

Job Design

INTRODUCTION

In an era of industrial revolution products were manufactured centrally and distributed to the consumers. The products were sold easily because demand was more and the competition did not exist. One of the major characteristics of industrial revolution was specialisation. Adam Smith was pioneer to introduce division of labour and specialization. In this system a worker is assigned a small unit of job so that he produces the same efficiently, and over a period of time he becomes specialist in that job. Specialisation led to higher efficiency and productivity. Henry Fayol later introduced a new set of management principles based on primacy of administration. He laid stress on doing job in a scientific way. Fredrick W. Taylor latter introduced scientific management and is considered as father of scientific management. In his work published in 1911, he emphasized that the work design must take into consideration specialization, standardization and simplification to ensure optimum productivity. He emphasized that the job is divided into basic components and that one of the components of job be assigned to a worker thereby achieving specialization. Principles proposed by Adm Smit, Henry Fayol and Taylor have led to jobs becoming over simplified. This has resulted in jobs becoming monotonous, routine and boring. It also led to workers becoming unimaginative and lacking challenges and innovation. This had an adverse effect on productivity. Peter Ducker stated that restrictive work rules “forbid workers moving from one job to another, thus restricting them to narrow repetitive tasks.” Elton Mayo, therefore proposed a behavioural approach to management that established production and managerial efficiency through understanding of human relations. Maslow also tried to identify the need hierarchy and formulated a motivational model based on satisfaction of human needs in a systematic manner. This did not solve the problem and basic nature of the job remained static. Herzberg introduced a concept of work design. He concluded that workers were happier on their jobs based on intrinsic value of the job itself. Such as personal growth, higher responsibility sense of achievement and recognition. He stressed that work motivation and higher productivity can be achieved if appropriate changes are incorporated in the job design.

Job Enrichment

- (a) **Enhanced Responsibility:** Employees should be assigned a properly defined job. They should be given higher responsibility for the accomplishment of assigned job

and made accountable. This would bring sense of commitment to the organization, increased work performance, greater satisfaction and a sense of achievement and growth.

- (b) **Greater Control Over Resources:** This factor is related to according greater autonomy to the employees in decision making. Workers should be permitted to manage their own time. Greater freedom in adopting methods and procedures should be given to employees within the framework of organizational culture.

Personal Growth & Achievement

(a) **Innovation:** A job should be growth oriented. Once a person achieves a reasonable level of expertise in the job he is doing he should be worth (fit) for consideration to the next higher job. Job must also lead to a feeling of accomplishment and recognition. Managers should ensure a positive reinforcement to the employees. He should encourage innovation and evolve new procedure, systems, methods and sequence of doing the job.

(b) **Feedback:** Nothing gives more joy to employees than the feedback on good performance. It is the duty of each appointment in the ladder to apprise their subordinates about their performance so that appropriate modification can be carried out. Performance feed back is an essential part of managing work force. Supervisors have the responsibility to provide immediate feedback directly to the employees. Performance may be communicated verbally, in written form as it has direct bearing on employee promotion. Feedback should be corrective in nature and conveyed as such. It at times assumes a connotation of criticism which must be taken care off.

(c) **Job Redesign:** The recent changes in technology have seen a progressive use of technical devices and increasing dependence on technology. This has led to decrease in and erosion of the human component. To keep the morale high and simultaneously meet the organizational objective, redesign of work is necessary. Redesign aims at higher productivity, optimum utilization of skills and experience of employees. Various benefits of redesign are as under:-

- (i) *Relationship Between People and Job:* Job redesign alters the relationship of people and the job assigned to him. Every job must be interesting, challenging and accord happiness to the worker. Job has an ever lasting influence on employee motivation. The job must provide intrinsic value to the employees for which they must be proud of. Certain component of job that needs modification should be altered keeping in mind the employee job satisfaction.
- (ii) *Job and human behaviour is directly related to each other:* While redesigning a job, it must be kept in mind that the employee who is likely to be assigned the job should have positive attitude and therefore display a creative and favourable approach towards the group in which he is working. When job contents are not favourable, employee is likely to display resistance. Stress symptoms lead to conflict situation that is more dangerous to the organization. It should be borne in mind that employee behaviour is more important in an organization than any other elements of management.
- (iii) Work redesign open avenues and enhanced opportunities to the employees in various departments in the organization they are serving. It is likely to invite changes in

various areas of operation. Work redesign exercise must ensure workers participation so that the change is accepted by them willingly. The process can be enlarged to cover other areas.

- (iv) Management of resources, processes and keeping work force satisfied are the major responsibilities of manager. Former two aspects can be easily handled by an experienced manager. However creating an enhanced level of satisfaction among the employees is a crucial job. Work redesign brings among people a feeling of worth, facilitates personal growth and make them psychologically and technically fit to handle higher responsibilities. Organizational policies should cater for training and development that brings every individual capable of holding higher responsibilities.

Job Design

Job design is related to deliberately structuring technical, social and human aspect of a job. It is related to organizing (assembling) the components of job to enable participation by all group members to accomplish the same. Jobs can be highly complex or very simple in terms of use of employee skills. Once a job is designed, it must give satisfaction to the worker and he should be able to experience 'Worth' in doing the same. Various job design techniques are as under:

(a) **Job Simplification:** In this technique, jobs are broken down into very small parts where a fragment called "task" is repeatedly done over and over again by the same individual. Thus the worker achieves high level of proficiency. Quality of the product and high volume is produced in a limited time frame. Employee therefore is paid higher rewards. On the organizational side, the productivity is high. Since the individual is doing the job repeatedly, he achieves proficiency and training cost to the organization is practically negligible. However there are certain disadvantages also. Because of the repetitive nature of the task, a worker is likely to get bored and remain absent frequently. Quality and quantity may suffer in the long run due to frustration. Organization may have to attract workers by offering higher wages.

