

Contributed Article

Socio-technical Analysis of Firm Level Executive Jobs: A Comparative Study in Indian Organizations

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The theory of socio-technical system has been considered as an effective tool for designing and re-designing jobs in organizations since long. Striking a balance between the technical and social subsystems of a job remains the major challenge till today. The design of jobs at executive level through socio-technical system requires the appropriate analysis of relevant technical and social subsystem constructs / factors in the organization. The present study was conducted in various types of Indian industrial organizations (public and private sectors, manufacturing and service sectors) to make a comparative analysis among them. The paper helps to extract the extent to which the technical and social subsystem factors do exist in the executive level jobs in line with the framework of socio-technical design of jobs.

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Review of Literature

The term 'socio-technical system' (STS) was coined by Eric Trist (Trist & Bamforth 1951) to describe a method of viewing jobs, which emphasizes the interrelated functioning of the social and technical subsystems of the jobs in relation to the organization and environment in which it operates. Through continuous research and industry applications socio-technical system had emerged as an established methodology that provides a structured approach to redesign of job related processes (Pasmore & Sherwood 1988, Taylor & Felten 1993, Fox 1995, Eijnatten 1998). It holds that jobs in an organization can be conceived in terms of a combination of the social and technical subsystems factors.

The social subsystem of a job includes attitudes and beliefs, contracts between employers and employees, reactions to work arrangements, and the relationships between individuals and among groups (Pasmore & Sherwood 1988). The social subsystem of an organization consists of the people who work in the organization and the

relationships among them (Trist & Bamforth 1951, Emery 1959, 1962, Trist et al. 1963, Pasmore 1978). Broadly, the social subsystem includes the profile and expectations of organizational members, patterns of supervisory - subordinate relationships, interpersonal relationship of employees and the nature and interaction of subgroups within the population. The socio-technical system theorists contend that the needs, which people bring with them to the workplace, have to be identified and ways have to be made to meet those needs through the design of the technology and the work. At the micro level, the social subsystem embodies characteristics such as individual motivation, group performance, communication, flexibility, involvement, autonomy, commitment and satisfaction (Pasmore 1988). At a macro level, the social subsystem represents organizational culture and social integration of workforce. It emerges through the people working within a particular work setting (Eijnatten 1998).

The technical subsystem of a job comprises the structures, tools, procedures, knowledge, and support necessary to perform the work.

The technical subsystem of a job comprises the structures, tools, procedures, knowledge, and support necessary to perform the work (Fox 1995). It consists of the tools, work techniques and procedures, skills, knowledge and devices used by members of the social system to accomplish the

tasks of the organization (Trist & Bamforth 1951, Thompson & Bates 1957, Woodward 1958, Emery 1959, Trist et al. 1963). The technical subsystem holds the tools, knowledge base, and technology required to acquire inputs, transform inputs into outputs, and provide outputs or services to customers in the organization (Pasmore 1988, Hendrick 1991). According to Pasmore (1988) at the individual level, the technical subsystem affects work design, productivity, self-perceptions, and psychological contracts. At the functional unit or department level, the technical subsystem affects roles structures, physical layout, interaction patterns, and supervisory behaviour. At the organization level, the technical subsystem affects relationships among departments, organizational structure, reward systems, organizational flexibility, and overall competitiveness. Therefore, at each level of analysis the technical subsystem has a different type of interaction with the social subsystem.

STS theory seeks to enhance job satisfaction and improve productivity through a design process that focuses on the interdependencies among people, technology, and the work environment (Emery & Trist 1969). New technological designs could not achieve maximum results on their own by being separated from the human component with which they have to interact. Technology and people have to be treated as being coupled within a system. Out of these considerations evolved the concept of joint optimization of the social and technical subsystems (Trist

Bamforth 1951, Trist et al. 1963). STS theory (Trist & Bamforth 1951, Cherns 1976, Trist 1981, Pasmore 1988) proposes that work design should jointly optimize the social and technical subsystems of an organization. This holistic approach to work and organization design emphasizes fit and interdependence (Macy et al. 1995, Lawler 1996) between the design features of the organizational technical and social subsystems. The technological configuration chosen by organization designers affects the operation of the social subsystem by shaping the behaviours required to operate it. The level of variety, challenge, feedback, control, decision-making and integration provided for social subsystem members is largely a function of the way in which the technical subsystem is arranged (Fullen 1970, Davis & Taylor 1979, Davis 1979).

