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THE EFFECTS OF A PERFORMANCE IMPROVEMENT STRATEGY IN A WORK

TEAM SETTING:

A CASE STUDY

THESIS

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A popular approach to operating organizations in the 1990s is the implementation of work teams. The current literature offers little information on the use of performance management techniques in work team settings. This case study examined the effects of employing a performance improvement strategy on employee performance in a work team environment comprised of part-time graduate students. The performance improvement strategy included composing job descriptions, job aids (e.g., work organization charts), task request logs and posting weekly and monthly performance feedback. Improvements were observed in some aspects of team performance. Some of the improvement was due to task clarification and improved scheduling produced by the antecedent interventions. Performance feedback had little effect on measured performance but seemed to facilitate discussion and problem-solving.

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## INTRODUCTION

Many businesses in the United States and abroad are constantly searching for the most effective method of operation. There is a vast amount of techniques on the market that a company can use to improve its business practices. A popular approach to running businesses in the 1990s is the implementation of work teams. As organizations recognize the need to use their human resources more fully, work teams provide a useful model. Lawler (1986) defined work teams as a group of people who work together on a series of tasks toward a common goal. Work teams are used to flatten the organization, which means eliminating some of the middle layers of management. Teams also empower employees with decision-making responsibilities on issues that affect their jobs, as well as how the group operates. The work team takes on many functions that management traditionally controlled. The use of work teams has proven to be successful in many organizations and seems to be the wave of the future in American and international industry (Lawler, 1992). W. Edwards Deming, the founder of the industrial quality control movement in post-war Japan, brought this approach to the United States in the 1960s, but it was not widely adopted until the 1980s.

Many theoreticians have investigated the work team approach and its implications for business (French & Bell, 1990; Lawler, 1986, 1992; Lippitt & Lippitt, 1986; Wellins et al., 1991).

For example, Wellins et al. (1991) discussed many benefits to organizations: improved employee involvement and performance, enhanced quality, increased customer focus and satisfaction, cost reduction in labor and materials, and decreased turnover. Additionally, Lawler (1986) identified several organizational improvements teams can offer, including increased employee attraction and retention, staffing flexibility, as well as service and product quality improvements. Because of reduced supervision, supervisors have more time for strategic planning, and decision making. It is also typical for teams to improve work methods and procedures.

The use of a performance management strategy (see Daniels, 1989) in a work team setting may serve to enhance the effectiveness of teams in a challenging work environment. The current literature offers little information on the use of performance management techniques in a work team setting. Specifically, there is not much coverage of measuring both individual and team performance in work teams. Reid (1989) discussed three essential areas that should be covered in any behavioral management approach. The first step was to define exactly what staff are expected to do. The second phase was to establish a monitoring system to provide workers and the company with objective employee performance information. The third necessity was to determine reasons for low performance and devise methods to increase worker effectiveness.

Performance feedback is a major component of a performance management strategy. There is adequate performance feedback literature which is relevant to the current study. Daniels (1989) defined performance feedback as "information about performance that allows a person to change the performance" (p. 181). Performance

feedback interventions provide several benefits to organizations, including cost-effectiveness, simplicity in implementation and maintenance, and emphasis on positive consequences. Publicly posting performance data is one method of providing feedback. There are many advantages of publicly posting performance data. Newby and Robinson (1983) investigated the effects of group and individual feedback on retail employee performance. They used publicly posted performance charts to inform employees of their grouped and individual discrepancies in the accuracy of counts of cash register money, punctuality to work, and the daily handling of money. Overall, individual feedback and individual feedback with reinforcement improved the three tasks and group feedback did not improve them. In fact, many employees reported overages in their daily cash register money counting during the individual feedback conditions. Many of the successful investigations using group feedback to improve performance combined group feedback with individual feedback (e.g., Shook, Johnson, & Uhlman, 1978).

Anderson, Crowell, Hantula, and Siroky (1988) looked at the effects of task clarification and individual performance posting in a student-managed university bar. Tasks were defined and clarified via behavior checklists. Daily performance feedback was provided individually by publicly posting graphs on a wall where employees checked in at each shift. Employees were divided into three groups of 10. Group 1 was exposed to performance posting for 14 weeks, Group 2 for 10 weeks and Group 3 for 5 weeks. The feedback graphs were coded so that individuals knew which graph showed their data. At the onset of each feedback phase prior to posting the charts, the general manager explained to each individual what his or her chart indicated about his



or her performance. Task clarification resulted in a 13% increase in task completion over baseline levels. Performance posting for the first group produced an additional 37% increase in tasks completed over task clarification, which was much greater than the other two groups.

Prue and Fairbank (1981) found that a motivational factor was involved in publicly posting data, in that employees worked to avoid aversive consequences associated with the public posting of low performance. Public posting of performance feedback has been the most common method of delivering written feedback primarily because it has more advantages than other types of feedback interventions (Prue & Fairbank, 1981). Specifically, the use of graphs to present feedback creates additional opportunities for reinforcement. Co-workers can see the data and provide social reinforcement for each other's behavior (Daniels, 1989; Reid, 1989). Posting feedback can also create opportunities for punishment if poor performance is displayed. To remedy this problem, Reid (1989) suggested posting improvements in performance instead of constant decreases. However, displaying good employee performance could have still decreased performance if those individuals did not like being the center of attention and were embarrassed by supervisor or peer praise (Reid, 1989).

Andrasik, Heimberg, and McNamara (1981) and Pedalino and Gamboa (1974) found that publicly posting performance data may increase competition among employees. However, in a work team setting the nature of each team member's job may be slightly different. In the latter case there would not be much potential for competition. Also, in a work team all members are working toward a common goal; thus, each individual effort contributes to the final product.

There are many options in providing feedback, but a few characteristics are thought to be essential in any feedback system. One parameter of performance feedback is the type of information provided to recipients. A few commonly used types of information include the following: comparison of an individual's performance with his or her previous performance; comparison of a group's performance with its previous performance; and a presentation of an individual's performance as a percentage of the group's performance. Prue and Fairbank (1981) stated the necessity of ensuring that mechanisms exist in the organization to collect the desired performance information. Another vital consideration is whether or not comparisons can be drawn between employees. That is, are there enough workers performing the same task and is the task performed frequently enough to measure? Feedback content should be clear and understandable, and specific to the targeted behavior (Prue & Fairbank, 1981). Feedback should also convey information that is useful in improving or maintaining desired performance (Nadler, Mirvis, & Cammann, 1976). Most importantly, performance feedback should emphasize performance that is under the worker's control.

Emmert (1978) looked at group performance feedback versus individual performance feedback of operators in the Splice and Rewind Section of a fiberglass manufacturing facility. The target behavior measured was the number of splices made of small yardage bobbins of tire cord and the number of spliced metered bobbins that resulted from the operator's work efforts in an 8-hour day. He found that publicly providing group feedback increased performance; private individual operator feedback given by the supervisor caused a further increase in performance. In this study 12 of

the original 32 operators were replaced with new workers. This may have affected the results of the study, because the new employees were not acclimated to the job yet and may not have been performing at the same levels as the previous employees. Thus, the performance improvements may have been greater if the original operators had remained with the company.

Goltz, Citera, Jensen, Favero, and Komaki (1989) suggested that the form of feedback presentation may influence the degree of performance improvement. They state that group feedback should be most cost-effective with respect to organizational resources in terms of data collection and presentation time. Review articles (e.g., Balcazar, Hopkins & Suarez, 1986; Hall, 1957; Nadler, 1979) suggested that group feedback may result in maximum performance increases because everyone in the group is responsible for accurate performance and deficiencies. That is, group members may be able to compensate for other members' deficiencies by increasing their own performance levels or performing other members' jobs. However, there are several studies indicating the importance of combining individual and group feedback. Goltz et al. (1989) investigated whether individual feedback enhanced the effect of group feedback among production workers in a microelectronics plant. They looked at group feedback presented alone and combined with individual feedback. They found significant performance improvements following the addition of individual feedback to group feedback. Goltz et al. (1989) pointed out that it may be impossible to completely withdraw individual feedback once it has been introduced. Individuals may continue to concentrate on the feedback they personally received prior to the group feedback. This does not allow an unbiased look at the effects of group

feedback in situations in which group feedback follows individual feedback.

Wikoff, Anderson, and Crowell (1983) looked at the effects of feedback alone and feedback plus praise in seven departments of a furniture manufacturing plant. In the feedback-only phase a visual display for each individual worker was posted in the work area. Supervisors of this plant were instructed to provide coaching to employees. Coaching was defined as: (1) showing employees their efficiency score on every task they performed, (2) verbalizing each worker's overall daily average efficiency, and (3) providing an explanation of the measurement system and procedures. The results indicated that feedback only and feedback plus praise showed a combined increase in efficiency of 6.5%. Moreover, the feedback-only condition demonstrated the largest increment in efficiency (3.5%). Another study focussing on the use of feedback and reinforcement was conducted by Rowe (1982). This experiment, conducted in an automobile appraisal firm, was designed to decrease the latency between the assignment of a vehicle damage appraisal and its completion. The intervention consisted of the following components: (1) explanation of the data collection and reporting procedure, (2) a posted graph of baseline data and post-intervention data plotted on the graph daily, (3) a photocopy of the company graph depicting the percentage of requested appraisals meeting criteria provided weekly to individual appraisers, (4) feedback from employees and supervisors on the timeliness of report completion, and the percentage of completed appraisals within 24 hours. A goal was also set by the supervisor in which employees had to reach 98% compliance within a 24-hour reporting period. Post-intervention data indicate a 100% compliance rate, illustrating a rapid increase in the percentage of appraisals meeting the

performance criteria. This intervention resulted in quicker appraisal of damaged vehicles and faster settlements.

