



explore, engage, execute, evaluate

Motivating People

Introduction

Motivating people is a key management and leadership skill.

The dictionary defines motivation as follows,

“Desire to do; interest or drive, incentive or inducement, the process that arouses, sustains and regulates human or animal behaviour.”

In management terms, it can simply be defined as the force or process that causes specific individuals to act in a specific way. This requires us as managers to understand the forces at work, and to differentiate between individuals and the influences that act on them.

Understanding Motivation

In order to understand motivation, it is helpful to look at a number of theories that have been developed over the years and in particular the work of Maslow, McClelland, Herzberg, McGregor and Vroom.

Later in the handout, the Hawthorne Experiments 1927 - 1932, carried out by Elton Mayo at the Western Electric Hawthorne Works in Chicago, are described.

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Abraham Maslow

Hierarchy of Needs

Abraham Maslow has put one model of motivation that has gained a lot of attention, but not complete acceptance, forward. Maslow's theory argues that individuals are motivated to satisfy a number of different kinds of needs, some of which are more powerful than others (or to use the psychological jargon, are more *pre-potent* than others). The term *pre-potency* refers to the idea that some needs are felt as being more pressing than others. Maslow argues that until these most pressing needs are satisfied, other needs have little effect on an individual's behaviour. In other words, *we satisfy the most pre-potent needs first* and then progress to the less pressing ones. As one need becomes satisfied, and therefore less important to us, other needs loom up and become motivators of our behaviour.

Maslow represents this pre-potency of needs as a *hierarchy*. The most pre-potent needs are shown at the bottom of the ladder, with pre-potency decreasing as one progresses upwards.

- *SELF-ACTUALISATION* - reaching your maximum potential, doing your own best thing
- *ESTEEM* - respect from others, self-respect, recognition
- *BELONGING* - affiliation, acceptance, being part of something
- *SAFETY* - physical safety, psychological security
- *PHYSIOLOGICAL* - hunger, thirst, sex, rest

The first needs that anyone must satisfy are physiological. As Maslow says:

"Undoubtedly these physiological needs are the most pre-potent of all needs. What this means specifically is that in the human being who is missing everything in life in an extreme fashion, it is most likely that the major motivation would be the physiological needs rather than any others. A person who is lacking food, safety, love and esteem would probably hunger for food more strongly than anything else".

Once the first level needs are largely satisfied, Maslow maintains, the next level of needs emerges. Individuals become concerned with the need for *safety and security* - protection from physical harm, disaster, illness and security of income, life-style and relationships.

Similarly, once these safety needs have become largely satisfied, individuals become concerned with *belonging* - a sense of membership in some group or groups, a need for affiliation and a feeling of acceptance by others. When there is a feeling that the individual belongs somewhere, he or she is next motivated by a desire to be held in *esteem*.

People need to be thought of as worthwhile by others, to be recognised as people with some value. They also have a strong need *to see themselves* as

worthwhile people. Without this type of self-concept, one sees oneself as drifting, cut off, pointless. Much of this dissatisfaction with certain types of job centres around the fact that they are perceived, by the people performing them, as demeaning and therefore damaging to their self-concept. Finally, Maslow says, when all these needs have been satisfied at least to some extent, people are motivated by a desire to *self-actualise*, to achieve whatever they define as their maximum potential, to do their thing to the best of their ability. Maslow describes self-actualisation as follows:

A musician must make music; an artist must paint, a poet must write, if he is to be ultimately happy. What a man can do, he must do. This need we may call self-actualisation ... It refers to the desire for self-fulfilment, namely the tendency for one to become actualised in what one is potentially. This tendency might be phrased as the desire to become more and more what one is, to become everything that one is capable of becoming.

The specific form these needs take will of course vary greatly from person to person. In one individual it may be expressed maternally, as the desire to be an ideal mother, in another athletically, in still another aesthetically, the painting of pictures, and in another inventively in the creation of new contrivances. It is not necessarily a creative urge although in people who have any capabilities for creation it will take this form."

