

CHAPTER 4

ANALYSIS AND INTERPRETATION

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CHAPTER 4

ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

In the present study, an attempt is made to test the Hackman and Oldham model of job design in the Davanagere Cotton Mills Limited, Davanagere. In this empirical study, the questionnaires were administered to the workers from ten departments in the mill.

Job design is an important application area for work motivation and the study of organisational behaviour. It is the sub-division of work, both on a horizontal and vertical scale. It means dividing different tasks across the organisation which can be manned by different people.

The following 'core' dimensions were considered for the present study.

- | | |
|-----------------------|-------------------|
| (a) Skill variety | (b) Task identity |
| (c) Task significance | (d) Autonomy |
| (e) Feedback | (f) Challenge |

Job characteristic played high importance in intrinsic and extrinsic job factors to workers in the organisation. It leads to

increased employee's satisfaction with job and motivate him to work more. Job characteristic increases workers productivity, reduces monotony, labour turnover and absenteeism in the organisation.

The data collected from the administration of the designed questionnaires is tabulated and the statistical measures such as mean, standard deviation, 't' score are computed departmentwise and analysed below.

4.2 EXPERIENCE OF THE RESPONDENTS

The mean experience of the respondents under study, according to their departments is shown in the table below.

TABLE 1 EXPERIENCE IN THE PRESENT JOB

DEPARTMENT	MEAN SCORE
Drawing	5.50
Bleaching	10.74
Printing	12.89
Machine shop	13.46
Grey house	13.10
Dyeing	13.59
Folding	14.66
Winding	14.65
Autoloom	13.48
Spinning	13.27

It is observed from the above Table that the mean score of the experience varies significantly from 5.50 years in drawing department to as high as 14.66 in folding department. The folding and the winding department workers have maximum average length of service in their departments. Whereas, in other departments the score varies in a narrow margin from 10.74 years to 13.59 years.

4.3 EDUCATIONAL QUALIFICATIONS

The educational qualifications of the workers and their percentage composition is depicted in Table 2.

TABLE 2 : EDUCATIONAL PROFILE OF RESPONDENTS

QUALIFICATION	NUMBER	PERCENTAGE
Below S.S.L.C.	92	45.50
S.S.L.C.	62	30.70
P.U.C.	20	9.90
I.T.I.	22	10.90
Diploma	2	1.00
Graduate	4	2.00
TOTAL	202	100

It is noticed from the above table that the workers from all the departments in the Davanagere Cotton Mills have varied qualifications, ranging from school level to graduation. Majority of the workers (45.50 percent) are under S. S. L. C. Whereas, 30.70 percent respondents are S. S. L. C. and 9.9 percent have done their P. U. C. Since in the mills, there are different kinds of technical jobs, 10.90 percent of the sample has technical qualification of I. T. I. in some or the other trade. There are two workers who have completed their diploma certificate and four are graduates. Thus, the sample under present study is representative.

4.4 SKILL VARIETY

The mean score and the standard deviation pertaining to the core dimension of job "skill variety" is represented in Table 3 for different types of jobs in various departments of the mills.

It is noted that the mean score is maximum for the Bleaching department (23.23) followed by the Autoloom (23.11) and Printing (23.10). Whereas, it is least in Folding department (19.17). However, the range of mean score in all the ten departments is in the narrow range of 19.17 to 23.23. This shows that Bleaching, Autoloom, Printing jobs require greater level of skill. Whereas, the jobs in Folding and Grey House require low level of skill. It is obvious that the work in the Folding department consists of packing the goods, and that in the Grey House involves unpacking of goods.

Thus, the type of jobs in these departments is purely mechanic. As against this, the jobs in Bleaching, Autoloom, Printing and Dyeing require not only physical but mental skill as well.

The standard deviation is also observed to be maximum for Autoloom (4.04), followed by Winding (3.50) and Bleaching (3.35). Whereas, it is least for Grey House (2.02) and Folding (2.08).

TABLE 3 : SKILL VARIETY SCORES

DEPARTMENT	MEAN	S. D.
Drawing	19.33	2.14
Winding	20.04	3.50
Mechanic Shop	21.20	3.21
Grey House	19.90	2.02
Bleaching	23.23	3.35
Folding	19.17	2.08
Dyeing	20.00	2.56
Printing	23.10	2.96
Autolooms	23.11	4.04
Spinning	22.92	2.71

Thus, we conclude the skill variety essentially differs from job to job in the cotton mills and from department to department depending on the type of skill namely, physical or mental skill.

4.5 TASK IDENTITY

The mean scores and the standard deviation observed for the task identity for different types of jobs in the mills are represented in Table 4 below.