Organizations comprise a number of core processes that are spread over laterally across different functions. It is important to design integrated processes and a job should comprise a whole task, rather than a fragmented part (Hackman & Oldham 1976). People should be responsible for supervising and managing complete processes. They should have the authority and resources to do a job. The information systems should be designed to match this perspective (de sitter et al. 1997). Well-established criteria exist for the design of jobs in the organization (Emery 1964, Cherns 1976, Hackman & Oldham 1976, Warr 1987, Medsker & Campion 1997, Older et al. 1999). The socio-technical

perspective provides inputs to people working in different roles and disciplines so as to collaboratively design work within the system. The consideration of human factors under such an integrated design process extracts commitment to the organization on important issues (Lim et al. 1992). In a socio-technical system, task structures are to be seen as the connecting points between the technology and work processes at the one end, and the personnel or labour force at the other (Zwaan & Molleman 1998). The design of the social system provides the support and sustenance to the people in the organization. They reinforce the desired behaviour of organizational members and must help individuals to perceive a kind of linkage between their needs and organizational goals. There are always choices in the design of socio-technical arrangements, and in the processes through which they are designed (Klein 1994). This was one of the initial points made by Cherns (1976). Key choices include how the overall system will operate, how the work will be managed and organized, what form of technology will be required to support this work, and what other organizational policies are required to manage and facilitate the implementation process. Fred Emery (1959) analyzed the dimensions of the technical system as the nature of the work processes, the level of automation and

There are always choices in the design of socio-technical arrangements, and in the processes through which they are designed

computerization, the spatial layout and spread of the work processes over time, the physical work setting, and the nature of interdependence among tasks. All these dimensions impact the nature of roles and role relationships, the level of productivity, and the quality of work life. Designs particularly at the level of jobs incorporate various attempts to provide better security, equity, and rewards, and to satisfy the growingly articulated psychological needs of all who work (Englestad 1972, Davis 1975).

Recent applications of STS theory underline innovative work designs and team - based structures that are now prevalent in industrial organizations (Cherns 1987, Reese 1995, Lawler et. al. 1998). Recent researches into socio-technical systems have shown significant potential for understanding the dynamics in industrial organizations, and for providing management guidelines for effective job design in organizations. The design of the work should be based on a variety of components on an increasing basis. The STS approach suggests that the autonomy of individuals and groups, their work roles and the social structure (interactions, person - organization fit) of the organization are important components of job design and organizational restructuring.

Conceptualization of Variables

Two different sets of six variables were identified for this study. Three variables namely Supervisory Relationship, Peer Group Interaction, Person-Organization Fit formed the part

of social subsystem set of executive level jobs. Another three variables namely Nature of Job, Nature of Technology, and Received Organizational Support formed the part of technical subsystem set of executive level jobs.

The structural modelling analysis showed that the supervisory behaviour is directly related to the subordinate absenteeism.

Variable 1 Supervisory Relationship: Dierendonck, Le Blanc, & Breukelen (2001) studied the relationship between the supervisory behaviour and subordinate absenteeism. The structural modelling analysis showed that the supervisory behaviour is directly related to the subordinate absenteeism. They used the Leader – Member Exchange (LMX) scale developed by Scandura & Graen (1984), Graen & Uhl-Bien (1991), and Le Blanc et. al. (1993). Dierendonck et. al. (2001) modified the original seven point scale to a five point scale (Strongly Agree = 1 to Strongly Disagree = 5), and the composite reliability score of the subscale was reported to be .85. Table 1 highlights the original scale items along with the corresponding scale items used in this study.

Deluga (1998) studied the subordinate – supervisor relationship with organizational citizenship behaviour and supervisor effectiveness. It was found that a positive LMX behaviour contributes to organizational citizenship behaviour and supervisor effectiveness.

