
Comparing Data Processing Personnel with Other Departments in a Downsized Corporation

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ABSTRACT

Data processing personnel (MIS and computer operations) were compared with workers in other departments along core job dimensions, group cohesiveness and organizational citizenship behavior in a corporate division that has recently been downsized. On core job dimensions, the sample scored lower than the national benchmark for such professionals. The data also indicated different patterns than the national benchmark. The data on group cohesiveness and organizational citizenship behavior indicated that computer operations personnel were less affected by downsizing and reorganization. Managerial implications are discussed.

INTRODUCTION

The present study was conducted in the major division of a large corporation that has downsized its work force over the past ten years. The objective of the study was to investigate the DP personnel's (computer operations and MIS) perceptions about job characteristics and the work environment compared to other workers in the same organization. Specifically, the study compared the three personnel groups along core job dimensions and job satisfaction [2], group cohesiveness [7], and organizational citizenship behavior [5].

Cougar and Zawacki [1] used the Job Diagnostic Survey [2] to compare two computer professional groups, computer operations and programmer/analysts (MIS in the present study), with workers from other departments. The core job dimensions are job characteristics that influence a worker's critical psychological states which in turn influence the worker's personal and work outcomes such as motivation, performance, satisfaction and absenteeism. The findings showed that the three groups differed from each other on core job dimensions and job satisfaction. Cougar and Zawacki [1] proposed their findings as national norms for computer operations and MIS personnel.

The present study asked whether the core job dimension and job satisfaction patterns found by Cougar and Zawacki apply in an environment of reorganization and downsizing. Such an environment is part of the business climate of the 1990s — a climate where many large companies may be downsizing and reorganizing to meet new competitive pressures. In general, the 1990s represent a turbulent external environment for many large corporations. Macroeconomic

changes have forced many large organizations to become more efficient through downsizing their work force. Recently, IBM and GM have announced such changes and many more companies will probably follow suit [3, 8]. Though only one company was surveyed, we believe this company has faced challenges which characterize business in the 1990s. For example, over the last decade, this company has downsized its work force from over 80,000 to less than 20,000 employees. This work force reduction has corresponded with a drop from the top 20 in the Fortune 500 to the top 80.

Downsizing affects the work force composition and therefore, affects the measures such as core job dimensions and job satisfaction since these measures depend on the work force composition [1]. Cougar and Zawacki prescribed several management guidelines, such as increased feedback from superiors and colleagues, to enhance DP personnel's motivation and productivity. These prescriptions were based on the national norms compiled (in the seventies) in firms not affected by downsizing. Therefore, if downsizing causes the composition of DP personnel to deviate significantly from the national norms, then Cougar and Zawacki's prescriptions need to be modified also.

In addition to the core job dimensions and job satisfaction, the present study explored whether the three groups differed in terms of group cohesiveness and organizational citizenship behavior. Group cohesiveness is the degree to which members in group are attracted to each other and share the group's objectives [7]. Organizational Citizenship Behavior refers to behaviors that are performed by an employee which are discretionary and not explicitly recognized by the

organizational reward system but promote the functioning of the organization [5]. Since group cohesion and organizational citizenship behavior are characteristics of the work environment, environmental changes such as downsizing and reorganization may affect these measures.

Core job dimensions, job satisfaction, group cohesion and organizational citizenship behavior describe how a worker perceives and interacts with his or her work environment. If one group of workers (e.g., DP personnel) deviate negatively on these measures from other workers in the organization, managers need to probe into the cause(s) of this deviation. The negative deviations may serve as diagnostics of motivation and productivity problems within a group of workers. Once the cause(s) of deviation has been identified, managers can formulate subsequent actions. Also, the study will be useful for managers who are contemplating downsizing as a future option. If the present findings indicate that downsizing causes these four measures to deviate systematically, then managers can be prepared for such changes before downsizing. Managers may consult prescriptions regarding managerial actions to improve organizational citizenship and group cohesiveness [5,7].

PAST RESEARCH

The core job dimensions are skill variety, task identity, task significance, autonomy and feedback from the job [2]. Skill variety is the degree to which a job requires a variety of different skills, activities and talents of the employee. Task identity is the degree to which the job requires the completion of a whole piece of work. Task significance is the extent to which the job has an impact on the lives or work of other people. Autonomy is the degree to which the job provides the employee independence and discretion in executing responsibilities. Feedback from the job is the degree to which conducting the work activities results in the employee obtaining information about the performance effectiveness. Cougar and Zawacki [1] found that computer operations and MIS personnel differ from each other and from workers in other departments. Personnel from other departments rated their jobs higher than computer operations but lower than MIS on skill variety, task identity, autonomy and feedback from the job. On task significance, MIS rated their jobs higher than other departments but lower than computer operations personnel.