Several points must be made concerning Maslow's model of motivation. First, it should be made clear that he *does not mean that individuals experience only one type of need at a time*. In fact, we probably experience all levels of needs all the time, only to varying degrees. In many parts of the world, hunger is a genuine reality but we have all experienced the phenomenon of not being able to concentrate upon a job because of a growling stomach. Productivity drops prior to lunch as people transfer their thoughts from their jobs to the upcoming meal. After lunch, food is not uppermost in people's minds but perhaps rest is, as a sense of drowsiness sets in.

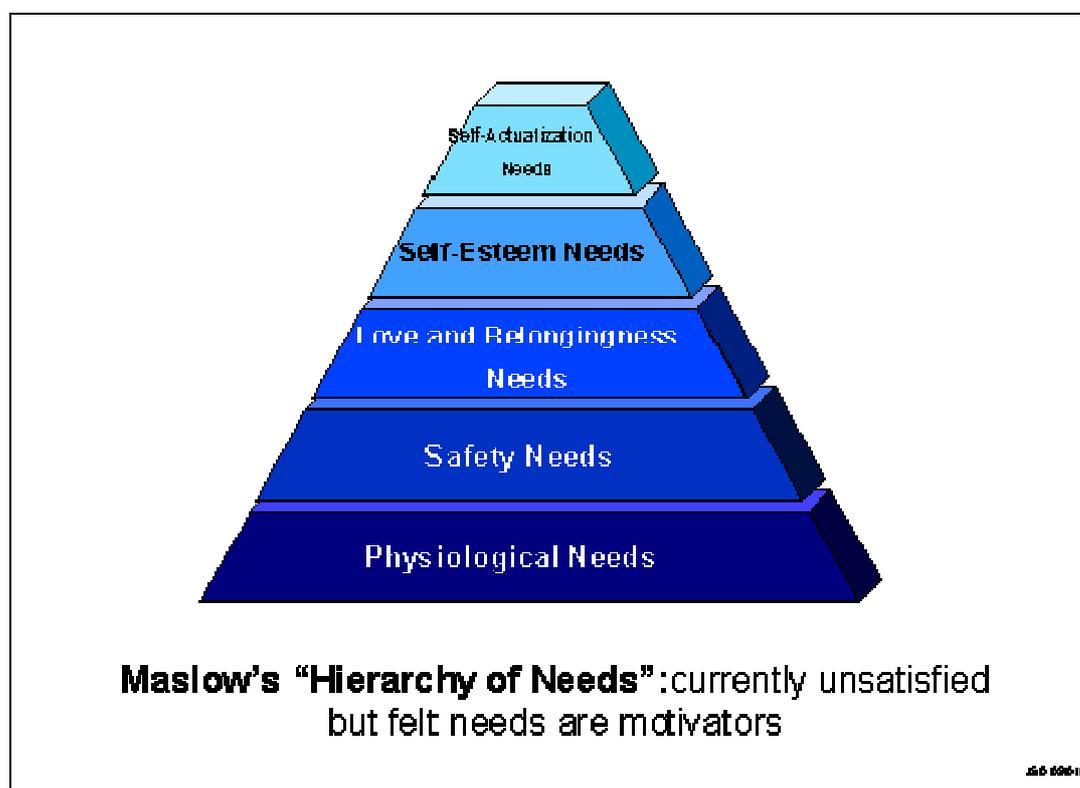
Similarly, in almost all organisational settings, individuals juggle their needs for security ("Can I keep this job?") with needs for esteem ("If I do what is demanded by the job, how will my peers see me, and how will I see myself?") Given a situation where management is demanding a certain level of performance, but where *group norms* are to produce below these levels, all these issues are experienced.

If the individual does not produce to the level demanded by management, he or she may lose the job (security). But if he or she conforms to management's norms rather than those of the group, it may ostracise him or her (belonging) while the individual may see him or herself as a turncoat (esteem) and may have a feeling of having let the side down (self-esteem.) We do not progress simply from one level in the hierarchy to another in a straightforward, orderly manner; there is a constant, but ever-changing pull from all levels and types of needs.