Table 1: Original Scale by Dierendonck et. al. (2001) vis a vis Scale Used in this Study

Original dimension	Scale item developed for this study and (dimensions)
Development	My supervisor gives me feedback that helps me improve my performance. (Sharing feedback)
Openness	My supervisor consults and openly shares information on important matters with people working under him or her. (Sharing information)
Reliability	I feel my supervisor as reliable and trustworthy. (Trustworthiness)

Higher quality subordinates obtain special benefits and opportunities, including the delegation of tasks without interference, favourable performance reviews, visible assignments, valued promotions, and career development support. In exchange, supervisors enjoy rewarding effectiveness ratings as well as committed, competent, and conscientious subordinates, whose actions are consistent with the supervisors' expectations. He used the seven-point scale (Very much so = 7 to Not at all = 1) developed by Kozlowski & Doherty (1989) and composite reliability was found .90. Table 2 highlights the original scale items along with the corresponding scale items used in this study.

Variable II Peer Group Interaction:

Van der Vegt et. al. (1998, 2002) studied

the motivating effects of task interdependence (social job dimension) in work teams, and the structural modelling analysis established that there was a strong relationship between the task interdependence measures and the personal work outcome of team members. It was shown that team member interdependence could positively affect the level of cooperation and

Table 2: Original Scale by Deluga (1998) vis a vis Scale Used in this Study

Original Scale item	Scale item used in this study and (dimensions)
Recognition for performance	I receive credit from my supervisor for a job well done. (Recognition)
Reciprocity and exchange of opinions	My supervisor tries to understand my point of view when he or she discusses problems or projects with me. (Reciprocity)
Fair performance evaluation	I feel my job performance is fairly evaluated. (Performance appraisal)
Consideration of job constraints	My supervisor understands my job problems and needs well. (Cooperation)

collaboration within a team, conflict management, member satisfaction, and team performance. They developed the five - point scale for the purpose of the study, and the reliability measures were reported to be high. Table 3 highlights the original scale items along with the corresponding scale items used in this study.

Table 3: Original Scale by Van der Vegt et. al. (1998, 2002) vis a vis Scale Used in this Study

Original Scale item	Scale item used in this study and (dimensions)
To what extent do you depend on your colleagues for doing your work well? (Sharing feedback, self => others)	I tell people in my department how the quality of their work affects me.
To what extent do your colleagues depend on you for doing their work well? (Sharing feedback, others => self)	People in my department tell me how the quality of my work affects them.
To what extent do you depend on your colleagues for information, advice, materials, means, and other things you need?	I get cooperation from people in my department to do the job well. (Cooperation)

Taking the lead from the study of Van der Vegt et. al. (1998), Eby and Dobbins (1997), and Wagner and Moch (1986), Tagger and Haines (2006) studied the reciprocal team interdependence with the help of a seven point Likert scale (Strongly Agree = 7 to Strongly Disagree = 1) having

composite reliability score of .82. The following three dimensions have been taken from their study, and have been accordingly modified to suit the purpose of this study. Table 4 highlights the original scale items along with the corresponding scale items used in this study.

Table 4: Original Scale by Tagger & Haines (2006) vis a vis Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
Teams can more thoroughly evaluate options than any one individual can	We feel we can collectively influence many important issues in this department. (Collectivist orientation)
I prefer to work with others in my work group rather than to work alone	Members of the work group work closely together and during the same time frame. (Group proximity)
To what extent do you depend on the presence, help, and support of your colleagues?	I am satisfied with the friendliness of the people I work with. (Harmony)

Importance of informal interactions and socializations among work group members has been cited as significant attributes by a number of organizational theorists. Keeping that in mind, the following two items relating to those two

dimensions have been self – developed by the researcher for the purpose of this study. Table 5 highlights the self – developed items used to measure the following dimensions of the variable in this study.

Table 5: Self – developed Items for Peer – Group Interaction

Scale item used in this study and (dimensions)

We interact informally with each other within our department. (Informality)

I socialize with my co-workers even outside the job. (Socialization)

Variable III Person –Organization

Fit: O’Reilly et. al. (1991) in the context of people and organizational culture, developed and validated an instrument

for assessing person – organization fit called Organizational Culture Profile (OCP). Results suggested that a better fit predicted job satisfaction, organizational commitment, and hence reduced employee turnover. The composite reliability score for the dimensions was reported .86. For the purpose of this study, the following seven items have been taken from O’Reilly et. al.(1991). Table 6 highlights the original scale items along with the corresponding scale items used in this study.