TABLE 4 TASK IDENTITY SCORE

DEPARTMENT	MEAN	S. D.
Drawing	13.16	2.47
Winding	9.90	2.77
Mechanic Shop	10.20	2.03
Grey House	10.50	1.50
Bleaching	12.23	2.93
Folding	10.78	2.94
Dyeing	13.76	3.07
Printing	13.20	3.85
Autoloom	13.85	1.86
Spinning	13.32	2.59

It is clear from the above table that the mean score is maximum for Autoloom (13.85), followed by Dyeing (13.76) and Printing (13.20) department. Whereas, the task identity score is least (9.90) for winding department. This goes to point out that the task identity is high in Autoloom department and low in the winding department.

Task identity refers to do a particular job and visualise the task to complete in appropriate and prescribed manner. In this context, the Autoloom employees have shown a greater task identity in their department as compared to those in the other departments.

4.6 TASK SIGNIFICANCE

The mean score and the standard deviations for task significance in case of ten departments of the Davanagere Cotton Mills are shown in the table below.

TABLE 5 TASK SIGNIFICANCE SCORE

DEPARTMENT	MEAN	S. D.
Drawing	16.33	0.94
Winding	15.68	1.76
Mechanic Shop	15.10	1.13
Grey House	15.00	0.44
Bleaching	15.30	1.06
Folding	13.99	3.13
Dyeing	15.70	2.46
Printing	14.55	2.43
Autoloom	14.62	1.91
Spinning	14.78	1.51

The job dimension of task significance indicates the degree of impact on lives or work of the workers in their jobs. It may be either in the organisation or in the external environment. The above table indicates that the mean score of task significance is maximum in Drawing department (16.33), followed by winding department (15.68). The standard deviation for the both departments is 0.94 and 1.76 respectively. Whereas, the task significance mean score is least of 13.99 in Folding department.

The main reason for the increase in the mean score of task significance in drawing and winding departments may attributed to their importance of the task. The final product mainly the yarn or the cloth variety depends on the operations like drawing and winding. Whereas, as stated earlier, the task in the folding department is purely a mechanical consisting of packing different types of packets, stamping and stacking.

4.7 AUTONOMY

Autonomy refers to the freedom enjoyed by the employee in doing his task, in terms of independence and scheduling his job. The mean score and the standard deviation on the job core dimension "Autonomy" is depicted departmentwise in the following table.

TABLE 6 AUTONOMY IN JOB

DEPARTMENT	MEAN	S. D.
Drawing	13.83	1.06
Winding	15.40	1.40
Mechanic Shop	16.00	0.63
Grey Shop	16.20	0.60
Bleaching	15.92	1.07
Folding	15.31	2.67
Dyeing	16.23	2.43
Printing	13.90	3.38
Autoloom	15.54	1.76
Spinning	16.68	1.23

The obtained mean score on autonomy is maximum 16.68 in spinning department followed by Dyeing department (16.23) and the respective standard deviations are 1.23 and 2.43. The lowest mean score is 13.83 in the Drawing department. This indicates that autonomy is high in Spinning department and less in Drawing department. This is because of the nature of the job in these departments. In the drawing department, the cotton sliver is drawn mechanically with the help of different draw ratios and hence there is less scope for the worker to exercise any freedom or independence as compared to the spinning and dyeing departments.

4.8 FEED BACK

Feed back type of job dimension refers to the degree of information the worker receives from his job directly or indirectly. The departmentwise mean score and the standard deviation on feed back dimension is displayed in Table 7.

TABLE 7 FEED BACK FROM JOB

DEPARTMENT	MEAN	S. D.
Drawing	6.33	0.74
Winding	7.86	1.91
Mechanic Shop	6.90	0.30
Grey Shop	6.90	0.30
Bleaching	6.61	0.83
Folding	6.24	2.21
Dyeing	8.76	1.62
Printing	8.70	4.06
Autolooms	7.71	2.06
Spinning	7.62	1.53

It is observed from the above table that the mean score on feed back dimension of job is maximum in Dyeing (8.76) department followed by 8.70 in Printing department with the respective standard deviations of 1.62 and 4.06 respectively.

The lowest mean score is 6.24 in Folding department with a standard deviation of 2.21. This is largely due to the routine nature of job in the Folding department.

The feed back is maximum in Dyeing and Printing department because the kind of job involved is mainly not of routine type and require a great deal of care and supervision both by the workers and the supervisors. This is the distinct difference between the type of job in these two departments and the other departments. Every time the matching, colour and combinations vary from batch to batch unlike in case of jobs in the other departments.