On general job satisfaction, Cougar and Zawacki [1] reported that MIS personnel rated general satisfaction with the job higher than two other groups while computer operations personnel rated their job satisfaction higher than personnel from other departments.

Though we did not find any study that compared the DP personnel with other workers along group cohesiveness and organizational citizenship behavior, we would believe that

such measures would be affected by organizational changes, namely, downsizing since these dimensions are products of an organization's environment. The workers more affected by organizational changes may score lower than other workers on group cohesiveness and organizational citizenship behavior. Therefore, it would be interesting to compare DP personnel with other workers along these measures. This was the exploratory part of the study. Further, organizational citizenship and group cohesiveness reflect workers' motivation level at the work place. If downsizing negatively affects these measures, managers who are contemplating downsizing as an option need to prepare future actions to counteract such effects.

THE STUDY, THE SAMPLE, THE INSTRUMENT

The study was conducted in the largest division of a Fortune 100 manufacturing company — a major producer of chemical and plastics products in the world. The division employed over two thousand full time employees and housed five major departments — Accounting, Human Resources, Management Information Systems, Data Center (computer operations) and Engineering. In addition, the division housed other smaller departments including Internal Auditing, Resource Control, Equipment Maintenance etc. Over the past two years, the division downsized the overall work force by 20% and the DP departments (MIS and computer operations) by 35%. Therefore, MIS and computer operations were more affected by the downsizing than other departments. Soon after the completion of the data collection in the present study, the head of MIS stepped down and the department was consolidated with the computer operations department.

The respondents participated in the data collection in two ways. The first condition was face to face — where the respondents met the researchers and completed the questionnaire after a verbal introduction to the study by the researchers. In this condition, the authors were stationed in an office building on the premises and an HR officer notified the workers in the division about the study through an e-mailed office memo. The second condition was through electronic mail — where a questionnaire with the introduction to the study was electronically transmitted to the respondents. After completion, the completed questionnaire was then mailed directly to the researchers. The response rate was 49% as 202 respondents, out of 410 employees who were contacted, participated in the study. Altogether there were 199 respondents whose responses were used in the study. Appendix A shows the profile of the respondents. The HR officer confirmed that the profile approximated the employee composition in the division.

The instrument contained the Job Diagnostic Survey [2] to measure the core job dimensions, which was also used by Cougar and Zawacki [1]. Cougar and Zawacki's sample

included DP departments ranging in size from 25 to 150 departments. Both MIS and the computer operations departments in the present study employed more than 100 but less than 150 employees. Also, the division used equipments from all major computer hardware companies and the DP personnel were representative of skills requisite to work in such multi-vendor hardware environment. Cougar and Zawacki's sample represented a similar range of skills since the respondents came from different organizations. Though, before downsizing, the personnel were recruited nationally, there has been no new recruitment over the last two years. Further, the head of computer operations reported that several current and past DP personnel, both MIS and computer operations, of the company participated in Cougar and Zawacki's study in the seventies. Therefore, it would be reasonable to conclude that Cougar and Zawacki's findings can be used as a benchmark in the present study since the size of the departments and the composition of workers in the present company, before downsizing, and the previous study are comparable.

The instrument also contained questions on group cohesiveness and organizational citizenship behavior. Items which have been validated in past studies were used to collect data on group cohesiveness [6] and organizational citizenship behavior [4].

THE FINDINGS AND DISCUSSION

Core Job Dimensions

The data analysis on core job dimensions used two approaches. First, we compared the data of the three personnel groups against the benchmark developed by Cougar and Zawacki. Second, we compared the three groups in the present study with each other.

Table 1 shows the mean scores of the five core job dimensions of the three groups in the present study and Cougar and Zawacki's [1] study. A comparison of the data indicates that personnel from MIS and other departments in the present study have lower scores on all core job dimensions than respective groups in Cougar and Zawacki's study. However, the computer operations personnel in the present study have higher scores on skill variety, task identity and autonomy than the earlier study.