Table 6: Original Scale by O’Reilly et. al. (1991) viz a viz Scale used in this Study

Original Scale Item	Scale Item Used in this Study & Dimensions
Concern for diversity	Individual differences (e.g. gender, race, physical disability, social background etc.) are respected in my organization. (Diversity)
Working in collaboration with others	We discuss with people in other departments how the quality of their work affects us. (Sharing feedback, own unit => others)
Working in collaboration with others	People outside my department discuss with us how the quality of our work affects them. (Sharing feedback, others => own unit)
Sharing information freely	Each department knows enough about other related departments within the company. (Inter - unit information sharing)
Sharing information freely	Information about the organization’s long-range plan and financial status are shared with us. (Organizational information sharing)
Achievement orientation	Achievement and competence are more important than hierarchical status. (Performance based recognition)
Willingness to experiment	We are encouraged to try new ways of doing things, even if they always might not work out. (Willingness to experiment)

Variable IV Nature of Job: Smith et. al. (1998) studied the job level characteristics from the scales (Treiman 1977, Hackman and Oldham 1977, Hunter

and Schmidt 1990) and used it to reflect the relationship between the job levels and job satisfaction. Job characteristics at different levels were measured with a five-

point scale having a composite reliability of .89. Table 7 highlights the original scale items along with the corresponding scale items used in this study.

Table 7: Original Scale by Smith et. al. (1998) vis a vis Scale Used in this Study

Original Scale Item	Scale Item Used in this Study & Dimensions
Job is simple and repetitive	My Job is simple, repetitive and does not require a great deal of thought. (Non – complexity and repetitiveness)
Scheduling and planning are important	Staying on schedule and planning for the future are important for jobs in my area. (Planning and timeliness)
Have authority to make decisions	I have authority commensurate with my position to make the decisions necessary for accomplishing assigned task. (Authority for decision making)
Teamwork	A number of employees diagnose, solve problem, and collaborate together to deal with the work in my department. (Teamwork)
Job flexibility	We are allowed to determine job sequence in our department. (Flexibility)

Palvia, Sharma, and Conrath (2001) developed a framework regarding the information system quality comprising the task characteristics, technology, people, and organization. From the task characteristics construct the three dimensions namely intra–unit task linkage, inter–unit task linkage, task specialization were taken, and the following three items were developed for this study. The reliability measure of the construct was not reported in their study. Table 8 highlights the original scale items along with the corresponding scale items used in this study.

Table 8: Original Scale by Palvia, Sharma, and Conrath (2001) vis a vis Scale Used in this Study

Original Scale item	Scale item used in this study and (dimensions)
Coordination within unit / department	To get the job done, I am required to coordinate my work with others in my department. (Intra – unit task linkage)
Coordination with other units / departments	My job requires coordinating my work with people in other departments also. (Inter – unit task linkage)
Specialization in job skills	My job requires expertise and specialized skills that may not be readily available with people. (Task specialization)

Variable V Nature of Technology: Shani et. al. (1992) defined technology as the combination of individual expertise (skills and knowledge), techniques, machines, and computers required for converting inputs into outputs in the form of products or services. This comprehensive definition of technology has been developed and

extensively used for work technology analysis by researchers like Joan Woodward, Thompson, and William Pasmore. The same definition of technology has been adopted for the purpose of this study, and the following four dimensions (Team facilitation,

Operational skill, Complexity, Usefulness) of work technology from Shani et. al. (1992) are framed into four items as below for this study. Table 9 highlights the original scale items along with the corresponding scale items used in this study.

Table 9: Original Scale by Shani et. al. (1992) vis a vis Scale Used in this Study

Original dimension	Scale item developed for this study and (dimensions)
Team technology	The technology that I use makes it easy for me to work with others as part of a team. (Team facilitation)
Skill level	The technology that I use in this department requires high level of technological skill. (Operational skill)
Complexity	The technology that I predominantly use is complex and advanced by nature. (Complexity)
Usefulness	The technology that I use helps to reduce the complexities of routine operating procedures. (Usefulness)

Palvia, Sharma, and Conrath (2001) also studied work technology in the context of socio-technical approach to determine the quality of a computer information system. They also adopted the same definition of technology of Joan Woodward, Thompson, and William Pasmore. The following three

dimensions (Effectiveness, User acceptability, Flexibility) related to technology have been taken from them, and the following items have been developed for this study. Table 10 highlights the original scale items along with the corresponding scale items used in this study.

