivity. It is worth noting that although Mayo is more renowned for his Hawthorne studies, the Philadelphia Spinning Mill Experiment preceded them.

7. Philadelphia Spinning Mill Experiment

Elton Mayo and his team of researchers conducted the Philadelphia Spinning Mill experiment in the early 20th century to address the challenging industrial problems that characterised many industries, including Philadelphia Spinning Mill, at that time: the twin problems of absenteeism and labour turnover. The major focus of this study was to examine the socio-psychological factors that are likely to affect workers' morale and emotional well-being and how they affect productivity. The experiment involved 40 male workers, working in a precarious condition. The result of this was a high labour turnover of about 25% per annum (Ogunbameru, 2000). Mill Managers also participated in the experiment with the hope of finding practical solutions to the labour challenges.

The experiment was carried out in phases as follows:

(a) Observation Phase:

Mayo and his team took time to observe the workers during their shifts to understand their routines and identify sources of stress and fatigue. They noted the repetitive nature of tasks which may likely result in monotony among the workers, lack of rest periods (break) in between task and limited opportunities for the workers to socialise; a situation that points towards alienation. These findings marked a significant turning point to solving the problematic that industry management was long engrossed with.

(b) Interview Phase

This phase involved the use of interviews to understand the subjective experiences, meanings, the social contexts of the workers; mostly, the questions concerned their emotional state, morale, and job satisfaction. By employing this method, the workers saw themselves as having a sense of belonging and regarded the team as realizing their importance.

(c) Intervention Phase

This phase aimed to introduce intervention measures to mediate the findings in the observation and interview phases. In view of the lack of rest for the workers discovered by the researchers, two rest periods were introduced. First, two ten-minute rest pauses in the morning and two in the afternoon were introduced. This lasted for 4 months. The production increased from 70% to between 80 - 82%. Owing to the uncooperative attitude of the supervisors, the rest pauses were dropped, consequently reducing production to about 70%. This forced Mayo to re-introduce the rest pauses, this time with a condition that the men would have their rest only when a task was set and completed within a given time. In spite of this, production continued to fall. At this point, the company president intervened by ordering that the rest period be re-introduced. After this, production rose to 77%, workers' morale and health improved, and absenteeism decreased drastically (Ogunbameru, 2000). In addition to the rest pauses, Mayo introduced an earned bonus scheme that made workers earn a bonus when they produced. The bonus schemes were implemented in three manners: Group-based incentives were based on group performance, where workers were incentivised to work together to achieve higher productivity. Output-based bonuses -workers received bonuses based on their collective output, which encouraged teamwork and cooperation. The bonuses were paid regularly, providing workers with a tangible reward for their efforts. It is important to stress that the earned bonus scheme was a key aspect of the experiment that unlocked productivity of the workers in the Philadelphia spinning mill as the workers strenuously strived for higher output to earn a bonus.

8. Influence of Motivation on Productivity of Workers in the Spinning Mill

Motivation can unlock workers' productivity. Understanding the working conditions and welfare is central to creating a strong sense of belonging in the workers, thereby energising them to participate in the attainment of organisational goals. For instance, Mayo realized the psychological deficit of the workers in terms of

management regarding them as machines without recourse to their physical and mental well-being. He understood that stress and fatigue were the major problems causing absenteeism and labour turnover in the mill. Hence, introducing rest pauses in the Philadelphia spinning mill, was a factor extrinsic to the job but a major boost to the mill's productivity. Workers regained energy lost during work and were happy and satisfied with the new work pattern that afforded them a break.

Moreover, allowing the workers to socialise during break periods improved their morale and sense of camaraderie in the spinning mill. This measure promoted interaction and comradeship, thereby reducing the effect of monotonous work, which resulted in alienation. Mayo understood the importance of social variables in the work matrix. Therefore, the rest pauses further reinforced the importance of social factor in workers' productivity.

Finally, the introduction of earned bonuses was the icing on the cake. Rewarding workers' efforts with monetary incentives was seen to shoot output to a higher level unprecedented in the mill. Notably, Mayo manipulated the monetary incentives to reinforce workers' commitment toward production. Therefore, by incentivising workers to work as a team and strive for higher output, monetary rewards in the form of bonuses, allowances, and even tips can unlock productivity in industries, as in the Spinning Mill.