The data indicate that MIS and other department personnel in the present study do not find the five core job dimensions as fulfilling as their counterparts in the earlier study. Though Cougar and Zawacki's [1] findings are based on 1000 MIS personnel and 1500 computer operations personnel in several industries, they reported that their sample covered almost all "healthy" companies (they did not report the number of companies in their study). They did not report studying organizations experiencing substantial downsizing and reorganization as the company in the present study. The corporate HR officer reported that the current working environment in the division can be characterized as "more duties with help from fewer colleagues." Such environment can explain the DP employee's perceptions of their job characteristics in the present study.

The data in Table 1 also indicate that the computer operations personnel rated their jobs higher than their counterparts in three dimensions: skill variety, task identity and feedback. Cougar and Zawacki (1980) found the opposite trend in their study. An explanation for this difference may be that over the past year, the management of the company was evaluating the possibility of outsourcing the computer operations department. The personnel in the department were not in favor of the change. Two months prior to the data collection, the management finally decided against

Table 1
Core Job Dimensions
(Highest Score: 7, Lowest Score: 1)

Core Job Dimensions	Computer Operations		MIS		Other Departments	
	Present Study	Cougar & Zawacki	Present Study	Cougar & Zawacki	Present Study	Cougar & Zawacki
Skill Variety	4.57**	3.98	4.55**	5.41	4.53	4.74
Task Identity	4.73	4.53	4.72**	5.21	4.61	4.76
Task Significance	4.56**	5.62	4.43**	5.61	4.55	5.47
Autonomy	4.39**	4.08	4.54**	5.29	4.39	4.85
Feedback	4.44*	4.62	4.34**	5.13	4.34	4.88

** Significantly different from Cougar & Zawacki's (p < .001)

* Significantly different from Cougar and Zawacki's (p < .01)

outsourcing. The head of computer operations department played a significant role in persuading the management against outsourcing. These factors possibly played a positive role in rating of the job dimensions. However, the computer operations personnel in the present study rated their jobs lower than Cougar and Zawacki's [1] subjects in terms of task significance and feedback.

A multivariate analysis of variance (MANOVA) was used to investigate whether the differences in the core job dimensions among the three groups in the present study were statistically significant. The results showed no statistical difference among the three groups.

General Job Satisfaction

Table 2
General Job Satisfaction Scores

	Computer Operations	MIS	Other Departments
Present Study	4.22**	4.16**	4.29
Cougar & Zawacki	4.94	5.29	4.88

** Significantly different from Cougar & Zawacki's ($p < .001$)

Table 2 shows the mean general job satisfaction scores of the personnel groups from the present and Cougar and Zawacki's [1] study. Scores in the present study are noticeably lower than in the earlier study. Much like the differences in the job characteristics, the downsizing of the organization and the resulting environment of "more duties with help from fewer colleagues" is a cause for the overall lowering of job satisfaction. While MIS personnel had the highest job satisfaction in Cougar and Zawacki's [1] study, they expressed less satisfaction than the other groups in the present study. Though an Analysis of Variance (ANOVA) showed no difference in terms of job satisfaction, the MIS personnel in the present study have been more affected by reorganization and downsizing than other groups. The departure of the department head and the consolidation with the computer operations as one IS department resulted in lower job satisfaction scores by the MIS personnel.

Group Cohesiveness and Organizational Citizenship Behavior

Table 3 shows the group cohesiveness and organizational citizenship measures of the three groups. Computer operations personnel had the highest score on group cohesiveness followed by other departments and MIS. However, an ANOVA showed no statistically significant difference among the three groups.

Organizational citizenship behavior was measured along two dimensions: interpersonal helping and individual initiative. Interpersonal helping reflects the degree employees choose to help their co-workers with specific problems which may occur on the job and individual initiative reflects the degree employees may choose to help co-workers by making suggestions on how to improve work or by facilitating the flow of information between the work group employees. A MANOVA established that a statistically significant difference existed among the three groups on organizational citizenship behavior (F equivalent of Wilks' Lambda = 4.35, p -value $< .01$). Further analysis indicated that the groups were statistically different on interpersonal helping (F value = 5.5, p -value $< .02$). Table 3 shows that computer operations personnel rate interpersonal helping the highest followed by MIS and other departments. The higher organizational citizenship score reflects that the negative impacts of downsizing have been counteracted by the positive impact from the aversion of the outsourcing.