Table 10: Original Scale by Palvia et. al. (2001) vis a vis Scale Used in this Study

Original dimension	Scale item developed for this study and (dimensions)
Effectiveness	The technology that I use is effective and reliable to turn out work as fast as possible. (Effectiveness)
User acceptability	I feel comfortable to work with the technology used in this department. (User acceptability)
Flexibility	The technology that I use for my work is flexible to keep up with change arising out of job requirements. (Flexibility)

Variable VI Received Organizational Support: Received organizational support is defined as the employee's 'global beliefs concerning the extent to which the organization values their contributions and

cares about their well-being (Eisenberger et. al. 1986). Johlke, Stamper, and Shoemaker (2001) studied a few selective aspects of received organizational support as an antecedent to employee commitment

taking leads from earlier studies by Eisenberger et. al. (1986, 1990), Shore and Tetrick (1991), Wayne et. al. (1997), and Roberts et. al. (1994). Seven point Likert Scale was used (strongly disagree = 1 to strongly agree = 7), and had the composite reliability score of .92. Table 11 highlights the original scale items along with the corresponding scale items used in this study.

Brandes, Dharwadkar, and Wheatley (2004) in their study reflected the

relationship between the organizational support facilities, and employee involvement and work outcomes. They modified the POS (perceived organizational support) scale used by Eisenberger et. al. (1986) having seven points ranging from Strongly Disagree = 1 to Strongly Agree = 7, and a composite reliability score of .92. Table 12 highlights the original scale items along with the corresponding scale items used in this study.

Table 11: Original Scale by Johlke et. al. (2001) vis a vis Scale Used in this Study

Original Scale item	Scale item used in this study and (dimensions)
My workstation is comfortable	Workstations in our department are comfortable. (Infrastructure)
I have both fixed and performance based pay.	I think I am fairly paid in this organization. (Compensation)
My workload is fair	The amount of work I am expected to do on my job is reasonable. (Workload)
This firm cares about my career	There are opportunities available for me to develop career and learn new skills within this company. (Career development)

Table 12: Original Scale by Brandes et. al. (2004) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
I frequently consult employees outside my work group to help me on work problems	There is good alignment between my department and other with whom we need to coordinate. (Inter – unit support)
I believe that senior staff members have high integrity	I believe that top management has high integrity and commitment to the growth of the organization. (Image of top management)
Help is available from top management when I have a problem	Senior staff members are willing to extend cooperation in order to help me perform my job to the best of my ability. (Support from seniors)
This company really cares about my well – being	This company really cares about employee well - being. (Organizational care)
This company shows concern for my family welfare	Time-off policies are flexible enough to let me take care of my personal and family needs. (Work – family balance)

Data & Sample

The sample of the final study was targeted at the companies based in India.

Junior and middle level personnel at executive category (both from technical and managerial background) from the defined set of organizations formed the

population. The organizations were broadly classified on the basis of the type of activity (manufacturing / service), and nature of ownership (public / private). In order to obtain diversified categories of sample, the entire population was then stratified according to sales turnover, and employed manpower. All the organizations were bifurcated on the basis of having business turnover of Rs. 10,000 cr. and above, and having business turnover of less than Rs. 10,000 cr. Employed manpower was 3,000 and above for all the organizations studied.

The Survey

The structured questionnaire was made up of two parts. The first part of the questionnaire gathered background information of the respondents from different organizations, who filled up the questionnaires. The second part of the questionnaire addressed the scale items related to the social and technical subsystem constructs of organizations. The variables were measured using multiple items. All of the scale items represented in the survey instrument utilized a five-point categorical rating scale. The anchors used included: a) 1 = not at all, b) 2 = to a small extent, c) 3 = to a moderate extent, d) 4 = to a large extent, e) 5 = a very large extent.