A second point that must be made about Maslow's hierarchy is that *the order in which he has set up the needs does not necessarily reflect their pre-potence for every individual*. Some people may have such a high need for esteem that they are able to subordinate their needs for safety, or their physiological or belonging needs to these. The *war hero* springs to mind. There is little concern for safety or physical comfort as the seeker of glory rushes forward into the muzzle of destruction.

A third and very important point to be made about Maslow's hierarchical model is the assertion that *once a need is satisfied it is no longer a motivator* - until it re-emerges. Food is a poor motivator after a meal. The point in this is clear for management. Unfortunately, many organisations and individuals still fail to get the message. Most incentive schemes are based upon needs that have already been largely satisfied. If management placed emphasis on needs that have not been satisfied, employees would be more likely to be motivated towards achieving the goals of the organisation. Human behaviour is primarily directed towards *unsatisfied* needs.

Finally, an important aspect of Maslow's model is that it provides for constant growth of the individual. There is no point at which everything has been achieved. Having satisfied the lower needs, one is always striving to do things to the best of one's ability, and best is always defined as being slightly better than before. There has been a great deal of debate over Maslow's hierarchical concept of motivation. It has a basic attraction to most people because it seems to be logical, to make sense.



Vroom

Expectancy Theory of Motivation

Victor Vroom, of Carnegie-Mellon in Pittsburgh, has challenged the assertion of the human relationists that job satisfaction leads to increased productivity. (This theory has been called the contented cow approach to management.) The assumption is that if management keeps employees happy, they will respond by increasing productivity. Herzberg, in a delightful film of motivation, highlights the fallacy of this assumption with an interview between a manager and a secretary. The secretary is complaining about the job, and the manager lists all the things that have been done for the secretary - increases salary, new typewriter, better hours, status and so on - at the end of which she looks straight at him and asks, "So what have you done for me lately?"

The point may be made that satisfied needs do not motivate people Hygiene's simply keep employees quiet for a time. For an individual to be motivated to perform a certain task, he or she must expect that *completion of the task will lead to achievement of his or her goals*. The task is not necessarily the goal itself but is often the means of goal attainment. Vroom defines motivation as:

"A process governing choices, made by persons or lower organisms, among alternative forms of voluntary behaviour."

In organisational terms, this concept of motivation pictures an individual, occupying a role, faced with a set of alternative voluntary behaviours, all of which have some associated outcomes attached to them. If the individual chooses behaviour 1, outcome A results; if 2 then B results and so on. Knowing that individuals choose behaviours in order to obtain certain outcomes is nothing new. The question is why they choose one outcome over another. The answer provided by the motivational theories in the other articles in this short series (Maslow, Herzberg, McClelland) is that the choice reflects the strength of the individual's desire or need for a specific outcome at a certain time.

However, Vroom makes the point that task goals (productivity, quality standards or similar goals attached to jobs) are often means to an end, rather than the end in itself. There is a second level of outcomes, which reflect the real goals of individuals, and these may be attained, in varying degrees, through task behaviour.

An individual is motivated to behave in a certain manner because (a) he or she has a strong desire for a certain task outcome and a reasonable expectation of achieving that outcome and (b) because he or she also expects that the achievement of the task outcome will result in reward in terms of pay, promotion, job security, or satisfaction of individual needs - physiological, safety, esteem and so on.

Valence Expectancy Theory:

Force = Valence x Expectancy

Force: The strength of motivation.

Valence: The strength of an individual's preference for an outcome.
The probability that a particular action will lead to a desired outcome

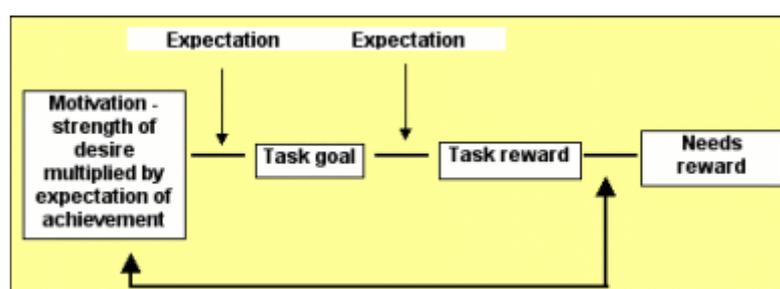
Vroom argues that if valence is zero or negative then there can be no motivation

Job Enrichment

Job enrichment is an important attempt to build in higher sense of challenge, importance and achievement for people at work. Attention is required in the following areas,

- Variety of work
- Work methods
- Participation
- Personal responsibility
- Relating personal work to that of others and the organisation
- Quick feedback
- Involvement of employees in managing change

Another way to look at the model developed by Vroom is shown below.