Table 3
**Group Cohesiveness and
Organizational Citizenship Behavior**

	Computer Operations	MIS	Other Departments
Group Cohesiveness	5.98	5.20	5.40
Organizational Citizenship Behavior:			
Interpersonal Helping	5.76	5.47	5.28
Individual Initiative	5.36	5.31	5.40

CONCLUSIONS

The objective of the study was to examine whether Cougar and Zawacki's [1] norms on core job dimensions hold for the three groups of respondents — computer operations, MIS and other departments. First, the findings showed lower scores on all core job dimensions in the present study. The lower scores stem from the downsizing throughout the organization. The company has been a large multinational corporation for several decades and faced many environmental changes. The HR officer reported that historically, the employees' job satisfaction scores have been high compared to other companies in the chemical industry. Though the company has been downsizing gradually over the past ten years, the change has been drastic in the last two years responding to macroeconomic factors and the management is concerned

about the level of employee motivation and productivity. Second, the data indicated different patterns than Cougar and Zawacki's findings when comparing the three groups in the present study (i.e., computer operations rating higher skill variety, task identity and feedback). The avoidance of outsourcing might have positively reinforced the computer operations personnel's perceptions of task characteristics. Nonetheless, the findings showed that organizational changes affect core job dimensions of computer professionals and others in the organization.

The findings on job satisfaction indicated that all personnel groups in the present study have lower scores than the norms developed by Cougar and Zawacki [1]. MIS personnel had the lower job satisfaction score than the other two groups — a pattern opposite to the findings on "healthy" companies.

The data analysis on group cohesiveness and organizational citizenship behavior appeared to confirm earlier findings on the computer operations personnel affected less by reorganization and downsizing. Computer operation personnel were more cohesive as a group than MIS and other departments. On the two dimensions of organizational citizenship behavior, the three departments differed from each other since computer operations personnel maintained a significantly larger interpersonal helping than MIS and other departments.

Managerial Implications

The present study indicates that changes such as reorganization and downsizing affect computer personnel as well as workers in other departments. Cougar and Zawacki's [1] study can be used as a benchmark to identify the impact of these changes on computer personnel's job characteristics compared to workers in other departments, however, special concern should be exercised if the company is in the midst of difficult times. If the job characteristics ratings are below the benchmark, managerial attention is required to probe into the causes and to seek action to remedy the lower ratings. Workshops may be one way to probe into the causes and seek remedies.

Another managerial implication of the present study concerns Cougar and Zawacki's [1] prescriptions regarding management of DP personnel. They [1] suggested that feedback from supervisors is key to enhancing the motivation and productivity of DP personnel. After downsizing, the DP personnel may require even more feedback to maintain the motivation and productivity level. The level of feedback prior to downsizing may not be adequate in the working environment resulting from the change. DP managers need to institute more feedback mechanisms after downsizing.

Comparing job satisfaction, group cohesiveness and organizational citizenship behavior can provide a measure of the work environment of the computer personnel. The com-

pany in the present study needs to investigate why the MIS personnel lag behind computer operations and other departments on these measures.

Finally, the impacts of downsizing on DP personnel need to be further investigated. The present study adopted a post-hoc approach. Though, the HR officer and other workers in the organization informally reported to us that downsizing is the major influencing factor in their working environment, other possible explanations can not be totally ruled out. The present findings must be evaluated considering this methodological limitation. A longitudinal, a pre- and post-downsizing, approach will better facilitate the study. However, the data collection problems (i.e., identifying such an organization and the approval of the organization to provide the data) associated with the methodology are significant. Therefore, a suitable methodology will be to compare DP personnel in two organizations — downsized and not downsized.

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APPENDIX A: RESPONDENTS' PROFILE

	Frequency	Percent
Department		
Support Services	67	33.8
MIS/DP	72	36.4
Engineering/Production	59	29.8
Job Experience (Years)		
5 years and less	99	50.5
6 to 10 years	42	21.4
11 to 20 years	47	24.0
More than 20 years	8	4.1
Organizational Level (Salary Grades)		
Non-Executive Grades 2-4	17	8.7
Non-Executive Grades 5-6	39	19.9
Non-Executive Grades 7-8	5	2.6
Executive Grades 3-6	26	13.3
Executive Grades 7-10	44	22.4
Executive Grades 11-14	56	28.6
Executive Grades 14+	9	4.6
Gender		
Male	123	62.8
Female	73	37.2
Age		
18 to 29 years	23	11.7
30-40	67	34.2
41-55	85	43.4
55+ years	21	10.7
Education		
High School	57	29.2
Associate Degree	20	10.3
Bachelor's Degree	79	40.5
Master's Degree	38	19.5
Doctoral Degree	1	0.5

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