The questionnaires were distributed among one thousand sixteen hundred representatives from different Indian companies that approved to participate in this survey. 459 filled-up questionnaires were received back in total. After elimination of questionnaires in which

item responses were missing, the final sample consisted of 444 responses. A brief summary of the demographic profile of sample respondents in the final survey is presented in Table 13.

Table 13: Demographic Profile of Sample

Category	Number
Gender	
Male	407 (91.66%)
Female	37 (8.34%)
Level	
Junior level executive	202 (45.49%)
Middle level executive	242 (54.51%)
Age Groups	
Under 30	78 (17.56%)
30 – 40	187 (42.11%)
41 – 50	133 (29.95%)
> 50	46 (10.38%)
Job Experience in the Company	
< 24 months	64 (14.41%)
24 – 60 months	120 (27.02%)
61 – 120 months	124 (27.92%)
> 121 months	136 (30.63%)
Nature of Organizational Ownership	
Public Sector	209 (47.07%)
Private Sector	235 (52.93%)
Nature of Organizational Business	
Manufacturing	233 (52.47%)
Service	211 (47.53%)
Sales Turnover	
10,000 cr. and above	6 (66.67%)
Below 10,000 cr.	3 (33.33%)

Data Analysis

The descriptive was analyzed for three different sets of data. The first set was the pooled sample total data set of the final study. The second set of data

was for manufacturing and service sector organizations in public enterprises. The third set of data belonged to the manufacturing and service sector organizations in private enterprises. Table 14 shows the detailed results of mean and standard deviations (s.d.) for

all different sets of data. Table 15 shows the relative ranking of the socio-technical variables in the pooled sample, public manufacturing and service organizations, and private manufacturing and service organizations. Tables 16 -19 give detailed analysis in this context.

Table 14: Descriptive for ‘Pooled’ & ‘Classified’ Sample

Variables	Pooled Sample		Public Manufacturing Service				Private Manufacturing Service			
	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.
Nature of Job	3.39	.43	3.43	.38	3.40	.52	3.47	.50	3.30	.33
Nature of Technology	3.46	.57	3.49	.49	3.26	.63	3.49	.59	3.59	.51
Received Organizational Support	3.17	.48	3.13	.44	3.33	.56	3.24	.60	3.04	.28
Supervisory Relationship	3.34	.64	3.27	.62	3.45	.66	3.46	.81	3.23	.51
Peer Group Interaction	3.55	.46	3.54	.46	3.60	.51	3.56	.57	3.52	.32
Person Organization Fit	3.09	.60	2.72	.55	3.44	.51	3.19	.63	3.03	.50

Table 15: Relative Ranking of Variables (in the Order of Mean Values)

Variables	Pooled Sample	Public Manufacturing	Public Service	Private Manufacturing	Private Service
Nature of Job	3	3	4	3	3
Nature of Technology	2	2	6	2	1
Received Organizational Support	5	5	5	5	5
Supervisory Relationship	4	4	2	4	4
Peer Group Interaction	1	1	1	1	2
Person Organization Fit	6	6	3	6	6

Hypotheses Testing

Null hypothesis = The Variance / Means between the two groups do not differ significantly and are same / equal. $H_0: \mu_1 = \mu_2$

Alternate hypothesis = The Variance / Means between the two groups differ

significantly and are not the same / equal. $H_a: \mu_1 \neq \mu_2$

Hypothesis 1: It was hypothesized that there was no significant difference in the social design of executive level jobs with reference to the various constructs viz. – supervisory relationship, peer – group interaction, and

person – organization fit when compared to between the executive level personnel of the public and private organizations in the manufacturing sector. The data was subjected to the Independent Samples t – test. The Levene’s Test for Equality of Variances was applied to test if the spread of the group differed (F Statistic). The null hypothesis is that the two population variances are equal. If the observed significance level for this test is less than 0.05, the separate variance t – test for means is used, else

a pooled variance t – test is used. However, the F Statistic value had a corresponding significance (or p – values), of less than .05. This meant that the null hypothesis is rejected, and that the variances of public and private manufacturing organizations were not equal. This supported the use of separate variance t – test to test the equality of means. The associated values of significance (p – values), were again less than .05, and thus, the null hypothesis is rejected, i.e. the difference in the means is significant (Table 16).