(b) **Job Enlargement:** Job Enlargement means where two or more simple tasks are combined and allotted to an employee. As in the case of vehicle driver, apart from driving he can undertake the job of maintenance of the vehicle. In this situation it adds more tasks to a job so that the worker has variety of simple tasks to perform. The advantage of this method is more variety in a job and acquiring additional proficiency. Dissatisfaction of employees can not be avoided after a long period due to boredom.

(c) **Job Rotation:** Job rotation refers to a technique where the employee is periodically rotated from one job to another within the work design. It involves moving employees among different jobs over a period of time. In this system workers do not get bored and problem of job enlargement is automatically taken care of. In job rotation workers get opportunities to do different jobs within a span of few weeks / months as he is rotated from one job to another. Thus company achieves specialization among the work force. However, people who desire challenging jobs are likely to develop frustration as rotation involves very restricted exposure on job variety.

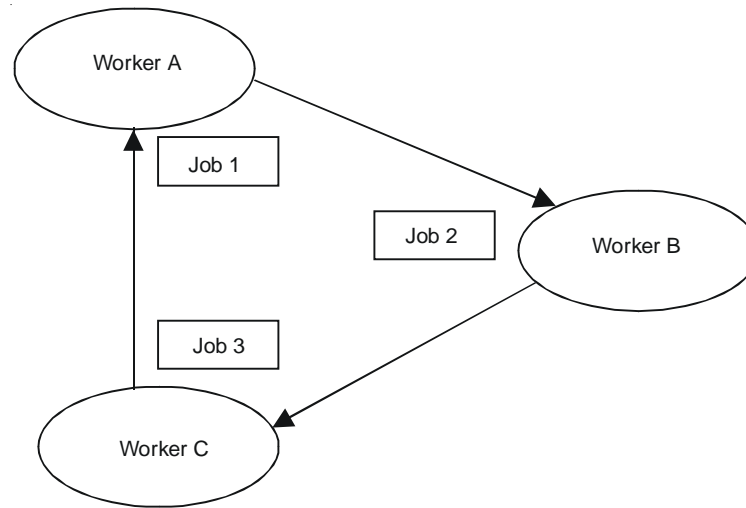


Fig. 17.1. Job Rotation

In the Figure 17.1 above worker A, B and C are performing different jobs within a specific period of time.

(d) **Job Enrichment:** Job enrichment refers to the technique of job design in which variety of skills are required to be possessed by the individual. Job enrichment entails skills development and a challenge. It entails inbuilt motivation, absolute control over the job and opportunities for growth and learning. Enriched jobs offer an intrinsic value to the worker and promotes motivation among the individuals doing the job.

THE JOB DIAGNOSTIC SURVEY

Hackman and Oldham (1976)¹ developed the Job Diagnostic Survey (JDS) which provides measures for some job related variables. The study provides certain guidelines and analysis of independent variables like core job Characteristics, intervening factors based on psychological states of people and consideration of dependant variable in terms of outcome that provides high intrinsic value to the worker. The JDS model is given in Figure 17.2.

Job characteristics (Core Factors)

1. Skill Variety

It denotes the degree to which a job requires utilization of variety of skills, abilities and talent of an individual doing the job. If the job is enriched, obviously the worker will achieve job satisfaction as it entails challenges in accomplishment of the same.

2. Task Identity

It is degree to which the job requires completion of “Whole” identifiable unit of work. The job requires involvement of an individual from beginning to the completion of a piece of work. This gives an individual a sense of pride, job satisfaction and desire to improve upon the present standards. Job identity gives an individual an identity in the group he belongs to and provides him an intrinsic reward.