Let us take a look at how the model works. Imagine a manager has as a task goal; *receive good ratings for internal customer service*. The choice of this task goal reflects three things:

1. The strength of the need for good ratings versus some other goal.
2. The expectation that this goal can be achieved.
3. The expectation that the achievement of this task goal will lead to desired rewards - promotion, increased security and so on.

Vroom would maintain that we do things in our jobs in order to achieve second level rewards:

"If a worker sees high productivity as a path leading to the attainment of one or more of his or her personal goals, he or she will tend to be a high producer. Conversely, if he or she sees low productivity as path to the achievement of his or her goals, he or she will tend to be a low producer".

Certainly Vroom has hit on an important aspect of motivation. We do not attempt simply to satisfy a need or even a set of needs in a straightforward, "If I do this, then I will achieve that" manner. We work with a chain of goals and rewards, where goals in one area are only a means of achieving goals in another.

David McClelland

The Need for Achievement

The one single motivating factor that has received the most attention in terms of research is the *need for achievement (n-ach)*. As a result, we know more about n-ach than any other motivational factor. Much of this knowledge is due the work of David McClelland of Harvard. To illustrate what he means by the need for achievement, McClelland cites the following example:

"Several years ago, a careful study was made of 450 workers who had been thrown out of work by a plant shutdown in Erie, Pennsylvania. Most of the unemployed workers stayed at home for a while and then checked with the employment service to see if their old jobs or similar ones were available. But a small minority among them behaved differently; the day they were laid off, they started job hunting. They checked both national and local employment offices; they studied the Help Wanted sections of the papers; they checked through their union, their church and various fraternal organisations; they looked into training courses to learn a new skill; they even left town to look for work, while the majority when questioned said they would not under any circumstances move away to obtain a job. Obviously the members of the active minority were differently motivated".

Individuals with a *high n-ach* have a number of distinctive characteristics that separate them from their peers.

First of all, they like situations where they can take personal responsibility for finding solutions to problems. This allows them to gain personal satisfaction from their achievements. They do not like situations where success or failure results from chance. The important thing is that the outcome be the result of their own skill and effort.

A second characteristic of high n-ach people is that they like to set moderately high goals for themselves. These goals are neither so low that they can be achieved with little challenge, nor so high that they are impossible. High n-ach individuals prefer goals that require all-out effort and the exercise of all their abilities. Once again, the achievement of this type of objective results in greater personal satisfaction. This phenomenon can be observed in very young children. A child may be given a game of ring toss, told that he or she scores whenever a ring lands over the peg and then left alone to play the game. McClelland comments:

"Obviously children who stand next to the peg can score a ringer every time; but if they stand a long distance away; they will hardly ever get a ringer. The curious fact is that children with a high concern for achievement quite consistently stand at moderate distances from the peg where they are apt to get achievement satisfaction ... The ones with low n-Achievement, on the other hand, distribute their choices of where to stand quite randomly over the

entire distance. In other words, people with high n-Achievement prefer a situation where there is a challenge, where there is some real risk of not succeeding, but not so great a risk that they might not overcome it by their own efforts".

A third distinctive characteristic of high achievers is that they want *concrete feedback* on their performance. Only certain types of jobs provide this kind of feedback, however, and so some kinds of jobs are unattractive to high achievers. For instance, teachers receive only imprecise, hazy feedback as to the effectiveness of their efforts while production managers have a daily output chart to look at with either joy or disappointment.