Another type of feedback often used in organizations is self-recorded feedback. This method of feedback allows employees to generate their own performance data. An advantage of self-monitoring is that employees participate more actively in the application of any performance improvement strategy an organization is conducting. Greller (1980) reported that workers rated feedback systems in which they monitor their own performance as more valuable than externally administered systems. Self-monitoring feedback systems may be particularly useful in settings where employees are not closely supervised, or when work process variables play an important role in the employees' overall productivity (e.g., effective use of time).

If individuals are able to measure their own performance, the feedback they receive will be immediate. Immediate feedback allows the individual to adjust his or her performance before it deviates too greatly from the desired level (Daniels, 1989). A danger in self-generated feedback is the possibility of employees faking data. Data altering usually occurs if employees have had a history of punishment for low performance. A solution to this problem is to provide positive consequences for improved performance. Calpin, Edelstein, and Redmon (1988) utilized performance feedback to improve mental health center staff productivity. The subjects in this study monitored the proportion of work hours spent in direct client contact. To facilitate self-monitoring, subjects were given a Client Contact Time Sheet and asked to write the client number and session duration for each client contacted. Feedback on weekly performance rates was given to each subject individually by the supervisor. Feedback

was combined with assigned performance goals in later phases. Performance increased markedly across all groups due to self-monitoring of performance, while self-monitoring plus goals produced small additional increments. Thus, this study illustrated that self-monitoring can enhance performance.

To help manage employee behavior it is essential that companies conduct a job analysis to determine what tasks and outcomes employees are responsible for and how employees should interact with others based on the job they do. Denis and Austin (1992) defined a job analysis as a list of job tasks, and the knowledge and skills required to execute the job. A job analysis can be conducted via questionnaire, interview, or direct observation (Plachy, 1986). Kreitner's (1982) remarks coincided with those of Denis and Austin (1992) in that he pointed out the necessity of identifying key job behaviors. Key job behaviors are those that greatly affect the organization's ability to achieve its mission. This method of analysis offers the following benefits: it focusses on behavior instead of inferred motives or needs; it deals with behaviors that are critical to organizational success, and attention is directed toward what is right rather than wrong with current performance. The results of a job analysis can be used in many ways to benefit the company. For example, job descriptions are used for recruitment and selection of new employees and for job expansion, or rotation of current employees, as well as role clarification. Training objectives can be developed for orientation of new hires or those new to the position. Performance criteria can also be used for performance assessments. The information obtained in job analyses can also be used for employee career planning, including lateral or vertical career moves within the company. Finally, job analyses can offer

information on the purpose of each position and its relationship to the organizational mission and results. Sandy (1990) revealed that job descriptions help show how separate actions fit together. These actions can be within one position or across positions or teams.

Many organizations also use job aids as a means to help workers perform their jobs more efficiently. Patterson (1991) defined a job aid as a storage place for information that can be accessed immediately to help an employee decide when and how to perform specific tasks. Often companies spend billions of dollars on formal training programs trying to improve performance problems. Training is necessary only if workers are not performing because of lack of skill or knowledge. On the other hand, job aids can be used on a daily basis by workers to guide their performance. Examples of job aids include checklists, flowcharts, and decision tables. A few advantages of job aids are that they can be produced in half the time of training programs, they are faster and less expensive to deliver, and they focus exclusively on performance. Job aids also offer more dependable results because they are written down and always available. Also, by developing job aids based on the performances of the best employees, companies can retain records of their knowledge in the organization even after they are gone.

A different type of job aid entails the organization of employee work (French & Bell, 1990). Responsibility charting is one method that helps clarify who is responsible for what tasks or decisions as well as pinpoint reasons why previously assigned tasks or decisions were not accomplished. Many responsibility charts are structured in a grid format that lists the actions or decisions along one axis and the

names of those responsible on the other axis.

In order to be successful in the business world companies must be oriented toward customer satisfaction. Thus, they must seek out and focus on improving services and products they provide to their customers. Most organizations are set up as a series of interlocking positions whose outputs all affect each other and the final results that the customers see. According to Sandy (1990) every person and function that is part of the interlocking chain needs to look at whoever receives their output as their customers. Many employees do not realize that they have both internal and external customers. To best serve external customers, employees must also ensure they are serving their internal customers (co-workers) as efficiently as possible.

Many times performance improvement plans fail because employees do not know what the company expects of them, they do not know how to do what the company wants, they are not provided feedback on their performance, and there are no contingencies operating in the environment to support improved or changed performance (Daniels, 1989). This case study examined the effects of applying a performance improvement strategy on employee performance in a work team environment comprised primarily of part-time graduate students. The performance improvement strategy included conducting a job analysis of each position, using job aids, such as responsibility charts and a customer request log, and providing publicly posted individual and group performance feedback. The dependent variables were various measures of performance levels of individual team members and the organizational team as a whole.



## METHOD

### Subjects and Setting

Twenty employees participated in this study. All employees were members of individual sub-teams that made up one large work team. Four employees were on the Conference Team, three were on the Research Team, one handled Marketing, four were on the Administrative Team, three made up the Education Team, three were on the Dissemination Team, and one was the Computer Operator. The twentieth employee was the Center Director. All team members worked 20 hours a week except the Director, Marketing team member and one member of the Administrative Team who worked 40 hours a week. The site for the study was the Center for the Study of Work Teams located in the University of North Texas Psychology Department.

### Procedure

Analysis and Treatment Rationale. Stemming from an analysis of the performance issues in this organization a multi-faceted organizational improvement strategy was selected. Prior to this study there were no written descriptions of most of the positions and many people reported confusion about their job duties. This organization began with only two people and written job descriptions were not necessary at that time. However, as the organization grew larger within a short period, the necessity of job (task) analyses and job descriptions became apparent. Work organization was also an issue among employees at the Center. Because most Center

employees were part-time students working different schedules, there was no way they could communicate face-to-face on a regular basis. Job aids such as responsibility charts and request logs were initiated to increase more accurate communication among team members and enhance work organization. Performance measures were never taken at the Center prior to this study; thus, the sole way employees knew how they were doing on their job was through infrequent comments made by other employees. There was a need to determine how team members performed each aspect of their job to assess whether or not they needed assistance with their workload, needed training, or could take on more projects. Employees had never received performance feedback prior to this study and did not know how their efforts contributed to the Center's success. Employee accountability with respect to job duties was a problem among some of the team members at the Center. Each team participating in this study received these same treatments: a task analysis of their job, a written job description, and monthly posted performance feedback in graphic form. Other antecedent interventions were tailored to individual sub-teams, discussed below. All team members self-recorded their data. Those participating were the Marketer, Computer Operator, Conference team and the entire Center with respect to the RASCI Chart (described below).

Computer Operator. A task analysis was completed for this position and it was determined that this individual is responsible for a series of computer-related tasks including: (1) database updates--adding new clients and conference attendees to the database, updating existing clients and correcting errors, (2) printing mailing lists of clients from the database for internal and external customers, (3) computer system

maintenance--correcting system errors (e.g., lost files), machine backup, installing new programs and machines, and purchasing new equipment, (4) computer assistance and training--providing both immediate operating assistance, and formal training courses to team members, (5) outside assistance--working on assignments outside of regular job responsibilities listed above.

As an antecedent intervention, a request log was developed for this position to log all internal customer requests (see Appendix A). This was designed to enhance internal customer service by organizing the work priorities and increasing the task completion accountability. Each internal customer was required to fill in the log with the request, the current date and the due date. Posted near the request log was a sheet listing all the major categories of the Computer Operator's job as a prompt to others to record their requests. The customer and the operator set the due date together by looking at the calendar posted near the request log. The actual date the request was filled was recorded and signed off by the operator and the customer. The log was posted at the operator's work station and all Center staff were notified and trained how to use the log.

Prior to this study, weekly priority sheets were completed for this employee which listed tasks to be completed by a specific date. Upon completion of each task, he wrote in the actual task completion date and signed his name. This method was not as accurate as the revised request log because the Computer Operator's customer did not confirm in writing that the task had been completed by the requested due date.