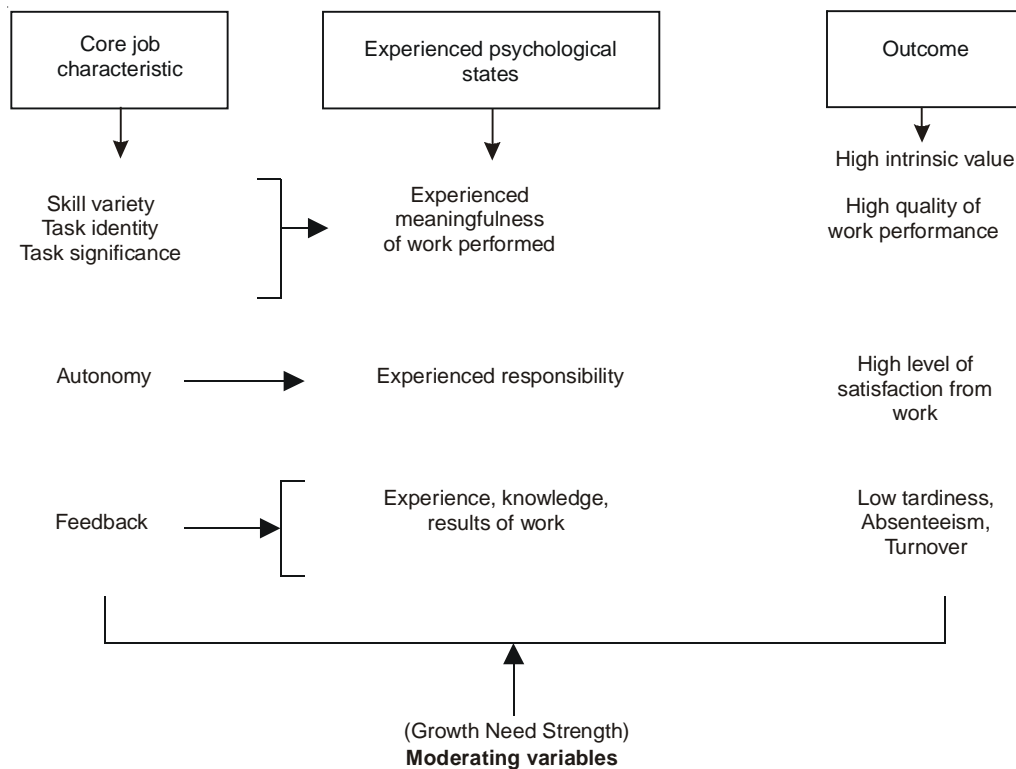


Fig. 17.2. Job design model of Hackman & Oldham

3. Task Significance

It refers to the meaningfulness or significance of the impact on the lives of people both inside and outside the organization. In Defence Research and Development Organization (DRDO) where Tanks are being assembled, the manager states that a worker is putting nuts and bolts on a tank that will defend the territorial integrity of our nation. The task significant in this case is of a very high order than putting nuts and bolts on a car though the skills requirement for both the jobs are the same. It is this part that motivates the employees. Managers should ensure that the people are doing worthwhile and significant jobs, which are beneficial to the society.

4. Autonomy

Autonomy reflects the extent to which job provides an individual, freedom of work, independence in decision making and full discretion in scheduling and execution. If the job content caters for the above factors, obviously an individual will take pride in completing the same. Greater the degree of autonomy more the person feels “in control” of the work in hand. In such situations people are motivated and display a great sense of belonging and job satisfaction.

5. Feedback

It is a core dimension of achieving direct feedback from the work itself as to how well a person is performing. Are the things going in the right directions? This is a conscious

phenomenon, a person experiences while doing a job. If you are painting, one would definitely get to know if the paints are reflecting the image one desires, are the colours being mixed appropriately. This will indicate performance standard of the individual.

Experienced Psychological States: (Intervening Variables)

While doing a job, individual is likely the experience three Psychological States. These states basically determine the degree to which the core characteristics of a job (mentioned above) affect and enhance the employee's responses to the job itself. These are briefly explained below:

1. Experienced Meaningfulness

It is the extent to which the individual experiences and perceives his work as meaningful, valuable and worthwhile. It results from using a number of skills (skill variety principle), doing an identifiable piece of work (skill identity principle) and engaging oneself in a job that has significant impact on the society or group (task significance principle).

2. Experience Responsibility

It is degree to which an individual feels fully responsible for the job he is doing. This is achieved by feeling independence (job autonomy principle).

3. Experience, Knowledge and Results of the Work

In this psychological experience, individual perceives as to how well he is working? This feedback is not provided by supervisors but by the job itself.

Growth, Need Strength (Moderating Variables)

Growth and need strength refer to the need people have to develop, learn and achieve growth on the job. Everybody do not have high growth need strength. Some people feel happy wherever they are. Higher growth need is an intrinsic motivator. Employee having "high" growth need strength will experience the critical psychological states of experience meaningfulness, experienced responsibility and experienced knowledge of results. They may be able to achieve positive results when core characteristics are embedded in their work and they experience positive psychological experience. Those employees who do not have high growth need strength will not be affected by core job characteristics. Hackman and Oldham State that the outcome of the model are intrinsic motivation, work performance, job satisfaction, job involvement and Low absenteeism and turnover. Growth need strength is a moderator in this model.

Motivation Potential Score (MPS)

Hackman and Oldham (1975) came up with a formula for motivation potential score. This formula is used to measure the propensity of each job to be motivating. It can be assessed by using the following formula

$$\text{MPS} = \frac{(\text{Skill Variety} + \text{Task Identity} + \text{Task Significance})}{3} \times \text{autonomy} + \text{feedback}$$

Autonomy and feedback are important in the above model. If they are non-existent in the job design, the job may not have motivation potential. It is therefore necessary to design the job that caters for autonomy and feedback.

Managerial Implications for Job Design

Based on core dimensions of the job and MPS score, it is necessary to redesign each job so that workers are intrinsically motivated to undertake the same. Redesign involves the following:-