There are some additional minor characteristics possessed by high achievers. They tend to enjoy travel, are willing to give up a *bird in the hand for two in the bush* and prefer experts to friends as working partners. The image is clear; the high achiever is a personality type suited admirably to certain jobs and not others. It would be wrong to treat all individuals as high achievers and attempt to motivate them by offering them challenging jobs, rapid and objective feedback on performance and personal responsibility for success or failure.

The need for affiliation and the need for power

McClelland has also identified two other types of need, the *need for affiliation (n-affil)* and the *need for power (n-pow)*. His testing procedure is concerned with the application of what is known as the *Thematic Apperception Test (TAT)*, a series of pictures that are presented to a subject, one at a time. The individual is asked to tell a story about each picture.

The underlying assumption of the TAT procedure is that it will reveal the dominant thoughts and attitudes of subjects. For instance, an individual with high n-ach will formulate stories concerned with getting things done, challenging situations, feelings of satisfaction at having done a good job and so on.

The individual with a high need for affiliation (n-affil) will reflect sensitivity to the feelings of others, a desire for friendly relationships and a reference to situations which involve human interactions. High n-power subjects will relate stories reflecting the process of influencing others, controlling and manipulating others.

The need for affiliation

The need for affiliation is similar to Maslow's need to belong. It can be a dominant motivating force affecting behaviour and may manifest itself in many different ways. The novelist John O'Hara was supposedly obsessed with the fact that, not having a college degree, he was excluded from membership of certain clubs and societies. At the other end of the spectrum, James

Coyne, a former Governor of the Bank of Canada, was described as the most *unclubbable* man in the country, as he held an aversion to joining groups.

In its most straightforward form, a need for affiliation manifests itself in a desire to be liked by others, to be part of a group, to enter into warm, personal relationships. High n-affil people value relationships over accomplishments and friendship over power.

The need for power

In studying the motivational profiles of North American managers, McClelland noticed that many of those who reach the top of organisations and are rated as highly effective in their positions, demonstrate a concern for influencing people. This is, in McClelland's terms, a *need for power*. This need is not simply seen as the raw desire to control others or simply to exert authority. McClelland makes the point that:

"... this need must be disciplined and controlled so that it is directed toward the benefit of the institution as a whole and not toward the manager's personal aggrandisement. Moreover, the top manager's need for power ought to be greater than his or her need for being liked by people."

Power motivation refers not to autocratic, tyrannical behaviour but to a need to have some impact, to be influential and effective in achieving organisational goals.

Results

McClelland examined the motivational needs of a large group of managers whose units demonstrated varying degrees of morale. The most important factor, in predicting whether a manager's subordinates would exhibit high morale, turned out to be how their need for power related to their need for affiliation. Teams that exhibited higher morale were those in which the manager's need for power exceeded their desire to be liked. McClelland puts forward the following explanation:

"Sociologists have long argued that, for a bureaucracy to function effectively, those who manage it must be universalistic in applying rules. That is, if they make exceptions for the particular needs of individuals, the whole system will break down. The manager with a high need to be liked is precisely the one who wants to stay on good terms with everybody and therefore is the one most likely to make exceptions in terms of particular needs. ...Sociological theory and our data both argue ... that the person whose need for affiliation is high does not make a good manager."

Organisation man?

Power-motivated managers, like achievement orientated managers and the affiliators, demonstrate distinct characteristics:

1. They are highly organisation-minded. They feel responsible for building organisations to which they belong. They believe strongly in centralised authority.
2. They like to work. This is different from the high achiever who likes to minimise work by becoming more efficient. While the high achiever minimises effort and maximises output, the power-motivated manager enjoys work for its own sake.
3. They are willing to sacrifice some of their own self-interest for the good of the organisation.
4. They have a strong sense of justice, feeling that hard work and sacrifice should be rewarded.

The picture of McClelland's power-motivated manager is reminiscent of the *organisation man* caricatured by William Whyte. The message seems to be that if one is dedicated to the institution, committed to the work ethic and unflagging in energy and devotion, success will follow. However, the increasing popularity of switching jobs as a method of rapid advancement and the rapidity of change in organisations somewhat contradicts this type of thinking.

Hertzberg

Hygiene and Motivation Theory

Frederick Hertzberg developed his two-factor theory for motivation based on it being impossible to motivate people effectively if the basics in the work environment were not in place.