For the purpose of this study the number of monthly requests filled on time as determined by the request log were measured and posted via graphs as feedback near

the work station. Historical data were graphed along with the current data. For both historical and current data a vertical clustered bar graph was used to compare the number of monthly requests for each task to the number of those requests completed by the due date (see Appendix A). Each individual request was also tracked and measured to illustrate the date the task was requested, due, and completed. This was graphed monthly using a high-low-close bar graph where the bottom line on the bar indicated the request date, the bold black line across the bar indicated the due date and the top line on the bar signified the completion date. Those occasions when a task was requested, due, and completed on the same date appeared on the graph as a bold horizontal line without a bar (see Appendix A).

Marketer. After completing a task analysis of the Marketing position it was determined that this job required a series of tasks to be executed to achieve the final outcome of generating a corporate sponsor for the Center. The value of a corporate sponsor is \$5,000. A task analysis was conducted to determine the duties required of this position. The chain of events necessary to obtain a corporate sponsor are as follows: (1) cold calls--calling companies from various phone lists to obtain contacts, (2) identifying prospective customers--achieved through determining the needs of the cold call companies and determining if these companies have an interest in teams and are interested in establishing a relationship with the Center, (3) initial face-to-face calls--meeting with a contact at a company to get acquainted and inform them of what the Center does and how that company could benefit from becoming involved with the Center, (4) on-site presentation--a tailored presentation stating exactly what the Center could do for each particular company and how the relationship could be nurtured once

they became a corporate sponsor, (5) closing the sale--occurs when both parties agree on the nature of the relationship and an annual fee of \$5,000 is provided to the Center. Typically, the chain of events ran in sequential order; however, there were occasions when a few steps may have been omitted.

Historical data were provided for this position that showed the frequency of each step in the process over a 1-year period. Both historical and current data were posted as feedback above this team member's work station. A cumulative graph of the number of corporate sponsors gained monthly was revised each month and posted. This served the dual purpose of keeping all team members informed so they could better serve the customers as well as keep the Marketing team member current on the number of corporate sponsors for marketing and service purposes. The number of calls and the number of on-site presentations made per month also were compared to the cumulative number of corporate sponsors gained on a dual axis line graph. The number of calls and on-site presentations were compared on the same axis because they were identified as being the most closely tied to obtaining a corporate sponsor. These graphs are also discussed in the Results section and appear as figures in Appendix D.

Center Team. The Center had problems with follow-through on tasks assigned to team members outside their regular job duties. In order to capture in writing each task assigned and to revisit each task weekly a chart was created to record each action, the person responsible, the due date and task completion date. This chart, called the RASCI chart included columns for names to record who was primarily responsible for the task (R), who must approve it (A), support personnel needed to carry out the

action (S), who they should consult for information or resources (C), and who they must inform when they have completed the task (I). A modified version adding due date and completion date columns appears in Appendix B. The RASCI chart was used to record and measure the number of duties assigned in weekly team meetings and completed by the due date. This chart was completed at each weekly meeting and posted in the copy room. Weekly data were posted showing the number of tasks completed by the due date. RASCI data were graphed using a vertical clustered bar graph that compared the number of requests made to team members during the weekly meetings to the number of those requests completed by the due date, usually the following week (see Appendix D). When receiving RASCI data feedback, team members did not receive specific information on their personal performances and no one was identified as the source of any late work.

Conference Team. The primary goal of this team was to produce two large conferences and one symposium a year. A task analysis was conducted to determine the duties required of members on this team. Many tasks were required to produce the conferences (e.g., scheduling the hotel, speakers, printing the brochure). As part of the intervention of this study a 24" x 16" laminated grid chart was created to prioritize weekly duties for each conference. The tasks appeared along the vertical axis of the chart and team member names appeared along the top of the horizontal axis. Due dates for each task were written in the grid squares. Each team member also had a paper copy of this chart specifying the tasks for which they were responsible and the due dates of each (see Appendix C). The Conference Team devised due dates for each of the tasks and the team leader confirmed the actual date each task was

completed. Team members were told to document any occasions when completing a task on time was prohibited by another person, business, or other such obstacle. Team members wrote these explanations directly on their personal task organization charts. Conference Team data were analyzed by breaking down the event of the Fall Conference into several different projects. Those projects were then broken down into a series of tasks required to complete the project. A vertical clustered bar graph provided feedback to this team and compared the total number of tasks to the number completed on time and to those completed late (see Appendix D). Because this team disbanded shortly after the chart was generated, the performance data were not posted. Instead, the new Conference Team was given a copy of the graphed performance data along with a written analysis of performance trends to aid in planning the next conference. The compensation system was not manipulated during this study. All team members were paid the same rate as prior to the study.

### Case Study Design

An A-B design was administered across teams for this study. Baseline data were taken on the Computer Operator for a 4-month period (April-July, 1993). The antecedent intervention (job analysis, written job description, task request log) was introduced in August, 1993. The second part of the intervention (public posting of performance data) was introduced in September, 1993.

Historical data on the number of corporate sponsors gained by the Marketer were graphed for a 2-year period (January, 1992-December, 1993). The antecedent intervention (job analysis and written job description) occurred in July, 1993. The number of calls made and on-site presentations were graphed following the corporate

sponsor data. The second part of the intervention (public posting of performance data) began in October, 1993.

There were no RASCI Chart baseline data because the chart was created as an antecedent intervention for this study. RASCI Chart data were recorded and graphed beginning in July, 1993. The second part of the intervention (public posting of performance data) began in November, 1993.

Baseline measures were not taken on the Conference Team because taking data on this team was part of this study. The antecedent intervention (job analysis, written job description and task organization chart) occurred in August, 1993. The number of tasks completed by the due date was recorded and graphed for a 2-month period. The second part of the intervention (public posting of performance data) did not occur because this team disbanded.



## RESULTS

The combination of job (task) analyses, job aids such as charts and logs and performance feedback may have contributed to a slight increase in performance among some individual team members. These interventions mainly functioned to clarify and organize work activities and provide information on performance to team members. Each subsection below describes the results of each area covered in this study. Figures are located in Appendix D.

### Computer Operator

Figure 1 shows the percentage of all requests completed on time by the Computer Operator and the number of monthly tasks assigned to the Computer Operator. Baseline measures of the percentage of all work requests completed early or on time each month indicated variable performance. During August, when the request log was introduced, performance did not change appreciably. However, after the performance data were publicly posted beginning in September, an increase to 100% of all requests completed early or on time was maintained over a 4-month period. It might have been easier to achieve 100% task completion if there had been fewer tasks to be accomplished. The figure shows that the Computer Operator was assigned both the least and the most number of tasks during the 4 months in which task completion was 100% (September-December). Therefore, the high percentages of task completion were not due to a consistently lighter workload.

### Marketer

Figure 2 shows the cumulative number of corporate sponsors gained by the Marketer from January, 1992 to December, 1993. The data indicate a steady increase in the number of corporate sponsors gained during baseline. The job descriptions were completed in August, 1993. Posting of graphed data as feedback began in October, 1993. Three sponsors were gained in August, but none afterward. This was the largest gain in a single month observed from January, 1992 to December, 1993.

Figure 3 compares the number of calls and on-site presentations to the number of corporate sponsors gained. The month of July is included on the graph because the job analysis began that month and the Marketer began recording data at that time.

The number of calls made to potential corporate sponsors showed an initial increase in August and then decreased for the remaining months. Some of these calls might have been made to solicit attendance at the annual conference held in late September. The highest number of on-site presentations occurred the month after the highest number of calls was recorded. Performance was not noticeably affected following the introduction of publicly posted feedback in October.

### Center Team

The RASCI Chart data indicate varied levels of performance each week as shown in Figures 4 and 5. Figure 4 shows the total number of requests made to team members compared to the number of those requests completed by the due date. The number of requests per week typically ranged between 5-12; the week of November 11 was unusual with 17 requests. Feedback posting began the week of November 4. Figure 5 shows that the percentage of requests completed early or on time ranged from

0% to 75% before public posting of graphic feedback and ranged from 40% to 67% after public posting. This indicates a large decrease in the variability of performance after the data were publicly posted.

There were no baseline data on overall task completion prior to the introduction of the RASCI Chart. However, previously team members recorded in the weekly meeting minutes the tasks to be done and reported on in the next meeting. A review of the minutes showed many tasks undone or never revisited in the meeting. The introduction of the RASCI Chart increased the discussion of each assigned task during the meeting and in the minutes. A new job assignment, the RASCI Chart Keeper, was developed to review previous charts and record tasks on the new chart each week. This assignment was rotated weekly among team members.

### Conference Team

Data from the individual and group task organization charts could not be compared to baseline data because the timeliness data were not taken in the same detail. Furthermore, publicly posting performance data on individual members of this team was never executed because this team disbanded due to difficulties unrelated to this study. However, data on this Conference teams' performance in executing the 1993 Fall Conference (see Figure 6) did prove useful as a guide for new Conference Team members in planning upcoming events. Figure 6 shows the number of tasks, falling under one of eight separate categories, completed on time, early, or past due by the Conference Team for the 1993 Fall Conference. The data indicate that out of all the categories graphed, none of them had 100% on-time task completion. Three out of the eight categories had more past due tasks than on-time or early completed tasks,

and only two categories showed more tasks completed early. The Proceedings category had the most tasks assigned and the most tasks completed on time out of all the other categories. Both the Volunteer and the Proceedings categories had the most past due tasks. A written analysis was provided to the new Conference Team that summarized the reasons for tasks completed past due. Those findings were: A backlog (e.g., heavy workloads or lack of work prioritization); loss of support staff (e.g., typists); outside vendors or customers not supplying prompt service; and last minute changes or decisions.