- (a) *Forming natural work units:* Though specialization involves division of work, yet formation of 'whole' job is important because it gives performer an identity and association with completed work. The job must be identifiable and individual made responsible and accountable with the job with appropriate authority. For example an accountant in an office should be given an independent job instead of flitting his energy on various trivial jobs. He should be able to produce balance sheet, reconciliation with the bank, transaction with bank and account for receipts and payments, so that he experiences an autonomy in the work. This way the employee will view his work as meaningful and important rather than irrelevant and boring. This contributes towards the principle of task identity and task significance.
- (b) *Combine tasks:* Managers must view division of labour and specialization scientifically. Attention must be paid to combine small jobs or part of job in a whole job so that workers performing it, feel proud of producing item and thus achieve task identity. Workers in automobile industry for example should be assigned a job as a group so that they develop a sense of group identity and achieve skill variety.
- (c) *Establish client identity:* While producing product or creating services, worker does not have direct contact with the user of product or services. If the managers can achieve this contact, the workers will be able to get a first hand feedback from the client regarding customer choice. He may also be able to modify product or services as per the requirement of the ultimate user and achieve autonomy and develop skill variety while producing. This principle is very important and needs vision on the part of managers.
- (d) *Expand job vertically:* Taylor in his scientific management has suggested separation of planning and doing a job. This has led to workers doing a particular job which has been planned by the managers with very little or no involvement of workers. Planning, execution and control therefore, need to be unified and gap between doing and controlling needs to be reduced. This phenomenon is called "vertical loading". In typical fractionalized organizations, responsibilities and control that formerly was reserved for higher level of management are now added to the job itself. This increases workers autonomy in performance of job. Expansion of the job can be achieved by workers by scheduling, work methods, quality controls, prioritizing the work, exercising financial controls and making appropriate decisions within the parameter of work schedule. This will provide the worker the sense of 'self worth' and intrinsic motivation that will lead to higher productivity.
- (e) *Feedback:* Feedback is an important aspect of employee performance assessment. Feedback about on-going work should be given to the worker on line as he proceeds with the job. Negative feedback should be avoided and given in the form of suggestion and be corrective in nature. Positive feedback is like re-enforcement which builds up morale, positive attitude and propels individual to higher performance.

The above dimensions are presented diagrammatically in Figure 17.3 below:

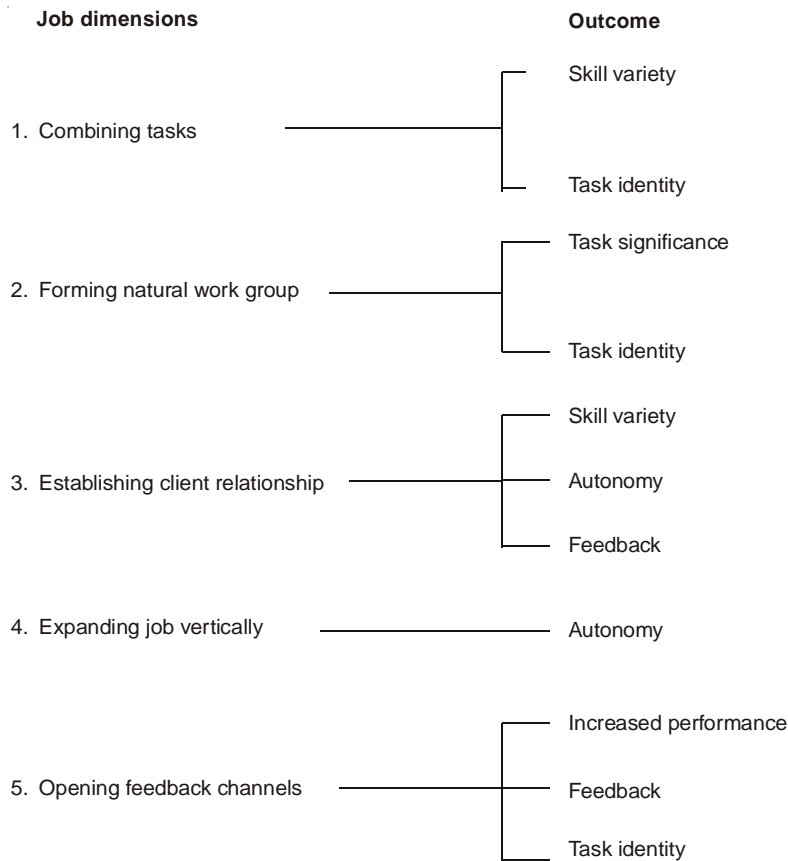


Fig. 17.3. Core job dimensions and its outcome.

Options for Job Design

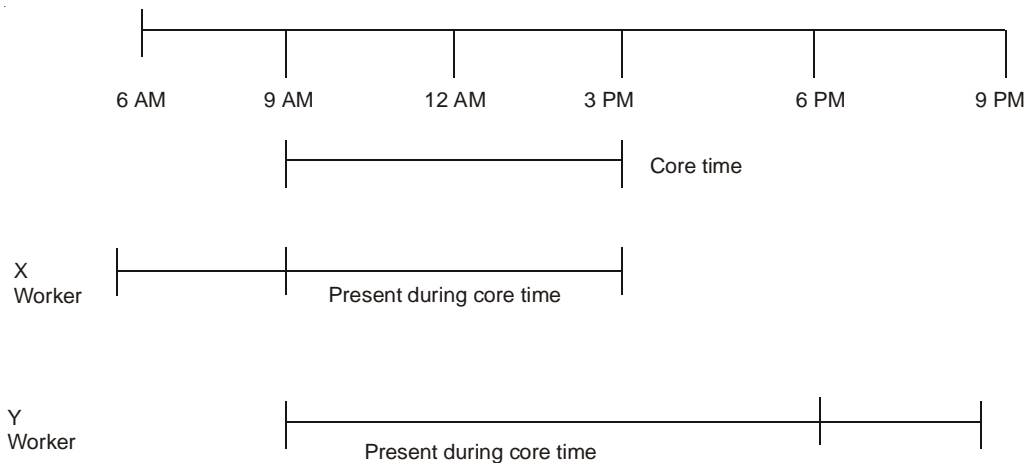
We have already discussed in detail the core job characteristics for improving the individual and group performance. These are skill variety, task identity, task significance, autonomy and feedback. There are various other methods which can be considered to make jobs more interesting and satisfactory. These aspects are discussed below :

1. Job Sharing

Job sharing is related to two persons sharing one full time job with sharing rewards and responsibility for its completion. This method is ideal when two persons can do part time job on day to day basis for a limited time. This method is suitable for working mothers, doctors, and other professionals who can gainfully utilize their available time.