He argued that the provision of what he called hygiene factors did not in themselves motivate people, but that failure to provide them would cause dissatisfaction, therefore negating the effect of any attempt to motivate. Some of the hygiene factors can be relatively small issues, sometimes even trivial, but the most important is finance. Getting pay issues resolved is a key factor. Fear of losing a job is also a powerful de-motivator.

Hertzbergs' second set of factors are things that he suggests motivate and drive people to achieve. They are the factors that a manager should provide in order to get the very best out of the people in his or her team. Hertzberg identified five key factors are able to motivate staff.

The theory clearly indicates that the key motivator is the job itself in the working environment and that considerable effect is required to ensure that this is challenging, interesting, carries recognition and the possibility of personal development, a view confirmed by the Hawthorne experiments referred to later in the handout.

The factors that lead to job satisfaction (the motivators) are:

- achievement
- recognition
- work itself
- responsibility
- advancement

The factors that may prevent dissatisfaction (the hygienes) are:

- company policy and administration
- working conditions
- supervision
- interpersonal relations
- money
- status
- security

Hygienes, if applied effectively, can at best prevent dissatisfaction: if applied poorly, they can result in negative feelings about the job.

Motivators are those things that allow for psychological growth and development on the job. They are closely related to the concept of self-

actualisation, involving a challenge, an opportunity to extend oneself to the fullest, to taste the pleasure of accomplishment, and to be recognised as having done something worthwhile.

Hygienes are simply factors that describe the conditions of work rather than the work itself. Herzberg's point is that if you want to motivate people, you have to be concerned with the job itself and not simply with the surroundings.

In a medical sense, growth, healing and development occur as natural internal processes. They are the result of proper diet, exercise, sleep etc. Hygienic procedures simply prevent disease from occurring. They do not promote growth per se.

Herzberg says that we should focus our attention on the individuals in jobs, not on the things that we surround them with. He maintains that we tend to think that growth and development will occur if we provide good working conditions, status, security and administration, whereas in fact what stimulates growth (and motivation to grow and develop) are opportunities for achievement, recognition, responsibility and advancement.

McGregor

Theory X and Theory Y

McGregor, an American psychologist, built upon earlier studies into the psychology of the workplace. From these studies he constructed a model of management attitudes, and from this model demonstrated that managers, wittingly or unwittingly, strongly dictated the type and attitude of workers in their employ.

McGregor firstly examined the work of Taylor. In the early 1900's the Classical and Scientific (Taylorian) schools of management, suggested that workers were to be given tasks in their simplest forms. Within such Taylorian businesses, the role of management was to ensure that the simplest, most efficient, and productive working methods were used. Employees would have nothing to contribute but their labour. It can be argued that the early success of Ford Motors was to a large part due to the implementation of this structure.

The second element McGregor used was the more recently developed Human Relations School. Studies performed by students of the Human Relations School, such as Mayo, found that many employees would produce higher levels of output, and be more aware of quality issues, if they are brought into the decision-making that affected their jobs, rather than being just told what to do, and how to do it. There was a recognition by the Human Relations School that employees would have needs over and above those of financial needs. And if these needs were at least partially satisfied workers would become able to contribute to the more efficient operation of the business organisation.

McGregor then put forward the idea that in the main, it was managers that created the two types of worker, and if this were so, managers had the ability to, over time, change the psychology of their employees.

He called the two types of managers -Theory X and Theory Y

(Cont)

The Theory X Manager

The first of these management styles is founded upon the "assumption of the mediocrity of the masses". The Theory X type of manager makes several assumptions about his employees, (none of them good):

- Workers must be supervised, or quality and quantity of output will fall
- Workers only respect the type of boss that tells them what to do, and does so with complete authority
- Money is the only motivator
- Workers do not want to be involved in the decision making process
- Workers wish to remain faceless and unknown to management
- Workers have little ambition, they wish to remain 'one of the boys'

The Theory Y Manager

The Theory Y manager of course believes that the reverse is true. He starts with several positive assumptions about his employees.