Past Conference records were stored in binders categorized by year, and included a list of all the revenue and expenditures from each event and copies of all expense receipts. Comparing the 1992 Conference records with those of 1993 revealed that some of the tasks were completed earlier in 1993 than in 1992. For example, the conference volunteer meeting occurred one week before the conference in 1992 and two weeks before the conference in 1993. Also, in 1992 there was only one orientation meeting for volunteers, while in 1993 there were three, including an on-site visit to the conference facility. Another difference concerned the completion of conference participant packets. The packets were completed 2 weeks before the event in 1993 and only 3 days before the 1992 conference. This information suggested that the task organization charts helped focus team members on their responsibilities and the due dates allowed them to plan out their work to ensure on-time completion.

## DISCUSSION

The interventions employed in this case study either had no effect or a limited positive effect on the performance dimensions measured. Many of the findings could not be compared to baseline data because the performance measures had not been used before. The primary purpose of this case study was to examine the organizational needs and develop a plan to meet those needs. The identification of job tasks and the introduction of the performance measures was thus an essential first part of the plan. The job analysis and work log interventions functioned more to define work duties for team members and organize how the tasks were carried out than to increase performance in a single dimension. The job analysis intervention functioned to define work duties for team members by determining what tasks and outcomes each was responsible for and uncovering the interdependencies between each job. The job analysis results will also assist the Center in selecting and training new employees and will help uncover the areas in which current employees may need training in to perform their duties more efficiently. The customer request log and work organization charts functioned to organize how the tasks were carried out.

Posting performance feedback may not, in most cases, have functioned to increase performance for several reasons. First, there were no goals or standards identified for team members to work toward to increase their performance. Second, there were no contingencies in the environment to support such a behavioral change.

That is, no positive consequences were planned to occur as a result of increased or stable performance and no negative consequences followed decreases in performance.

As with any applied study, it is always possible that performance was controlled by many variables other than the intervention. Any performance changes found in this study cannot not be attributed solely to the intervention. For example, employee performance could have been affected by social consequences such as praise or reprimand from the Center Director, other faculty, or team members. Team performance was also affected by the performance of each team member's co-workers. For instance, if the completion of team member A's work depended on team member B's contribution and member B did not complete that work, this directly affected A's performance. Many of the job duties in the Center were interdependent in this manner. Another confounding variable was the fact that most Center employees were students and worked part-time. For most Center employees, school had a higher priority than work. Many times work was not completed on time because of conflicting school schedules. Additional factors affecting performance may have been busy times of the year and emergency task assignments. For example, team members may not have been able to complete their regular duties because a Center sponsored conference was occurring soon. Such conferences usually took priority over other Center activities, causing team members to engage in tasks outside their normal job duties or to put conference-related duties ahead of other responsibilities. Emergencies that arose, such as a computer malfunction, also governed the prioritizing and execution of normal job responsibilities. The antecedent intervention may have helped remedy some of the problem by organizing the work activities and setting due dates

ahead of time. This allowed workers to plan ahead to complete their duties.

There were some other effects of the intervention that were not quantified. I will discuss some of these impacts on the functioning of the organization in the context of each team.

### Computer Operator

Because the historical performance data obtained on this position is fragmented, it is difficult to make comparisons to data gained after the start of this study. Part of the intervention for this position was to make the original work priority chart more accurate to enhance this team member's accountability. Thus, since the revised request log added a column for the customer to sign off to confirm the task was completed by the due date, the data may be more accurate than information on the original chart. Unlike the request log, the original chart was only a work priority chart and did not require the employee to document every single request. The written job description and the publicly posted request log seemed to have a greater effect on performance than publicly posting the feedback graphs.

The antecedent intervention of writing a job description clarified the ambiguous nature of the operator position. The operator was thus able to determine what job requests to accept based on his job description; many times in the past he became overloaded doing activities unrelated to his position. Moreover, the Customer Request Log allowed a space for internal customers to write their requests, specify a due date and ensure the task was completed by signing off on it. I witnessed several occasions on which the operator asked others to fill in the request log when they had a request and to sign the log when the request was completed. Publicly posting performance

data may have helped to maintain performance across time by providing regularly updated information on task completion.

### Marketer

The initial increase in calls made to potential corporate sponsors and in the number of sponsors gained could have been due to the antecedent intervention of the job analysis and job description, but this was only a single data point and other factors may also have been responsible. For example, it is likely that some of the calls were related to the upcoming conference. There was a sequential relationship found between the number of calls and the number of on-site presentations. This may have occurred because the number of successful calls dictated the number of on-site presentations made. The Marketer could not have made the presentations without first calling the company to set the appointment. This team member reported that the job analysis and description provided insight about her job duties and helped her organize her work. In plotting out the steps required to obtain a corporate sponsor, many other unknown job duties arose. The fluctuation in the number of calls and on-site presentations was directly related to the number of other tasks completed that were not originally included in her job duties (e.g., filling seats for Center sponsored conferences). In fact, outside duties such as these became so numerous it prompted re-design of the Marketer's job description. Also, in counting the frequencies of each of the steps necessary to secure a sponsor interdependent relationships were determined among the steps. This may have helped the Marketer plan her strategy to obtain a sponsor and schedule all of the steps. Time gaps occurred between each stage in obtaining a sponsor and were due to the period required to prepare for each



step. For example, after the Marketer called a prospective corporate sponsor it may have taken a few calls to make an appointment for an on-site presentation. After the presentation, the potential corporate sponsor may have had to discuss the benefits and costs of becoming a sponsor with other members of the organization before a decision could be made about sponsorship. Thus, the lag time between the initial call and closing the sale was at times very long. While feedback graph posting did not appear to affect the Marketer's subsequent performance, it did inform her and the rest of the Center team members as to the cumulative number of corporate sponsors and the months they began their membership.

### Center Team

The data previously taken for task allocation and completion (meeting minutes) did not include due and done dates, but simply recorded the task and the person responsible. This caused many tasks to go uncompleted. Because completion of tasks assigned at weekly meetings was low prior to this study, the initiation of the RASCI Chart served to organize task allocation at weekly meetings and to track task progress. However, although the chart posted due dates for task completion, there were no outcomes contingent on rule following. In fact, many tasks were "rolled over" with permission of the team at weekly meetings. Contingencies with improbable outcomes often fail to control behavior even with rules describing them (Malott, 1992). Old RASCI Charts were revisited at every team meeting, but this did not produce an increase in task completion over time.

Posting performance feedback on task completion probably had no subsequent effect on performance for two reasons: lack of contingencies to reinforce timely task

completion and posting of group, instead of individual, performance measures. Thus, when viewing the graph the group could collectively talk about the "group's" poor performance, instead of pinpointing their own individual performance.

### Conference Team

There were occasions when tasks were completed earlier in comparison to the previous year, which suggested the task organization charts with due dates may have had an effect on performance. However, there were many occasions when tasks were not completed on time. The fact that there were no consequences implemented to ensure timely task completion may have been a reason. Reports from the team leader and other team members suggest that poor planning on the part of the team members was the cause for many of the past due tasks. Factors accounting for poor planning may have been lack of experience with the assigned tasks, or too many activities competing with on-time task completion. The factors leading up to this team's breakup may have contributed to the lack of any performance increases after the implementation of the antecedent interventions. Those factors included lack of communication among team members, and actions of individuals contrary to team decisions.

### Implications for Future Practices

This case study is only part of an ongoing effort to improve organizational functioning at the Center for the Study of Work Teams. The execution and findings of this case study have uncovered many areas in need of refinement at the Center, revealing the advantage of a multifaceted improvement program. Reid (1989) said that by combining a number of components, the probability of resolving performance

issues is enhanced relative to relying on a plan with only one component.

The need for a performance appraisal system has become apparent. There are several reasons to implement a performance appraisal system based in part on the results of this study. The performance feedback graphs enabled team members to observe their performance levels across time, however, as mentioned earlier, there were no standards or consequences attached to various performance levels. Establishing a performance appraisal system will allow the team to generate standards of performance related to individual job tasks and interpersonal skills with other team members. Setting standards for individual job tasks requires an analysis of the position and a written job description, already conducted for some team members as part of this study. Arranging performance standards for interpersonal skills entails more of a team effort. Team members must decide what interpersonal skill areas they want to include in the performance evaluation and then should define what behaviors are critical for success in each area. To set performance standards a decision must be made as to what constitutes acceptable and non-acceptable performance. Involving the individuals who will be appraised in the generation of the standards will help safeguard against misunderstandings of performance expectations.

The work organization chart and internal customer request log laid the groundwork for establishing team member accountability. The next step is to attach consequences to both desired and undesired performance. The current environment at the Center does not have any systematic plan for the use of consequences to increase desired performance. A performance improvement plan necessitates the establishment of consequences for meeting or not meeting the set performance standards.