2. Flexitime

This method allows workers more freedom to select work schedule within the general guidelines laid down by the organization. Flexitime stipulates that all workers must be present during the core time so that interpersonal and inter departmental activities can take place smoothly. Flexitime system is shown in the figure below:



From the above figure it will be seen that employees can choose timings of work which are convenient to them. Flexitime method is beneficial to both as individual has freedom to select own time of work and the organization can attract talented workers.

3. Telecommuting

With the increased capabilities and sophistication of personal computers all sorts of jobs can be undertaken by an individual at any place. Jobs having financial implications like billing, accounting, telemarketing, e-commerce, graphics, media can be done at home for global organizations. This method is also known as flexiplace. It provides comfort, convenience and ease of work but isolates employee from team work and personal physical supervision. Managers need attitude change to incorporate such system in organizational setting.

4. Compressed Work Week

An individual is required to work eight hours a day, and six days a week, making it 48 hours a week. This work hours can be compressed into five or even four days a week with long hours of daily work with two or three days free at the week end. This system gives worker more leisure and higher productivity. Five days a week is a popular concept in India. This system ensures less absenteeism, more time available for maintenance of machines & equipment. It suffers from a disadvantage of high fatigue and boredom due to extended work days.

5. Quality Circles

Quality circles is one of the recent concepts of group job design. It consists of a group of 7 – 10 employees from a unit or across units who have volunteered to meet together regularly and analyse, make proposals about product quality, investigate causes and suggest corrective actions. The recommendations of quality circles are later forwarded to coordinating or steering committee. Meetings of quality circles are held once in a week or when need arises and are chaired by supervisors or any of the group members. Leaders are encouraged for a high degree participation within the group. Group members are trained in group communication skills, product quality and problem solving techniques. This concept

promotes a sense of belonging, boosts employee morale, accords job security and develops 'we' feeling among group members and enrich organizational culture.

Job Design and Quality of Work Life

Quality of work life refers to high level of satisfaction an employee enjoys by virtue of job design. Quality of work life is measured by factors like job involvement, job satisfaction, competence, job performance and productivity. People must ensure that the job they are doing is central to individual's life and they display maximum involvement. Studies indicate that challenging jobs that have skill variety, influence employees to get involved in their jobs. Correlation of job involvement are such personality characteristics as n Achievement and high work ethics (Ref. Sekaran 1981 Robinowiz and Hall, 1977.)²

Job Satisfaction

Job satisfaction indicates the positive and affective responses of employees to their job environment. More specifically, job satisfaction indicates employees satisfaction with

1. Nature of work they do.
2. Quality of supervision they receive.
3. Co-workers.
4. Pay and
5. Promotional opportunities. Job satisfaction is correlated to job characteristics (skill variety, autonomy etc) and to job involvement. Sekaran (1977) in his work indicated that job stress decreases job satisfaction. Job stress could result from role ambiguity, role conflict, role overload or role difficulty.

Sense of Competence

Competence involves knowledge, skill and ability. When an individual attains competence he is more involved in his job because he is intrinsically motivated. By greater involvement the individual achieves higher degree of competence. Hence greater the involvement greater is competence. Thus competence and involvement re-enforces each other. Sekaran has given a model depicting relationship among job characteristics, motivation, sense of competence and job satisfaction. It is explained in Figure17.4.

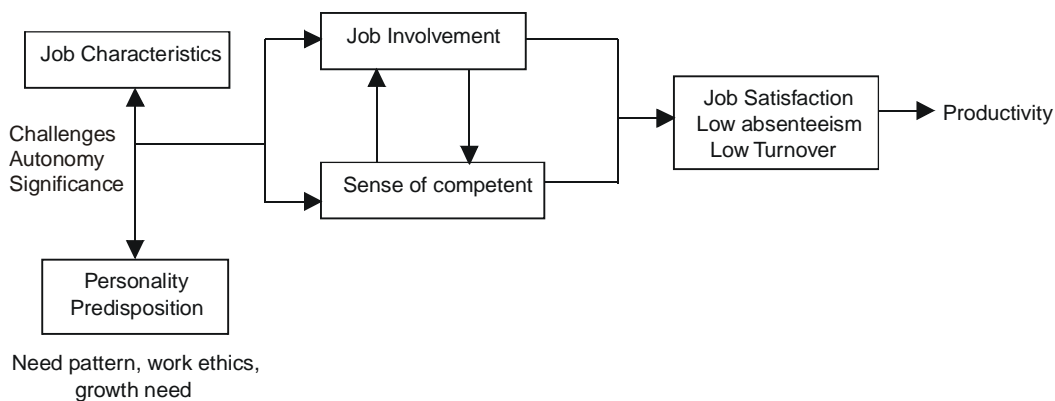


Fig.17.4. Sense of competence

Job Performance

Job performance increase with the increase in Job satisfaction, Job involvement and job competence. Job performance and Job satisfaction are inter-related.

Productivity

Productivity increases when there is a perfect fit of personality predisposition and the job itself. All the core factors of job design, predisposition of the individual give rise to productivity and quantum of output which is for the social good. It is therefore safe to conclude that job design is singularly responsible for growth, quality of work life of employees and the society. It is therefore important that managers pay attention to job design. Organization culture is sum total of ethical value demonstrated by employees. Job design, the urge for self-growth, intrinsic motivation and value system of the individual and group enhance the quality of work life in an organization.