4.9 CHALLENGE IN THE JOB

It was further intended to know the extent of challenge in jobs of the textile mill workers. Table 8 shows the mean scores and the standard deviations of the job dimension "challenge" in different departments.

From the table we conclude that the extent of challenge varies significantly from department to department. As is observed from the earlier table of feedback, the challenge score too is maximum for Printing department (14.80) followed by the Bleaching department (14.15). The standard deviations observed are 3.76 and 1.74 respectively.

TABLE 8 CHALLENGE IN THE JOBS

DEPARTMENT	MEAN	S. D.
Drawing	12.05	1.76
Winding	11.90	2.35
Mechanic Shop	13.10	1.51
Grey House	13.10	1.04
Bleaching	14.15	1.74
Folding	12.89	4.45
Dyeing	13.29	2.70
Printing	14.80	3.76
Autoloom	12.60	2.38
Spinning	12.36	2.15

The lowest mean score for challenge dimension is 11.90 for winding department with a standard deviation of 2.35 followed by Drawing department 12.05 and a standard deviation of 1.76. This again is attributed to the type of the task involved in these departments the mechanical and routine in character.

The jobs in the Bleaching, Printing and Dyeing departments are changing, risky and hence challenging in nature. A slight mistake in the job will lead to disastrous results and resulting in seconds quality.

4. 10 TESTING OF HYPOTHESIS

After the analysis of the means and standard deviations of various core dimensions of jobs in different departments of the Davanagere Mills, it was intended to test the hypothesis of the present study. This was done by estimating the "t" score through statistical analysis. For which two dimensions were taken at a time and "t" test was applied. The analysis of various core dimensions in terms of their "t" scores are depicted through Table 9 to Table 23.

It is very clear from the study of all these tables that the "t" values between all the dimensions are insignificant except in Table 12. The Table 12 depicts that the "t" score between the job dimension 'skill variety' and 'feed back' is significant (1.33) at the 0.05 level of significance. It means that the job dimensions on skill variety and feed back differs in the organisation.

Therefore, the hypothesis in the present study namely, "there is a variation of job design dimensions such as, skill variety, task identity, task significance, autonomy, feed back and challenge", is rejected on the grounds that the "t" scores are insignificant between all these dimensions.

Further, it is true that only in one case of skill variety and feed back (Table 12), where the "t" score is significant, these two dimensions show variation in the job design.

TABLE 9 "t" SCORE BETWEEN SKILL VARIETY & TASK IDENTITY
(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Skill Variety	458.30	302.37	-
Task Identity	241.40	154.65	0.90

TABLE 10 "t" SCORE BETWEEN SKILL VARIETY & TASK SIGNIFICANCE
(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Skill Variety	458.30	302.37	-
Task Significance	304.20	188.00	0.61

TABLE 11 "t" SCORE BETWEEN SKILL VARIETY & AUTONOMY
(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Skill Variety	458.30	302.37	-
Autonomy	313.00	198.76	0.57

Where N is total number of employees

TABLE 12 "t" SCORE BETWEEN SKILL VARIETY & FEED BACK

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Skill Variety	458.30	302.37	-
Feed Back	157.70	100.27	1.33*

* - Probability < 0.05

TABLE 13 "t" SCORE BETWEEN SKILL VARIETY & CHALLENGE

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Skill Variety	458.30	302.37	-
Challenge	260.20	155.71	0.82

TABLE 14 "t" SCORE BETWEEN TASK IDENTITY & TASK SIGNIFICANCE

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Task Identity	241.40	154.65	-
Task Significance	304.21	188.00	0.36

TABLE 15 "t" SCORE BETWEEN TASK IDENTITY & AUTONOMY

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Task Identity	241.40	154.65	-
Autonomy	313.00	198.76	0.40

TABLE 16 "t" SCORE BETWEEN TASK IDENTITY & FEED BACK

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Task Identity	241.40	154.65	-
Feed Back	157.70	100.27	0.64

TABLE 17 "t" SCORE BETWEEN TASK IDENTITY & CHALLENGE

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Task Identity	241.40	154.65	-
Challenge	260.20	155.71	0.12

TABLE 18 "t" SCORE BETWEEN TASK SIGNIFICANCE & AUTONOMY

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Task Significance	304.20	188.00	-
Autonomy	313.00	198.76	0.045

TABLE 19 "t" SCORE BETWEEN TASK SIGNIFICANCE & FEED BACK

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Task Significance	304.20	188.00	-
Feed Back	157.70	100.27	0.97

TABLE 20 "t" SCORE BETWEEN TASK SIGNIFICANCE & CHALLENGE

(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Task Significance	304.20	188.00	-
Challenge	260.20	155.71	0.25