9. Lessons from the Study for Industry Managers.

There are some lessons to be drawn from Mayo's experiment of the Philadelphia Spinning mill, especially for industries' human resource managers. Notable among them include the following:

(a) Shifting of managerial practices from a work-centred to a people - oriented approach. Some principles of the scientific management approach were seen as counterproductive, especially the belief that monetary incentives primarily drive workers. Some managers have followed this traditional model, which has caused many best laid down incentives plans to fail. Blum and Naylor (2004) noted that awarding war bonds to employees to exert attendance was not the perfect solution to the absenteeism problem faced by Wiremold Company of Connecticut, USA. The company president observed that the incentive plan failed to influence the habits of the employees because most of those who had been irregular in attendance before the award system were still irregular. Similarly, drivers in the New York City drivers' union experienced a slowdown and refused to work overtime despite an increase in incentives. The union president retorted that "the men were not seeking more money, they were tired, and they thought the company should hire additional drivers" (Blum & Naylor, 2004). In some situations, money can be a dissatisfies, as was found in the two cited companies. Other socio-psychological needs drive workers, for example, good communication, empathy from supervisors/managers, and teamwork. In Essien (2014), teamwork and cooperation were found to reduce work stress among female workers in commercial banks in Akwa Ibom State, Nigeria. Therefore, managers must have a nuanced understanding of the intricate subject of motivation and its application.

(b) The second important lesson is the adoption of the human relations approach in dealing with workers. The study introduced the HR model to management. The mere fact that the workers were interviewed to state the fact of the problems was a pointer that their emotional wellbeing and satisfaction was of utmost importance to the industry. The success of the spinning mill was equally tied to their success. This was a palpable recognition of man as a resource among other productive enterprises; and was a clear departure from the scientific management model, which primarily focused on efficiency and mechanical processes. Therefore, industry managers must see workers as partners in the service of achieving organisational goals. Managers' perceptions of workers can influence their decision-making process and outcomes (McGregor, 1960).

(c) The third lesson learnt is the fact that the organisation is not just a technical system but also a social system, where interpersonal relationships, group cohesion and workers' morale directly affect productivity. For instance, the initial withdrawal of the rest pause led to a decrease in output, and when it was re-introduced output increased. Workers have ways to respond to changes in the industry; if the changes affect the traditional pattern with which they were used to or indulged in, they may sabotage such change through the process of social loafing. However, when they participate in the decision-making process, they can contribute to the industry's growth and even complement management's efforts or deficiencies. Therefore, the Spinning Mill experiment is instructive for managers to pay particular attention to the social dynamics in industries and their potential to unlock productivity.

10. Conclusion

This paper discusses the concept of motivation and how its proper application could enhance productivity in industries using the Philadelphia Spinning Mill Experiment as an exemplar. The study revealed relationship between motivation and worker performance. The study revealed that workers are driven by needs, particularly the need for money in the form of wages, salaries, allowances, and bonuses. But beyond money, psycho-social needs such as recognition, competition, achievement, and companionship are lacking in some workers. Satisfying the needs of workers requires management skills that entail needs identification, implementation and evaluation. These management approaches were adopted in the Philadelphia Spinning Mill and were found to yield positive results. Therefore, industry managers must take a cue from Elton Mayo.

11. Recommendations

In view of the nexus between motivation and productivity revealed by Mayo's study of the Philadelphia spinning mill, revealed, the following recommendations are made:

- i. To unlock productivity, manager must shift management practices from work-centred to workers-centric approach. Encouraging open communication, empathy from the supervisors and fostering teamwork could unlock productivity from workers as it did in the Philadelphia Spinning Mill industry.
- ii. There is need for managers to have an in-depth understanding of the intricate nature of motivation and its application; in particular, the type of incentive plans suitable for workers at a particular time. This information may be obtained from the workers themselves or through job analysis.
- iii. Managers must recognise the existence and importance of social groups in industry; as they have a way of influencing workers' behaviour toward productivity. This calls for good human relations practice. The importance of social dynamics in industry has been discussed exhaustively and need not be overemphasized. Managers must take cognizance of them.

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