SUMMARY

Division of labour, specialization, standardization and simplification lead to improvement in productivity. This phenomenon leads to jobs becoming monotonous, routine and boring. To achieve innovation and creativity among employees, it is necessary to introduce the concept of work design and promote intrinsic value of the job so that personal growth, recognition and sense of achievement is experienced by the employees. This can be achieved by giving employees enhanced responsibilities, greater autonomy, higher control over the resources, assuring them of personal growth and achievement. Positive feedback is important in the growth of workforce. Job should be designed properly and evaluated continuously so that it could be redesigned to meet the environmental changes. Job design can be achieved by job simplification, job enlargement, job rotation and job enrichment. Job redesign is necessary to ensure high employee morale, improved organizational productivity and job motivation. Work redesign improves human behaviour and opens awareness and enhanced job opportunities in the organization. It achieves job satisfaction and a feeling of worth. Hackman and Oldham developed "Job Dignostic Survey (JDS). The work identifies core job characteristics that will provide higher intrinsic value to the employees. Psychological state of employees also play a decisive role in achieving greater employee satisfaction. The core characteristics (independent variables) that have been identified are skill variety, task identity, task significance, autonomy and feedback. The outcome (dependant variables) is higher intrinsic value, higher quality of work performance, high level of satisfaction and low tardiness, absenteeism and turnover. The intervening variables identified are related to the psychological state of employees that includes meaningfulness of work performed, responsibility for work results and the knowledge of the work. Later they came up with new model in 1975. The model is called Motivation Potential Score (MPS). The scientists have found out that the MPS of any employee can be worked out by a formula as under:

$$MPS = \frac{(\text{skill variety} + \text{task identity} + \text{task significance})}{3} \times \text{Autonomy} + \text{feedback}$$

It is a challenging task for manager to design an appropriate job keeping the foregoing factors in mind. This can be achieved by combining various tasks keeping (forming) a

natural work units, combining tasks, establishing clients identity, expanding job vertically and feedback. Job can be made more interesting by job sharing, introduction of flexitime, tele commuting and by introduction of compressed work week. The aim of job design is to achieve an improved quality of work life. This can be measured by involvement, job satisfaction, developing a sense of competence, job performance and increased productivity.

TEXT QUESTIONS

1. What are various factors that achieve job enrichment?
2. Discuss various job design techniques.
3. Discuss Job diagnostic survey (JDS) model proposed by Hackman and Oldham.
4. How is Motivation Potential Score (MPS) used to determine propensity of job? Discuss various managerial implication to design the job.
5. What are other options to design the job apart from core dimentions?
6. Visit any organization in the vicinity of your location. Discuss quality of work life in that organization.

REFERENCES

1. Hackman, J.R. and C.R. Oldham, *“Motivation Through Design of Work”*, Test of a Theroy. Organizational Behaviour and Human Performance, Vol. 16, 1976.
2. Sekaran 1981 Robinowiz and Hall, 1977.

Case

CONTINUOUS IMPROVEMENT AT KANCHAN AND COMPANY LIMITED

Kanchan and Company Limited was one of the leading manufactures of pumps for the domestic, agriculture, and industrial use. It had its corporate office at Delhi. One of its plants was located at Faridabad, the industrial town of Haryana which is only 30 km away from Delhi. The plant at Faridabad manufactured nearly 200 different types of pumps categorized as, the mini domestic pump, jet pump, four inch submersible pump, single phase monoblock pump, three phase monoblock pump, end suction pump and pumps for special use. Target customers for these products were household units, farmers, urbans (municipal corporation, civil contractors etc.), industrial houses etc.

Until 1995, the company was one of the major players in all the market segments without having any threat from its counterpart competitors. With the process of liberalization and globalisation, a number of competing companies entered in the business of manufacturing pumps. Some of the major competitors were Taximo in the agricultural segment, KSB and Kalama the submersible segment, Sharp in the domestic segment and Crompton in almost all the segments. Because of the stiff competition, the company had lost its market share in all the segments. Also the financial performance of the company had deteriorated as indicated by EBIT and PBT as shown in Annexure–I. To counter the competition and to get international acceptance for its products, the company pursued to get ISO 9000 and obtained the ISO 9001 certification in the year 1994. For its social acceptability, the company obtained ISO 14001 in the year 1997, and to retain this certification, the company started incorporating continuous improvements in all the areas

of its operations. Until 1995-96, the focus was on maximum capacity utilization of man and machine and the bargain parts were manufactured continuously without analyzing their actual requirements resulting in the high inventory level of some parts and stock out in others. This resulted in the higher cost of manufacturing in two ways i.e., production stoppages because of the unavailability of parts and higher inventory cost of part which were not required. To have maximum utilization of machines, and to meet the market demand, the unit was working in three shifts. Since machines were used 24 hours a day, the organization needed hitech machines with low maintenance requirements resulting in short life span of the machines. The organization was able to meet seventy percent of the market demand in all categories of the product. With the increasing competition, the company had to face declining market share in some product categories. The company formed inhouse team to identify the areas in which the unit was facing problems. The team identified that the high inventory in all the areas, high rejection rate of the parts manufactured inhouse, low worker morale, high absenteeism, high cost of manufacturing, high level of wastages and scrap, lower customer satisfaction and unsatisfied demand in some product categories were some of the major reasons contributing to the poor performance of the unit. The problems were discussed by the management and the consultancy services of Tata Institute of Social Sciences were hired to look into the problems in the area of human resources. The other areas were investigated by inhouse teams. On the basis of the suggestions received from the consulting team from TISS and the inhouse teams, following changes were introduced.