Table 16: Separate Variance t Test for Mean Difference of Social Design of Executive Jobs in Manufacturing Organizations (Public & Private)

Dimension	Public Manufacturing	Private Manufacturing	t – value
Social Subsystem of Executive Jobs	3.17	3.40	2.90**

** $p < .01$

Independent samples t– test revealed significant differences in the social subsystem between public manufacturing and private manufacturing organizations. A review of the results in Table 16 indicated that the resulting t – statistic was 2.90 ($p < .01$). Mean value of the social design factors was higher for private manufacturing firms (3.40) than the public-manufacturing firms (3.17). There is a significant difference in the social design of executive level jobs of public and private manufacturing organizations. The supervisory relationship, peer – group interaction, and person – organization fit were different for the executive level personnel for both the public and private manufacturing organizations.

Hypothesis 2: It was hypothesized that there was no significant difference in the social design of executive level jobs with reference to the various constructs viz. – supervisory relationship, peer – group interaction, and person – organization fit when compared to between the executive level personnel of the public and private organizations in the service sector. The data was subjected to the Independent Samples t – test. The Levene’s Test for Equality of Variances was applied to test if the spread of the group differed (F Statistic). The null hypothesis is that the two population variances are equal. If the observed significance level for this test is less than 0.05, the separate variance t – test for means is used, else a pooled

variance t – test is used. The F Statistic value had a corresponding significance (or p – values), of less than .05. This meant that the null hypothesis is rejected, and that the variances of public and private service organizations are not

equal. This supported the use of separate variance t – test to test the equality of means. The associated values of significance (p – values), were again less than .05, and thus, the null hypothesis is rejected, i.e. the difference in the means is significant (Table 17).

Table 17: Separate Variance t Test for Mean Difference of Social Design of Executive Jobs in Service Organizations (Public & Private)

Dimension	Public Service	Private Service	t – value
Social Subsystem of Executive Jobs	3.50	3.26	4.61**

** $p < .01$

Independent samples t-test revealed significant differences in the social subsystem between public and private organizations in the service sector. A review of the results in Table 17 indicated that the resulting t-statistic was 4.61 ($p < .01$). Mean value of the social design factors was higher for public enterprises (3.50) than the private enterprises (3.26) in the service sector. As far as these constructs are concerned, there is a significant difference in the social design of executive level jobs of public and private service organizations. The supervisory relationship, peer-group interaction, and person– organization fit were different for the executive level personnel for both the public and private service organizations.

Hypothesis 3: It was hypothesized that there was no significant difference in the technical design of executive level jobs with reference to the various constructs viz. – nature of job, nature of work technology, and received

organizational support when compared between the executive level personnel of the public and private organizations in the manufacturing sector. The data was subjected to the Independent Samples t – test. The Levene’s Test for Equality of Variances was applied to test if the spread of the group differed (F Statistic). The null hypothesis is that the two population variances are equal. If the observed significance level for this test is less than 0.05, the separate variance t – test for means is used, else a pooled variance t – test is used. The F Statistic value had a corresponding significance (or p – values), of less than .05. This meant that the null hypothesis is rejected, and that the variances of public and private manufacturing organizations were not equal. This supported the use of separate variance t – test the equality of means. The associated values of significance (p – values), were again less than .05, and thus, the null hypothesis is rejected, i.e. the difference in the means is significant (Table 18).

Table 18: Separate Variance t Test for Mean Difference of Technical Design of Executive Jobs in Manufacturing Organizations (Public & Private)

Dimension	Public Manufacturing	Private Manufacturing	t – value
Technical Subsystem of Executive Jobs	3.28	3.36	4.12**

** $p < .01$

Independent samples t – test revealed significant differences in the technical subsystem between public manufacturing and private manufacturing organizations. A review of the results in Table 18 indicated that the resulting t – statistic was 4.12 ($p < .01$). Mean value of the technical design factors was higher for private manufacturing firms (3.36) than the public - manufacturing firms (3.28). There is a significant difference in the technical design of executive level jobs of public and private manufacturing organizations. The nature of job, nature of work technology, and received organizational support were different for the executive level personnel for both the public and private manufacturing organizations.