TABLE 21 "t" SCORE BETWEEN AUTONOMY & FEED BACK
(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Autonomy	313.00	198.76	-
Feed Back	157.70	100.27	0.99

TABLE 22 "t" SCORE BETWEEN AUTONOMY & CHALLENGE
(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Autonomy	313.00	198.76	-
Challenge	260.20	155.71	0.30

TABLE 23 "t" SCORE BETWEEN FEED BACK & CHALLENGE
(N = 202)

DIMENSIONS	MEAN	S. D.	"t" SCORE
Feed Back	157.70	100.27	-
Challenge	260.20	155.71	0.78

4.11 CORRELATION BETWEEN JOB DESIGN DIMENSIONS

Further, it was intended to carry out correlation analysis to understand the relationship between the various job design dimensions. Table 24 gives the correlation analysis among these dimensions.

TABLE 24 CORRELATION BETWEEN JOB DESIGN DIMENSIONS

DIMENSIONS	SV	TI	TS	A	FB	C
Skill variety	-	0.166 *	0.021	0.053	0.082	0.250*
Task Identity	-	-	0.120*	0.007	0.072	0.086
Task Significance	-	-	-	0.012	0.0139	0.184 *
Autonomy	-	-	-	-	0.147	0.137 *
Feed Back	-	-	-	-	-	0.071
Challenge	-	-	-	-	-	-

(Correlation coefficient at 0.01 level)

It is observed that skill variety is correlated with the dimension of task identity and challenge. In both the cases, the values are significant to 0.01 level. Further, the correlation shows relationship between the task identity and task significance. The task significance is also related to challenge, the autonomy is

correlated with challenge. Both the correlation coefficients are statistically significant to 0.01 level.

4.12 MOTIVATING POTENTIAL SCORE

It was also attempted to find out motivating potential score for different departments in the mill. The departmentwise scores are depicted in the table below.

TABLE 25 MOTIVATING POTENTIAL SCORE IN ORGANISATION

(N = 202)

DEPARTMENT	MPS
Drawing	1425
Winding	1840
Machine Shop	1711
Grey House	1691
Bleaching	1780
Folding	1397
Dyeing	2344
Printing	2050
Autoloom	2060
Spinning	2077

It is clear from the above table that the motivating potential score is high in dyeing department. Whereas, it is least in the drawing department. This goes to point out that in the dyeing department, the performance of workers is high since they are motivated more than other fellow workers in the other departments.

4.13 JOB CHARACTERISTIC

In the present study an attempt is made to study the job characteristic factors, both intrinsic and extrinsic, on the scale proposed by Ronan. The mean and the standard deviations for these factors are displayed in the following table.

TABLE 26 MEANS & S. D. OF JOB CHARACTERISTIC FACTORS

JOB CHARACTERISTIC DIMENSION	MEAN	S.D.
<u>JOB INTRINSIC FACTORS</u>		
Prestige of the job in the company	83.70	51.46
Freedom to take decision in the work	85.50	54.46
Opportunity to use special skills and abilities	72.10	38.80
Satisfaction	99.40	60.55
<u>JOB EXTRINSIC FACTORS</u>		
Promotion from within organisation	23.60	14.96
Job Security	116.70	72.77

TABLE 26 CONTD.....

JOB CHARACTERISTIC	MEAN	S.D.
Chance to meet new people	20.20	12.58
Chance to do different things on the job	34.20	18.91
Opportunity for contact with higher management	20.70	13.79
Company treatment to employees	82.50	53.88
Contact co-workers outside working hour	74.00	44.77
Good equipments and materials	120.90	75.11
Co-operation among fellow workers	95.10	58.28
Co-operation between departments	80.50	53.05
Opportunity to change jobs within the company	72.70	47.53
Company sponsored training for the job	93.90	56.49
Pay for the work done	99.80	58.65

The above table displays the means and the standard deviations for seventeen factors on job characteristic. These are divided into two. The job intrinsic factors are related to the feelings of the employee and to his accomplishment in his job. Whereas, the extrinsic factors are out side his perview and control, and depend only on the external environment.

The mean score for the intrinsic factors like satisfaction, freedom to take decision in the work, prestige of the job in the

company, and opportunity to use special skills and abilities are in the decreasing order 99.40, 85.50, 83.70 and 72.10 respectively.

Whereas, in the various job extrinsic factors good equipments and materials (120.90), job security (116.70), pay for the work (99.80) and co-operation among the fellow workers (95.10) have higher mean scores. On the other hand, promotion from within the organisation, opportunity for contact with higher management and chance to meet people have low mean scores of 23.60, 20.70 and 20.20 respectively.