- Overall manufacturing system was reoriented from the push system to the pull system, i.e., the different products were manufactured according to the market demand. Machining center to the manufacturing facility and part of the foundary section was converted to a synchronous manufacturing system.
- The plant layout was changed from the process based layout to group technology (Cellular layout) resulting in multi-skilled work requirement instead of a single skilled work requirement. The organization provided training to the existing workers to acquire the skills in the additional areas. This also resulted in the team approach towards the same objective.
- A system of the Joint Development Council (JDC) consisting of three tier organization, viz. functional council, cross functional council and the apex council, having equal representatives from the management and the union was evolved. There were three functional councils for the three functional areas, the foundary department, the service department and manufacturing department. The functional councils were responsible and accountable for absorbing the latest organizational methods and processes for the day to day operations to achieve the company goals of growth and profitability. The cross – functional council was responsible and accountable for making recommendations for the development / improvement, which would help to achieve the annual operating plans through the quarterly / monthly plans. This council was also responsible for resolving issues pertaining to the operations and maintenance of the manufacturing standards, quality standards, capacity utilization and resource mobilization. It also helped the apex council in taking final decisions in these matters. The apex council was responsible and accountable for resolving the issues that would arise in the operationalisation of

- the various developmental / improvement schemes and also looked after the overall well being of the workmen besides addressing itself to achieving the company goals. Meetings of all the three councils of the joint development council system were conducted every fortnight, every month and on each quarter.
- The company introduced various programs for the development of its workforce like,
 - (a) A cadre system by which the company offered grades to the employees purely on the basis of their merit and work experience. In order to assess the knowledge, skills and behaviour inventory of the workers, the system of conducting theory and practical examination followed by an interview was evolved. In earlier system, the workers carried out simple functions based on the skills and the scales were also fixed based on the type of work carried out by the workers, resulting in the disparity in the scales of workers working on the same product and having similar experience.
 - (b) Continuous Performance Improvement Scheme (CPIS): This scheme was developed to focus on ensuring the meeting of customer needs, zeroed rejections at the various operations, zeroed breakdown of the machines, maximize the capacity utilizations and developing the workers' pride in the ownership. For these objects, the selected parameters of the CPIS were, the quality of operations, upkeeping of the machines etc., availability of workmen and the capacity utilization. And therefore, the daily earning of the direct workmen under the CPIS were computed based on reducing the internal and the external rejections, increasing the availability of manpower and machines and improving the capacity utilization. In order to calculate the daily earnings of the direct workers under CPIS, following formula was developed :

$$Ed = \{(EQ\ 1 + EQ\ 2 + EA\ 1 + EA\ 2 + EC) * N/n\} * \{Aa/An\}$$

(For details on the CPIS see Annexure - II)

Efforts for System Improvement

- Broad production norms were developed.
- Cell owners concept was introduced.
- Integrated quality control system was introduced.
- Integrated productive maintenance system was introduced.
- Single digit minute die – exchange time was achieved in seventy percent of the cases.
- Rapid exchange of tool / dies was achieved in twenty to thirty percent of the cases.
- First out time was introduced to reduce inventory at the casting and finish stores.
- Focus was shifted from machines to shops.
- A number of managers and workers were removed / withdrawn from the number of activities.
- Shift from the individual incentive scheme to the group incentive scheme.

Despite all these efforts, the organization was still facing teething problems in a number of areas :

1. The organization had reduced the raw material and the finished goods inventories but still it was on the higher.
2. Process improvements had been carried out only in parts because of high investment requirements.
3. The workers were apprehensive and suspicious about the way the CPIS was introduced.
4. The organization had not done the cost benefit analysis of the changes they had made.
5. Tools and die replacement time had been considerably reduced but still needed improvement.
6. Synchronised manufacturing system had been introduced only in a few parts of the manufacturing unit.
7. To cater to the changing demand, the organization had assigned higher man power than required, leading to some idle man hours during normal demand periods.
8. Power supply constraints forced the company to use the age old method of manufacturing instead of the new technology.
9. Bilateral settlement had been signed with the recognized union however, there were more than one union having their representation amongst the workers.
10. Rejection level of the casings had come down from 12.5% to 12.2%.
11. With the measure taken by the company, the financial position had improved as indicated by the EBIT and the PBT.

The apex body during its last meeting appointed a committee to review the progress made by the different department under the continuous improvement program. Ramchandran was appointed the chairman of the committee. Ramchandran after completing his preliminary investigation, forwarded the preliminary report to the management. The General Manager of the unit, Harish Narayan, noted that the unit had made a lot of progress through continuous improvement program but still the unit was not in a comfortable position in relation to its competitors. He was worried as to what the organization should do to speed up the process of continuous improvement.

QUESTIONS FOR DISCUSSION

1. Did Kanchan and Company Limited adopt the right strategy in improving the overall performance of the organization?
2. Was it right to use a complex system for determining the workers' incentives?
3. Which areas still needed improvement?
4. If you were the head of the unit, what steps would you have taken to remove the problems which were still persisting.
5. What should the company do to maintain and improve its market position?

Source: Continuous Improvement at Kanchan and Company Limited. Upinder Dhar, Santosh Dhar and Richa Agrawal (Eds.), Cases in Management – An Indian Perspective: PIMR Monograph Series, 2001, 81-85.