Perhaps this study would have yielded different results if what Malott (1992) calls direct-acting contingencies were implemented to increase desired performance and decrease unwanted performance. Direct-acting contingencies are those in which the outcome involved in the contingency is sufficiently immediate to reinforce or punish the behavior. In addition to direct-acting contingencies the Center could focus on the indirect-acting contingencies already occurring in the environment. Malott defines indirect-acting contingencies as those in which the outcomes are too delayed to directly reinforce or punish the behavior. To be effective in controlling behavior, indirect-acting contingencies need to be strengthened by providing rules that describe them, and by increasing the probability and size of the delayed consequences. The Center could strengthen the current indirect-acting contingencies to enhance performance. In fact, Center staff plan to generate a list of desirable consequences to provide to one another for preferred performance. A few examples already generated by team members are pay increases, vacation with pay, and certificates or notes of appreciation from other team members or the Director. These are examples of delayed consequences that can be used in implementing indirect-acting contingencies in conjunction with clear rules.

Addressing poor performance is more intricate than handling acceptable performance because in an organizational setting many safeguards must be taken to ensure legal and ethical treatment of employees. Disciplinary or corrective action is part of a performance appraisal system. After the standards for job duties and interpersonal skills are set, positive and corrective consequences must be developed. In other words, action should be taken when desirable and undesirable performance

occurs. However, as Daniels (1989) recommended, there should be many more opportunities for reinforcement than punishment in a healthy organization. That is, contingency design should emphasize positive reinforcement.

Part of developing a contingency management system is the establishment of policies concerning performance. A policy manual can address performance, selection, termination, and other employee issues. Policies are also known as rules or guidelines of conduct and usually include a list of procedures to follow to enact those policies. The manual should specify guidelines that are easy to follow and describe probable and sizable outcomes for actions. The job descriptions created during this study can also be incorporated into the manual to aid in future employee selection, cross-training (employee training across positions), and in long-range resource planning. The Center plans to develop policies and procedures to enhance its operation.

The outcomes generated by this study will lead to the development of a performance appraisal system, which includes the development of performance standards. A thorough performance improvement plan will also require the addition of consequences for actions and a policy manual to formalize performance standards and conduct guidelines. In summary, this case study has laid the groundwork and executed the initial steps for a comprehensive performance improvement strategy at the Center for the Study of Work Teams.

APPENDIX A  
COMPUTER CUSTOMER REQUEST LOG  
COMPUTER CUSTOMER REQUEST LOG PROMPTS  
SAMPLE FEEDBACK GRAPHS FOR THE COMPUTER OPERATOR:  
REQUEST DATES, DUE DATES, AND COMPLETION DATES OF INDIVIDUAL  
TASKS  
THE NUMBER OF MONTHLY REQUESTS COMPARED TO THE NUMBER OF  
REQUESTS COMPLETED ON-TIME



### Computer Customer Request Log Prompts

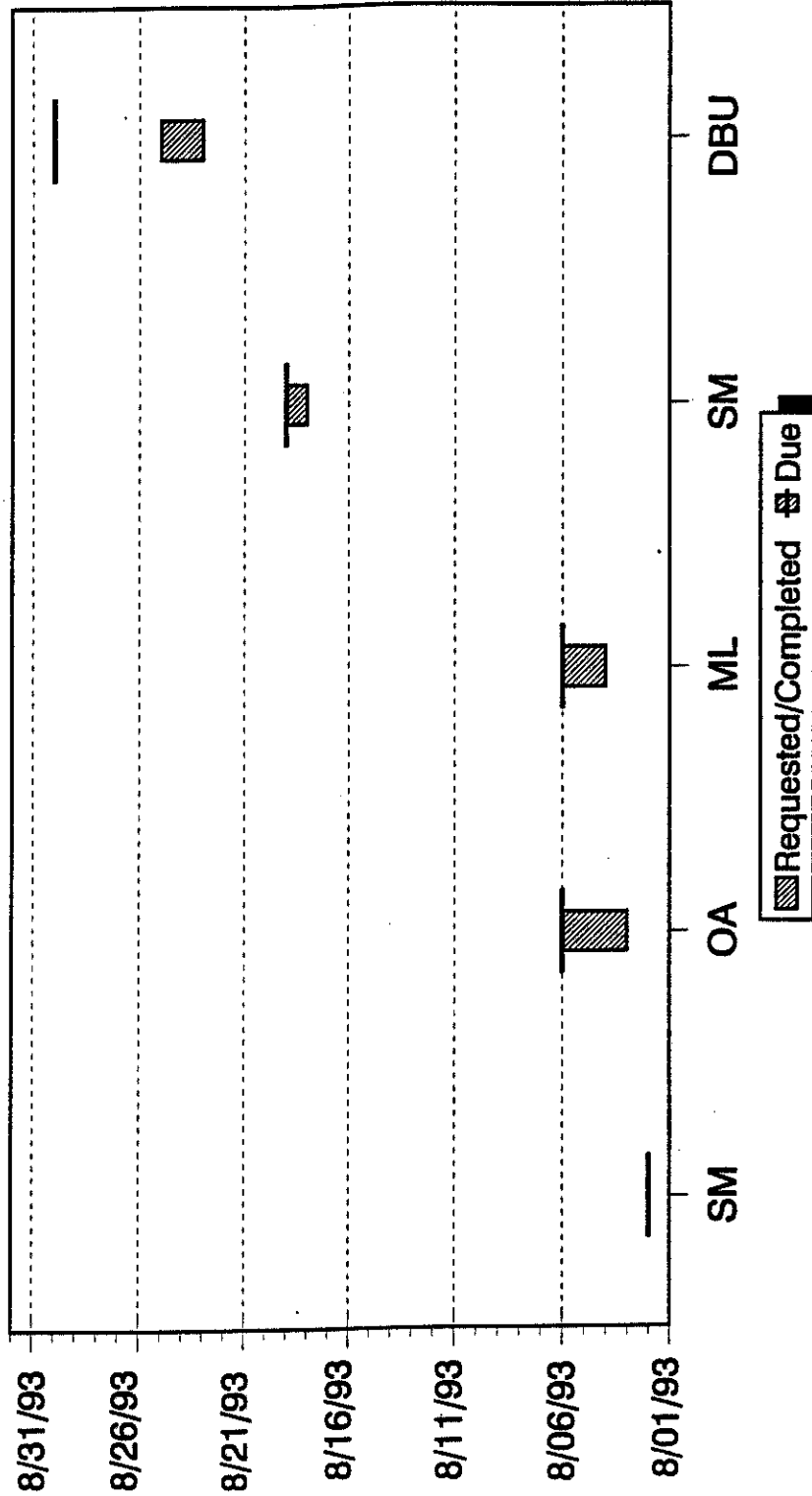
Please write the following initials **beside** each request you make of the Computer Operator.

- **(DBU) Data Base Updates**--any changes/updates, additions, deletions to the database; any information that is filled out in the data fields about a customer.
- **(ML) Mailing List**--requests for printed mailing lists from the database.
- **(SM) System Maintenance**--correcting machine/system problems, installing new machines, backing up machines, purchasing new computers/computer equipment, correcting errors in programs, writing new routines.
- **(CA) Computer Assistance**--assisting other team members with computer problems one-on-one or via applied training modules, or written guidelines.
- **(OA) Outside Assistance**--requests to assist other team members or teams on any tasks outside those listed above (e.g. graphics, tables, office moving, etc.).