Hypothesis 4: It was hypothesized that there was no significant difference in the technical design of executive level jobs with reference to the various constructs viz. – nature of job, nature of work technology, and received organi-

zational support when compared between: the executive level personnel of the public and private organizations in the service sector. The data was subjected to the Independent Samples t – test. Levene’s Test for Equality of Variances was applied to test if the spread of the group differed (F Statistic). The null hypothesis is that the two population variances are equal. If the observed significance level for this test is less than 0.05, the separate variance t – test for means is used, else a pooled variance t – test is used. The F Statistic value had a corresponding significance (or p – values), of less than .05. This meant that the null hypothesis is rejected, and that the variances of public and private service organizations are not equal. This supported the use of separate variance t – test to test the equality of means. The associated values of significance (p – values), were again less than .05, and thus, the null hypothesis is rejected, i.e. the difference in the means is significant (Table 19).

Table 19: Separate Variance t Test for Mean Difference of Technical Design of Executive Jobs in Service Organizations (Public & Private)

Dimension	Public Service	Private Service	t – value
Technical Subsystem of Executive Jobs	3.36	3.17	3.86**

** $p < .01$

Independent samples t-test revealed significant differences in the technical subsystem between public and private organizations in the service sector. A review of the results in Table 19 indicated that the resulting t – statistic was 3.86 ($p < .01$). Mean value of the technical design factors was higher for public enterprises (3.36) than for the private enterprises (3.17) in the service sector. There is a significant difference in the technical design of executive level jobs of public and private service organizations. The nature of job, nature of work technology, and received organizational support are different for the executive level personnel for both the public and private service organizations.

Discussion

The major findings of this study can be summarized as follows -

- The comparison of descriptives for pooled and group samples (public, private; manufacturing, service) showed that the score of peer – group interaction was the highest or nearer to the highest for almost all categories of organizations like public and private manufacturing; and public and private service firms. It implies that in Indian organizations, in general, be it in public or private sector, the employees at the same level / unit share a healthy relationship among them.
- Whereas, consistently the score was found low in almost all categories of organizations for the variable person
- The results of independent t - test by comparing separate group samples showed that the social subsystem was found significantly different for the public and private manufacturing as well as service organizations. The social subsystem variables comprising supervisory relationship, peer – group interaction and person – organization fit for the employees at the executive level jobs varied in these two sets of organizations.

Indian organizations are mostly driven by seniority based recognition and promotions.

– organization fit. So far as the relatively low score in person – organization fit was concerned, it indicated that the Indian organizations are mostly driven by seniority based recognition and promotions, hierarchical decision making, lack of sharing organizational information at levels down the line, undue conflict and non – cooperation among various departments / units in the organization, lack of experimentation with new things, and absence of concern to the diversity of employees in terms of their socio-cultural background, gender and race.

The social subsystem was found significantly different for the public and private manufacturing as well as service organizations.

- The results of independent t - test by comparing separate group samples showed that the technical subsystem was found significantly different for the public and private manufacturing as well as service organizations. The nature of jobs performed by employees at executive levels, the nature of work technology that they used to execute their assignments, and the organizational support facilities that they received to discharge their official duties and responsibilities were different for two sets of organizations.
- It was also observed that in the case of manufacturing organizations, the mean scores were found higher in private firms for both technical and social subsystem of executive jobs. The executive jobs in the sample private manufacturing organizations were designed in a better manner through balancing the technical and social elements than that in the public manufacturing organizations.
- Whereas in the case of service organizations, the mean scores were found higher in private firms for both technical and social subsystem of executive jobs. The executive jobs in the sample public organizations in the service sector were designed in a better manner through balancing the technical and social elements of the jobs than that in the private organizations in the service under this study.

Conclusion

This study empirically establishes that in the case of Indian organizations the socio-technical design of executive jobs varies among different sets of organizations viz. – public and private sector, and manufacturing and service sector. The presence of different technical and social constructs also differ among the organizations as have been responded by the people at executive levels. Efforts should be made continually by the organizations to strike a balance among various technical and social constructs in the course of designing jobs for executive levels to generate better job satisfaction, employee morale and retention, and quality of work life.

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