ANNEXURE I**Operating profit and PBT value (All figures are in Crore Rs.)**

	1996 – 97	1997 – 98	1998 – 99	1999 – 2000	2000 – 2001
PBDIT	55.9	51	31	68.03	119.98
OP	48.3	49.5	21.5	68.46	112.38
PBT	-5.2	-5.2	-19.5	16.31	61.9

* The figures are projected.

ANNEXURE II**Calculation under CPIS**

$$Ed = \{EQ1 + EQ2 + EA1 + EA2 + Ec\} * N/n \} * \{Aa/An\}$$

Where,

Ed = Daily earnings of the direct workman through CPS.

EQ1 = Daily earnings by reducing the internal rejection.

EQ2 = Daily earnings by reducing the external rejection.

EA1 = Daily earnings by increasing the availability of manpower.

EA2 = Daily earnings by increasing the availability of machine.

Aa = Present hours in the shift of the workman.

An = Working hours in the shift of the workman.

N = Desired equivalent numbers of workers of a group.

n = Actual equivalent numbers of workers of a group.

*EQ1, EA1, EA2 and EC to be calculated on a daily basis.

*EQ2 will be calculated on daily/ weekly basis for each direct workman.

EXERCISE IN JOB DESIGN

Below are 20 questions which ask you to rate this course in terms of certain core characteristics. First responds to each item by *circling* the number that you personally feel is the appropriate response to the question, using the scale below.

<i>Strongly Agree</i>	<i>Agree</i>	<i>Slightly Agree</i>	<i>Neutral</i>	<i>Slightly Disagree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
<i>StA</i>	<i>A</i>	<i>SA</i>	<i>N</i>	<i>DS</i>	<i>D</i>	<i>StD</i>
<i>7</i>	<i>6</i>	<i>5</i>	<i>4</i>	<i>3</i>	<i>2</i>	<i>1</i>

<i>Sr. No.</i>	<i>Statements</i>	<i>StA</i>	<i>A</i>	<i>SA</i>	<i>N</i>	<i>DS</i>	<i>D</i>	<i>StD</i>
1	Most of the things I have to do seem useless or trivial.	7	6	5	4	3	2	1
2.	I usually know whether or not the work I do is satisfactory.	7	6	5	4	3	2	1
3.	My course work requires the use of all the knowledge and skills I possess.	7	6	5	4	3	2	1
4.	I have the opportunity to do challenging things for this course.	7	6	5	4	3	2	1
5.	The course requires me to keep learning new things.	7	6	5	4	3	2	1
6.	The work I do for this course is very meaningful to me.	7	6	5	4	3	2	1
7.	I often have trouble figuring out whether I am doing poorly or well in this course.	7	6	5	4	3	2	1
8.	I use a wide range of abilities in this course.	7	6	5	4	3	2	1

(Contd.)

<i>Sr. No.</i>	<i>Statements</i>	<i>StA</i>	<i>A</i>	<i>SA</i>	<i>N</i>	<i>DS</i>	<i>D</i>	<i>StD</i>
9.	My course work can be done well by a person working alone without talking or checking with others to find if he/she is on the right track.	7	6	5	4	3	2	1
10.	There is no opportunity to use my own special abilities in this course.	7	6	5	4	3	2	1
11.	I can continually learn something worthwhile in this course.	7	6	5	4	3	2	1
12.	The course requires me to use a number of complex or high level skills.	7	6	5	4	3	2	1
13.	The work for this course provides me the chance to completely finish a piece of work which I can identify.	7	6	5	4	3	2	1
14.	The course itself is not very significant or important in the broader scheme of things.	7	6	5	4	3	2	1
15.	The course work gives me considerable opportunity for independence and freedom in how I do the assignments.	7	6	5	4	3	2	1
16.	The course denies me the chance to complete the work I start.	7	6	5	4	3	2	1

(Contd.)

<i>Sr. No.</i>	<i>Statements</i>	<i>StA</i>	<i>A</i>	<i>SA</i>	<i>N</i>	<i>DS</i>	<i>D</i>	<i>StD</i>
17.	I wish I could do the assignments without instructions from the professor in this course.	7	6	5	4	3	2	1
18.	I have no idea how all the pieces fall together in this course.	7	6	5	4	3	2	1
19.	I wish I had more freedom to do the assigned work my own way in this course.	7	6	5	4	3	2	1
20.	This course seems to be a waste of time.	7	6	5	4	3	2	1

The 20 questions tap the dimensions of Variety, Identity, Significance, Autonomy, Feedback, and Challenge, Now, score your responses following the steps below.

First, reverse the scores for items, 1,7,10,14 and 16 to 20. That is, if you strongly agreed on these 9 items, you would score them as a 1 instead, a 7, and if you agreed you would score them as 2 instead of 6, so on; this means that if you strongly disagreed on these items, you would score them as 7 instead of 1. Put your corrected responses for these items on the sheet itself.

Next add up your scores for the items listed below to assess the extent of your perceived core characteristics for this course.

<i>Characteristics</i>	<i>Actual Scores on Items #s</i>	<i>Your Score</i>
Variety	3 + 8 + 10 + 11 + 12 = (/5)	=
Identity	13 + 16 + 18 = (/3)	=
Significance	1 + 6 + 14 + 20 = (/4)	=
Autonomy	15 + 17 + 19 = (/3)	=
Feedback	2 + 7 + 9 = (/3)	=
Challenge	4 + 5 + 11 = (/3)	=

Now calculate the MPS for this course.

Get into groups of four and see to what extent your scores agree. Based on your discussions, redesign this course if necessary.