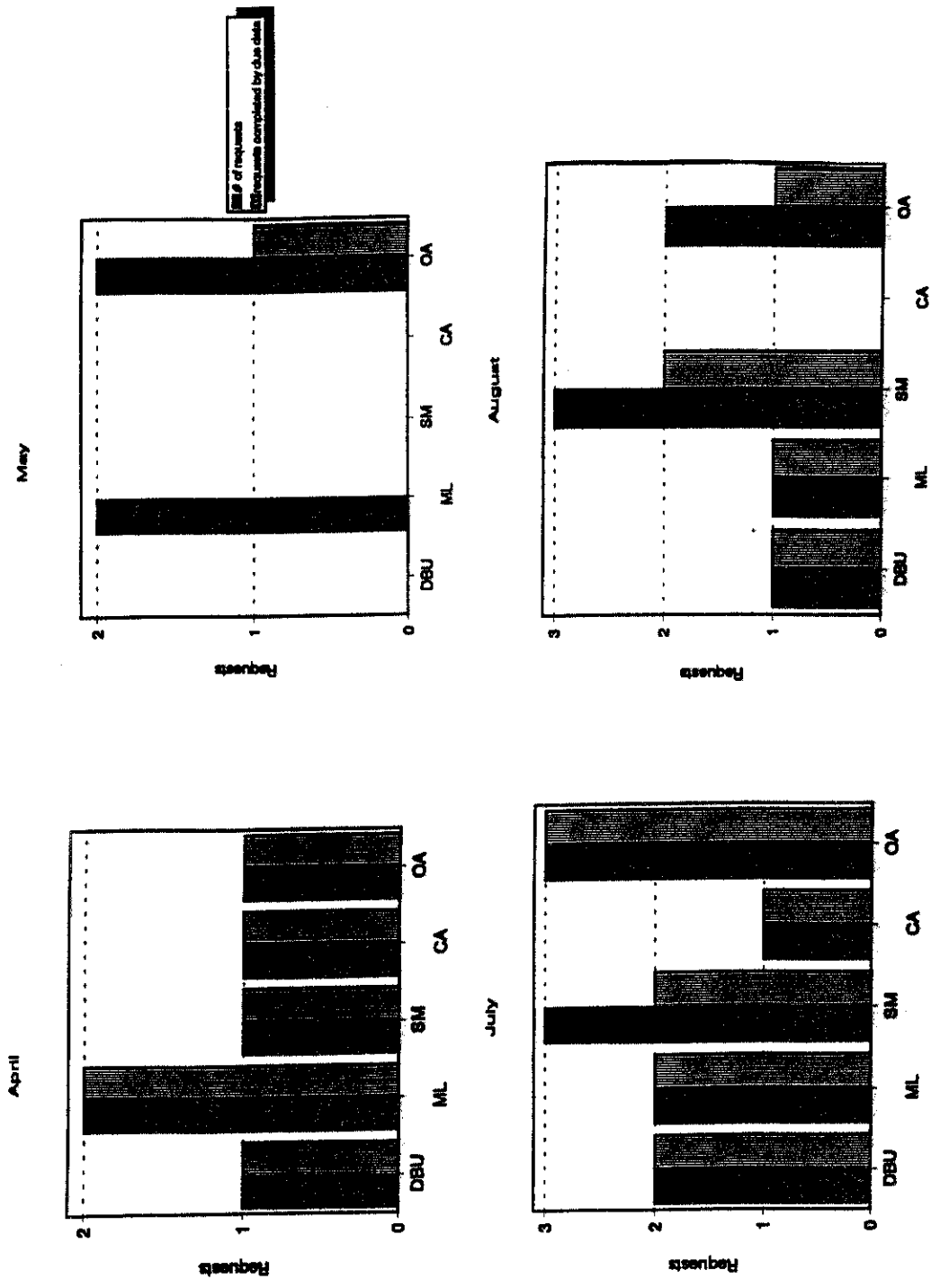
# Computer Operator

## Request Dates, Due Dates & Completion Dates of Individual Tasks



ML=Mailing List      SM=System Maintenance  
 CA=Computer Assistance      OA=Outside Assistance  
 DBU=Database Updates      A solid bold line without a bar = task requested, due and completed on same day

Computer Operator



No bar = no requests

**APPENDIX B**

**RASCI CHART**



APPENDIX C  
SAMPLE TASK ORGANIZATION CHART FOR CONFERENCE TEAM  
MEMBERS

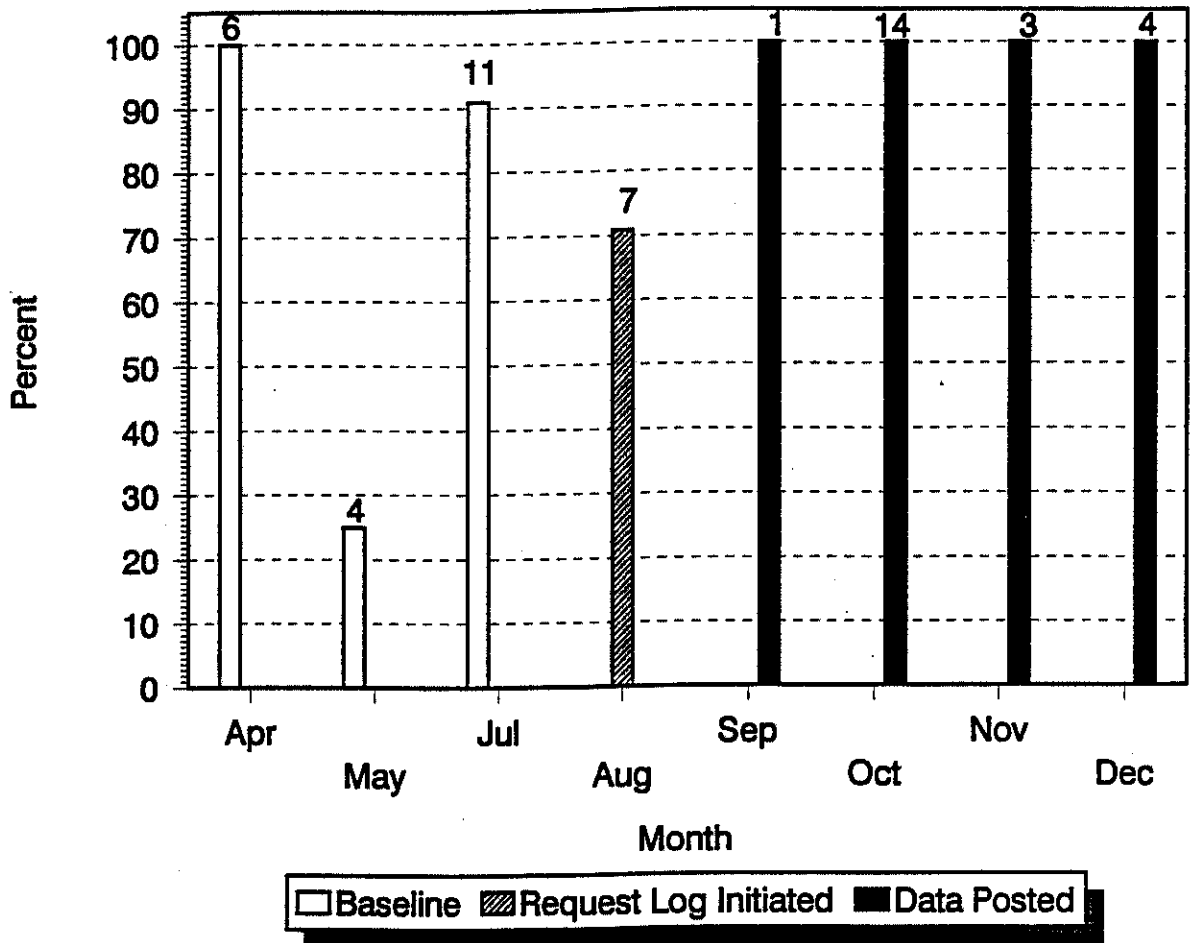
**Conference Materials**

	BOB	SPLLY	SOANY	JTM	LISA														
<b>Registration Packet:</b>																			
1. Restaurant pamphlet	8/20	NOT AVAILABLE																	8/20
2. Welcome Letter		9/1																	8/30
3. Spring Conference pamphlet			9/3																12/2
4. Xerox brochure																			
5. Call for papers			8/18																9/22
6. Calendar of events				8/26															9/1
7. Book order form				8/27															
8. Center brochure		XXXXXXX NO																	
9. Newsletter (Center Article)					9/15														9/15
10. Evaluation form				8/30															8/27
<b>Proceedings - Delivery</b>																			
<b>Program - Delivery</b>																			
<b>Portfolio - Order/Delivery</b>			8/23																8/30
<b>Nylon Bag - Order/Delivery</b>			8/23																8/30
<b>Pre-Conference</b>																			
<b>Lease Cargo Van</b>																			
<b>Presenter Packet:</b>																			
1. Blue folders with names			9/10																9/15
2. Secretary service at hotel			9/10																9/15
3. Welcome Letter			9/10																9/15
4. Contact Sheet					9/10														9/15