- Workers cannot be motivated by money alone; they seek more than financial satisfaction from their jobs.
- Workers are ambitious, willing to train, and contribute to improve their chances of promotion.
- Workers will be more efficient if they are left to their own devices. Trust breeds responsibility.
- Workers want to contribute to improving efficiency. They want to be seen, noticed, rewarded and appreciated when they work well.

The impact of Theory X and Theory Y managers on Businesses.

If managers behave in the ways indicated above, there must be many company wide implications for all hierarchically structured businesses (i.e. all medium to large businesses).

The main areas of impact will be in:

- The use of job enrichment and enlargement
- Empowerment
- Delegation and methods of communication
- Hierarchical structure

To use a quote from McGregor

"The theoretical assumptions management hold about controlling its human resources, determine the whole character of the enterprise."

Consequences of Theory Y Managers

The above quote indicates that Theory Y managers are likely to create an open structure, with both formal and informal paths of communication, and delegated powers. Workers will be given responsibilities, and a wider range of tasks.

In the case of Theory Y managers, managers are facilitators. It is likely that managers will adopt a Democratic Style - this is based on encouraging participation in decision-making. In the case of Theory Y managers the consequences for the firm will be:

- Requirement for training
- Use of cell working - restructuring of production and service methods
- Setting up of formal communication channels, with both vertical and lateral communication
- Promotion structures

Consequences of Theory X Managers

But on the other hand, if managers are employed who believe that workers have little or no ambition, wish to be left alone, must not be involved in the wider business environment and must be supervised if they are to maintain quality and quantity of work, then a reverse set of consequences arise. In this case these Theory X managers are likely to be Autocratic managers who are objective and task setters, controlling and dictating operations.

The consequences to the firm include:

- Strict control of formal methods of communication
- Responsibilities must be clear and unambiguous
- Supervisors must maintain quality
- High level of dependence on decision making of senior management
- Tasks must be designed so they are broken down into their simplest units

Conclusions

The essence of this theory is that the managers will, over a period of time, dictate how workers behave. So if we have a Theory Y manager positioned in a business where workers have previously behaved within the Theory X pattern, it is quite possible for the existing workers to be transformed from being uncooperative, de-motivated, and unconcerned with the success of the business to become contributors, motivated to improve quality, output and ambitious for personal and company success. It also follows from this, that lack of motivation amongst workers and poor quality of output, is a management created problem. It is the role of management to create methods of production and management of Human Resources that will allow these resources to realise their full potential.

It is of course quite possible that some organisations might benefit from the Theory X manager, after all it is sometimes necessary to gain control, especially when previous management have let organisations become unwieldy or uncoordinated.

It can therefore be seen that for most businesses especially those wishing to use the latest production and motivational methods, the Theory Y manager is appropriate. But there can be cases where a dose of Theory X is exactly what a business needs.

The Hawthorne Studies

The Hawthorne Studies (or experiments) were conducted from 1927 to 1932 at the Western Electric Hawthorne Works in Chicago, where Harvard Business School professor Elton Mayo examined productivity and work conditions.

The studies grew out of preliminary experiments at the plant from 1924 to 1927 on the effect of light on productivity. Those experiments showed no clear connection between productivity and the amount of illumination but researchers began to wonder what kind of changes would influence output.

Variables Affecting Productivity

Specifically, Mayo wanted to find out what effect fatigue and monotony had on job productivity and how to control them through such variables as rest breaks, work hours, temperature and humidity.

In the process, he stumbled upon a principle of human motivation that would help to revolutionize the theory and practice of management.

Mayo took six women from the assembly line, segregated them from the rest of the factory and put them under the eye of a supervisor who was more a friendly observer than disciplinarian. Mayo made frequent changes in their working conditions, always discussing and explaining the changes in advance.

He changed the hours in the working week, the hours in the workday, the number of rest breaks, and the time of the lunch hour. Occasionally, he would return the women to their original, harder working conditions.

Relay Assembly

The investigators selected two girls for their second series of experiments and asked them to choose another four girls, thus making a small group of six. The group was employed in assembling telephone relays - a relay being a small but intricate mechanism composed of about forty separate parts which had to be assembled by the girls seated at a lone bench and dropped into a chute when completed.