WAITING ON ALL INSERTS

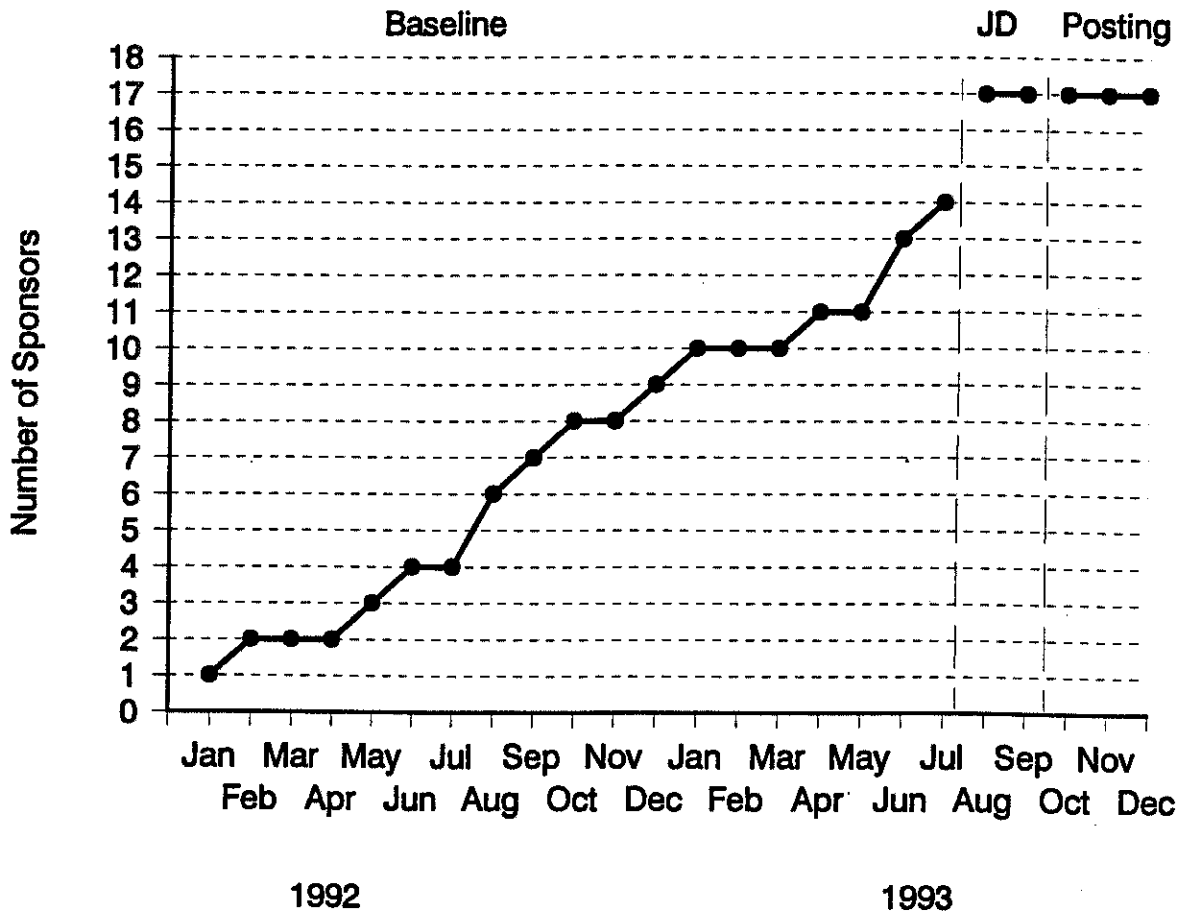
**APPENDIX D**

**FIGURES 1-6**

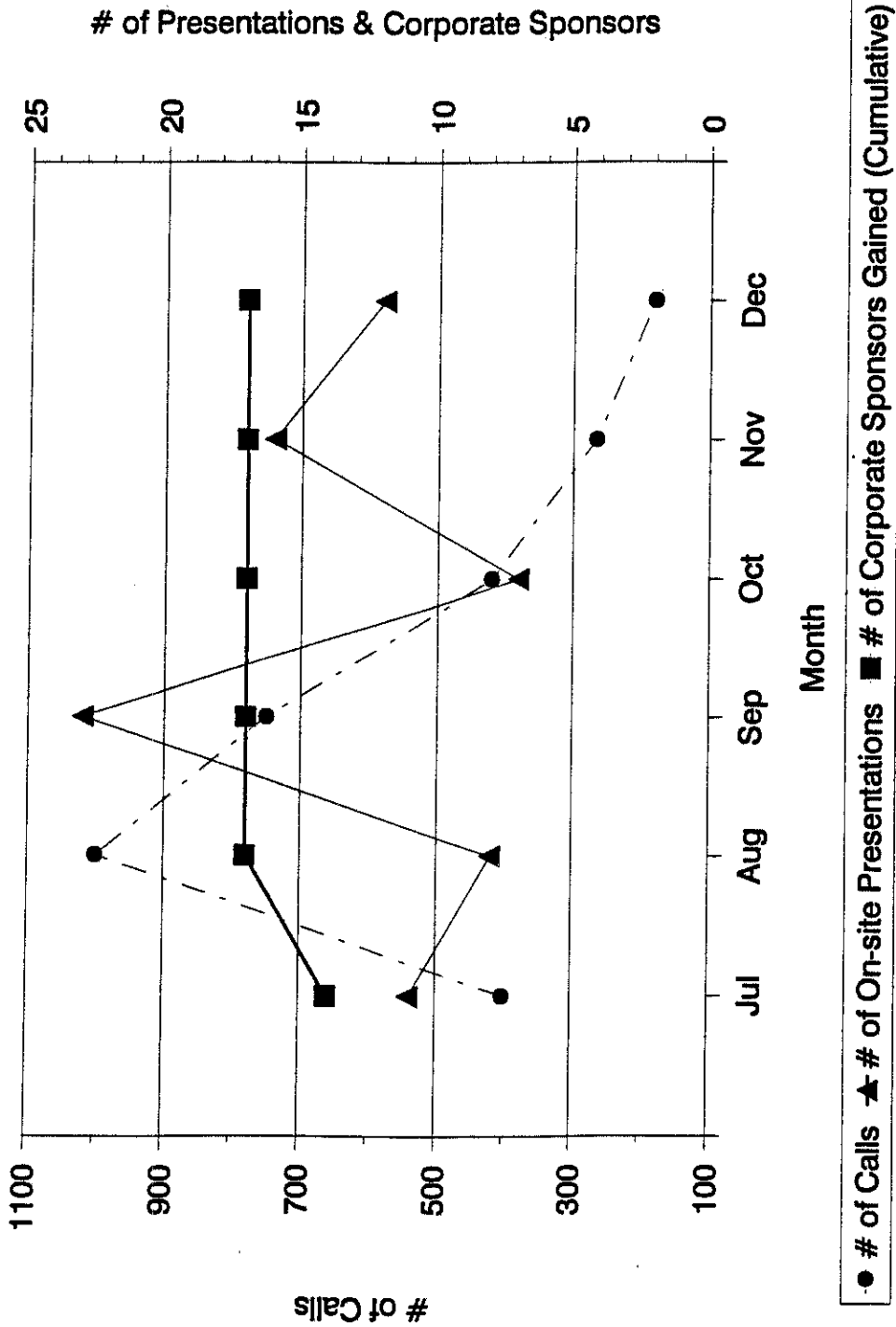


**Figure 1.** The percentage of all requests completed on time by the Computer Operator. June was omitted because the employee did not work. Numbers above the bars refer to the number of tasks assigned to the Computer Operator.

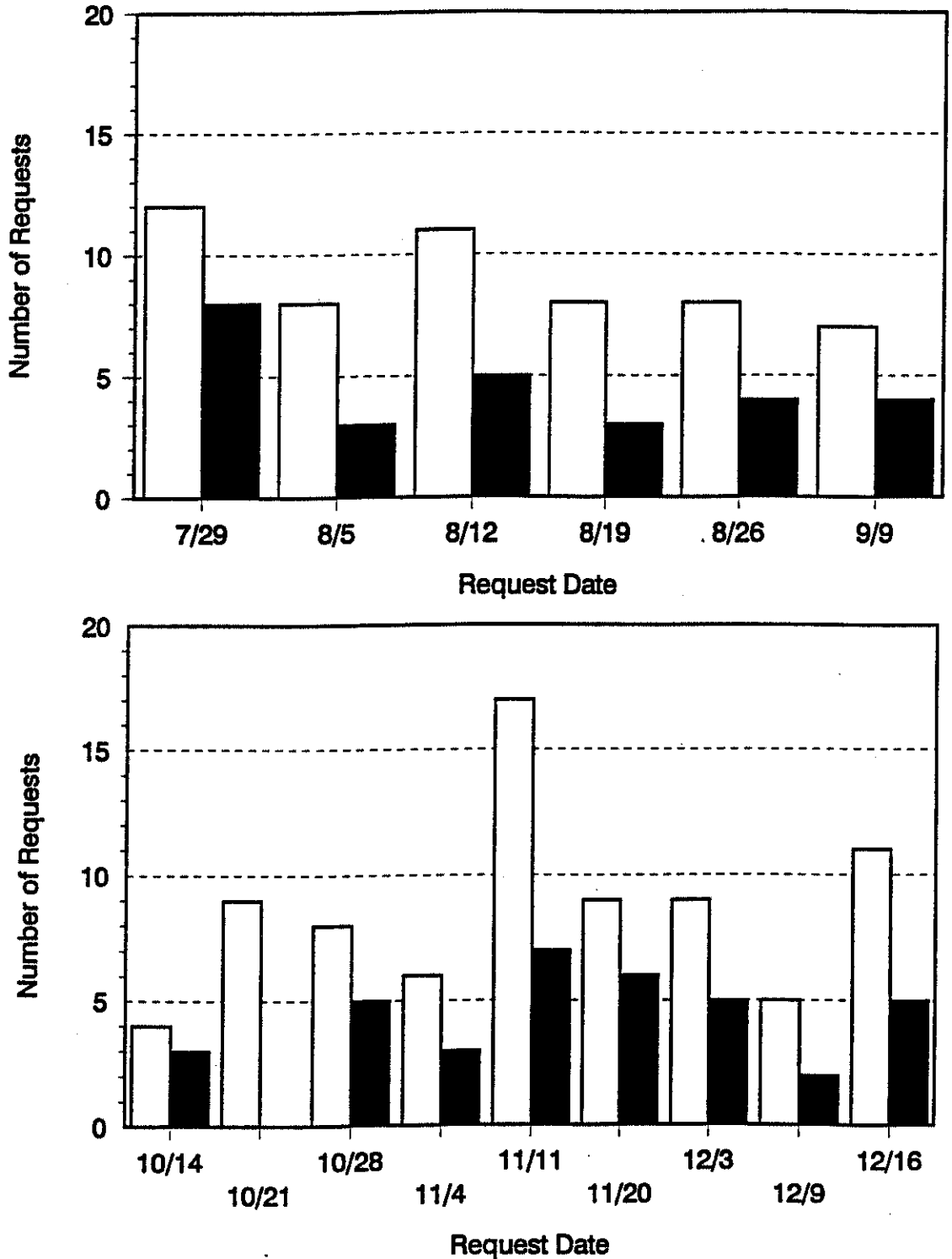




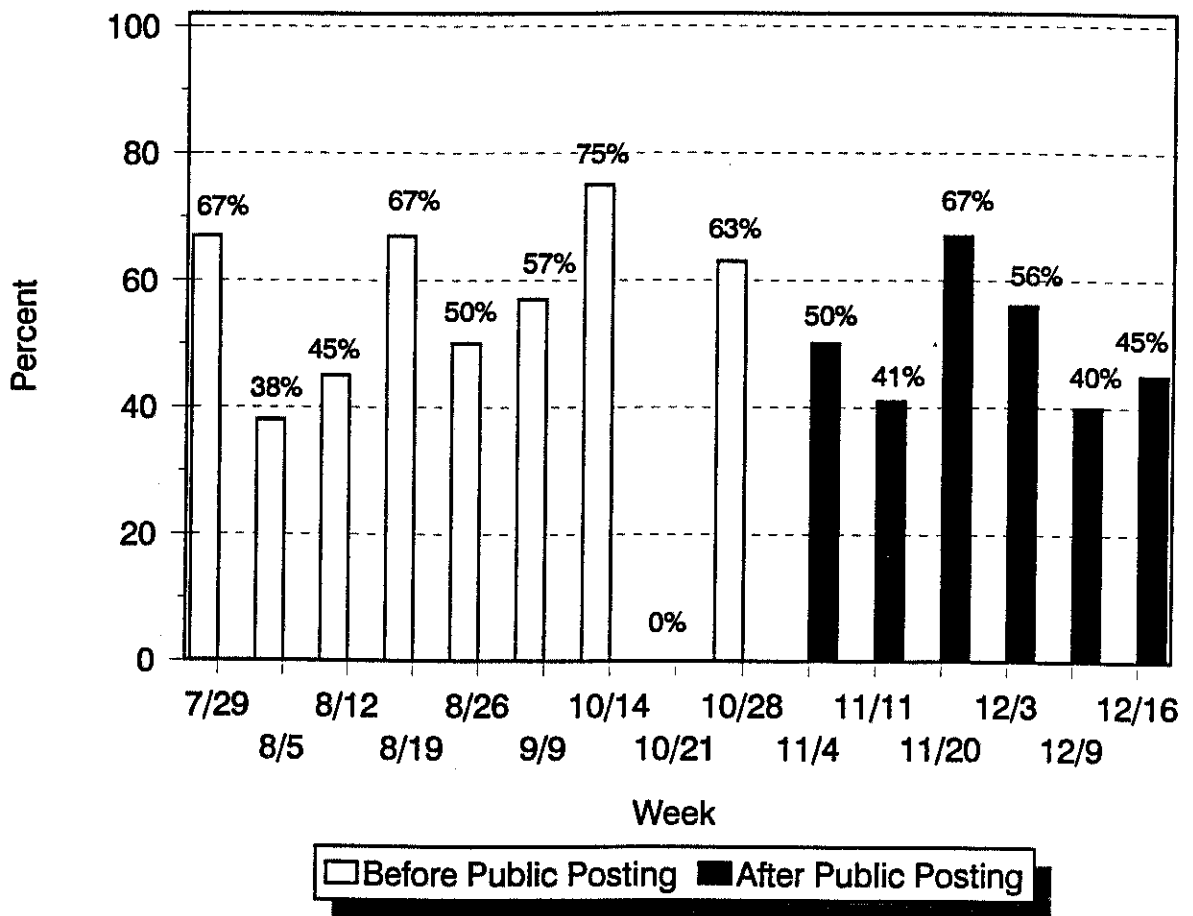
**Figure 2.** Cumulative number of Corporate Sponsors gained per month by the Marketer, January, 1992 through December, 1993. JD = Job description intervention; Posting = Public posting of performance data.



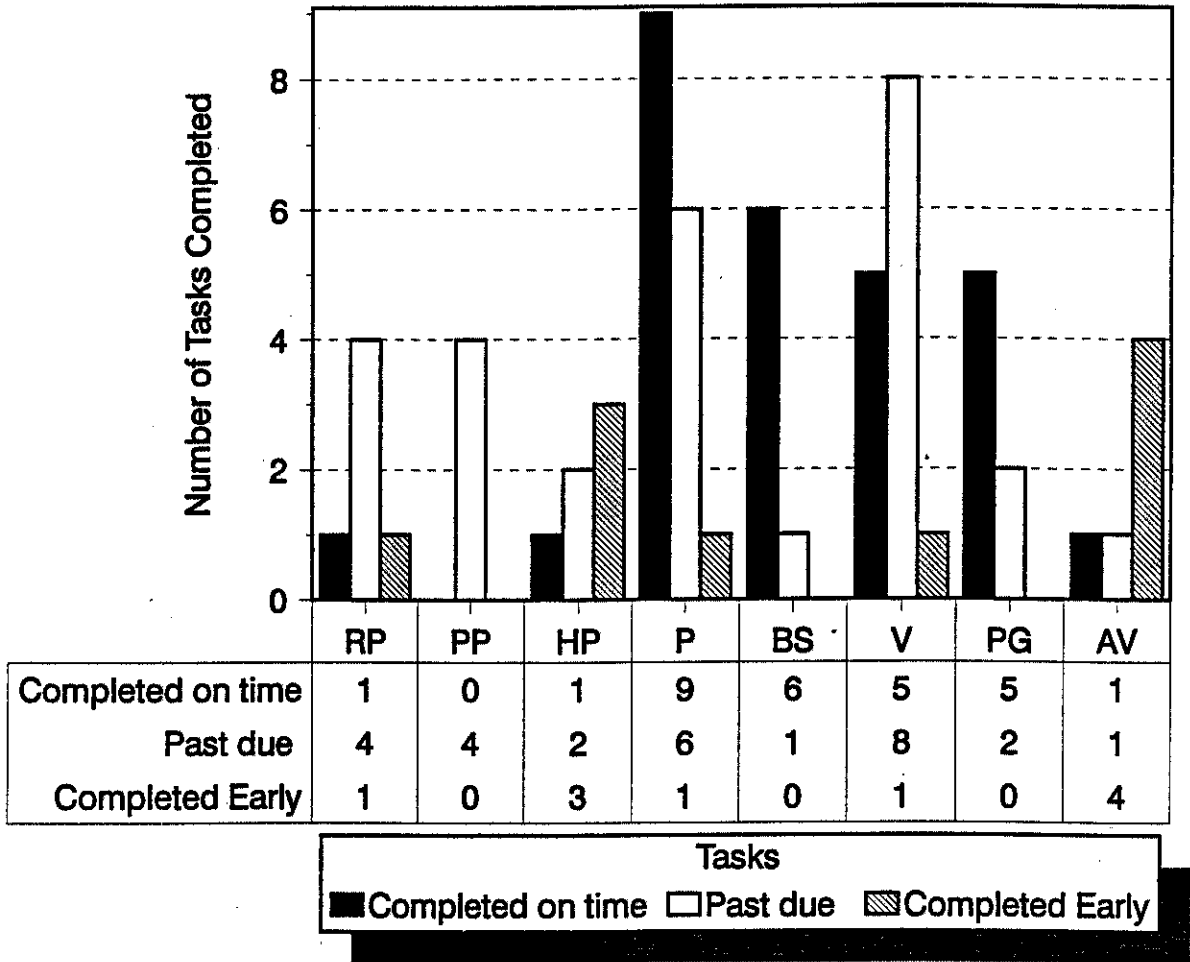
**Figure 3.** The number of calls, on-site presentations, and corporate sponsors gained by the Marketer, July 1993 through December 1993. Public posting of data occurred in October, 1993.



**Figure 4.** The total number of RASCI requests (white bar) and the number of requests completed by the due date (black bar) by all 20 team members.



**Figure 5.** The percentage of RASCI requests completed early or on time by all 20 team members, July, 1993 through December, 1993.



**Figure 6.** The number of tasks for the 1993 Fall Conference completed on time, early, or past due by the Conference Team. RP = Registration Packet; PP = Presenter Packet; HP = Hotel Preparation; P = Proceedings; BS = Bookstore Arrangements; V = Volunteers; PG = Program; and AV = Audio Visual Arrangements

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