The relays were mechanically counted as they slipped down the chute. It was intended that the basic rate of production should be noted at the start, and that subsequently changes would be introduced, the effectiveness of which would be measured by increased or decreased production of the relays.

Feedback mechanism

Through out the series of experiments, an observer sat with the girls in the workshop noting all that went on, keeping the girls informed about the experiment, asking for advice or information, and listening to their complaints.

The experiment began by introducing various changes, each of which was continued for a test period of four to twelve weeks. The results of these changes are as follows:

Conditions and results

Under normal conditions with a forty-eight hour week, including Saturdays, and no rest pauses, the girls produced 2,400 relays a week each.

They were then put on piecework for eight weeks.

Output went up.

Two five-minute rest pauses, morning and afternoon, were introduced for a period of five weeks.

Output went up once more.

The rest pauses were lengthened to ten minutes each.

Output went up sharply.

Six five-minute pauses were introduced, and the girls complained that their work rhythm was broken by the frequent pauses.

Output fell slightly.

Return to the two rest pauses, the first with a hot meal supplied by the Company free of charge.

Output went up.

The girls were dismissed at 4:30 p.m. instead of 5:00 p.m.

Output went up.

They were dismissed at 4:00 p.m.

Output remained the same.

Finally, all the improvements were taken away, and the girls went back to the physical conditions of the beginning of the experiment: work on Saturday, 48 hour week, no rest pauses, no piece work and no free meal. This state of affairs lasted for a period of 12 weeks.

Output was the highest ever recorded averaging 3000 relays a week.

Confused? Read on.

What happened during the experiments

What happened was that six individuals became a team and the team gave itself wholeheartedly and spontaneously to co-operation in the experiment. The consequence was that they felt themselves to be participating freely and without afterthought and were happy in the knowledge that they were working without coercion from above or limitation from below.

They were themselves satisfied at the consequence for they felt that they were working under less pressure than ever before. In fact regular medical checks showed no signs of cumulative fatigue and absence from work declined by 80%.

It was noted too, that each girl had her own technique of putting the component parts of the relay together - sometimes she varied this technique in order to avoid monotony and it was found that the more intelligent the girl, the greater was the number of variations (similar to findings into achievement-motivated people).

The experimental group had considerable freedom of movement. They were not pushed around or bossed by anyone. Under these conditions, they developed an increased sense of responsibility and instead of discipline from higher authority being imposed; it came from within the group itself.

The Findings

To his amazement, Elton Mayo discovered a general upward trend in production, completely independent of any of the changes he made.

His findings didn't mesh with the then current theory (see F.W. Taylor) of the worker as motivated solely by self-interest. It didn't make sense that productivity would continue to rise gradually when he cut out breaks and returned the women to longer working hours.

Mayo began to look around and realized that the women, exercising a freedom they didn't have on the factory floor, had formed a social atmosphere that also included the observer who tracked their productivity. They talked, they joked, and they began to meet socially outside of work.

Mayo had discovered a fundamental concept that seems obvious today. Workplaces are social environments and within them, people are motivated by much more than economic self-interest. He concluded that all aspects of that industrial environment carried social value.

When the women were singled out from the rest of the factory workers, it raised their self-esteem. When they were allowed to have a friendly relationship with their supervisor, they felt happier at work. When he discussed changes in advance with them, they felt like part of the team.

He had secured their cooperation and loyalty; it explained why productivity rose even when he took away their rest breaks.

The power of the social setting and peer group dynamics became even more obvious to Mayo in a later part of the Hawthorne Studies, when he saw the flip side of his original experiments.

A group of 14 men who participated in a similar study restricted production because they were distrustful of the goals of the project.

The portion of the Hawthorne Studies that dwelt on the positive effects of benign supervision and concern for workers that made them feel like part of a team became known as the Hawthorne Effect; the studies themselves spawned the human relations school of management that is constantly being recycled in new forms today, witness quality circles, participatory management, team building, et al.

Incidentally, the Hawthorne Works, the place where history was made, is history now itself. Western Electric closed it in 1983.