

THE EVALUATION OF TECHNICAL QUALITY  
CIRCLE TEAM PERFORMANCE

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1974

Submitted to the Graduate Faculty of the  
Department of Administrative Sciences  
College of Business Administration  
Oklahoma State University  
in partial fulfillment of  
the requirements for the Degree of  
MASTER OF BUSINESS ADMINISTRATION  
July, 1990

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Title of Study: THE EVALUATION OF TECHNICAL QUALITY  
CIRCLE TEAM PERFORMANCE

Pages in Study: 72

Candidate for Degree of Master  
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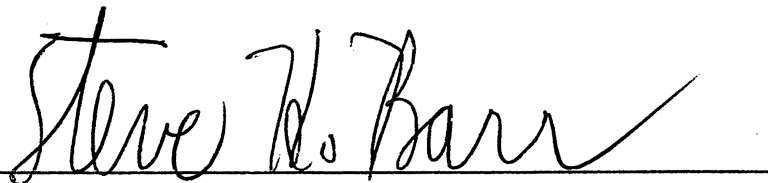
Major Field: Business Administration

Scope and Method of Study: Quality circle team performance of a major energy company was analyzed for tangible savings for the years 1988 and 1989, to determine if quality circles in the technical/professional environment are not as effective as quality circles in the non-technical areas. The performance of 244 teams was analyzed in these two years. Cost and savings data were evaluated using a number of different measures.

Questionnaires were used to obtain attitudinal data in evaluating intangible benefits over the three year period 1983 through 1985. This survey data was designed to measure and evaluate changes in communications, teamwork, attitudes, morale, and job satisfaction resulting from employee involvement in quality circle teams.

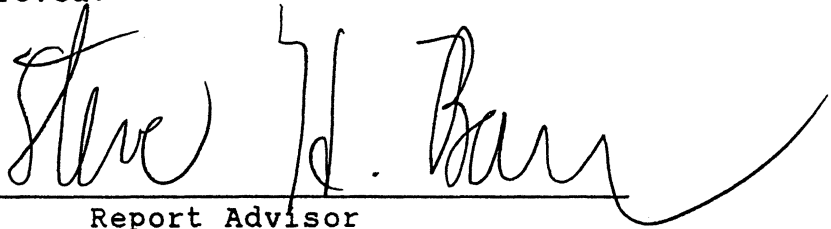
Findings and Conclusions: During the years 1988 and 1989, the Technical quality circle team tangible savings exceeded that of the Non-technical teams. It would appear that the work environment of the Technical employee exposes him to greater potential savings than the Non-technical employee. The Non-technical response to the surveys were slightly more positive than the Technical member response indicating that his intangible benefits were slightly greater. This finding would be consistent with the concept that many of the attributes of the circle team already exist in the technical/professional work environment, and as a result, the intangible benefits of participating in a quality circle program are not as great to the Technical employee when compared to the Non-technical employee.

ADVISOR'S APPROVAL

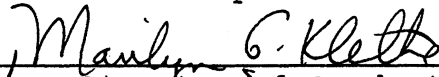
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## CHAPTER I

### INTRODUCTION

#### Quality Circles

Quality circles originated in Japan in the early 1960s as part of a drive for quality and a critical need to overcome a reputation for cheap, poorly made goods. Merging behavioral theories with the quality control sciences introduced in Japan, W. Edwards Deming and J.M. Juran created a system called quality control circles. Quality circle techniques have been taught to and applied by the Japanese work force with an estimated one million quality circles active in Japan today. These groups are considered a major contributor to Japan's present status as a leader in both quality and productivity.

Quality circles were first introduced in the United States in 1970 by Lockheed Aircraft, a large manufacturing company. The success of the Lockheed program, combined with the company's enthusiasm in publicizing and promoting its implementation process and results, encouraged other American companies to adopt the participative process.

By 1985, quality circle activity in North America had increased to the point where more than 90% of Fortune

500 firms reported quality circles (Piczak, 1988). This represents an increase of more than 100% in the number of quality circles since 1982. The International Association of Quality Circles reported in 1985 that approximately 40 percent of those corporations listed on the NYSE have instituted some form of a quality circle strategy (Smelter and Kedia, 1985). This growth of quality circles continues today with more teams being introduced successfully into service industries. This is particularly significant because the service industries represent the majority of the work force. Encouraged by success in the manufacturing sector, organizations are expanding their circle efforts to their office and technical areas.

Before looking at how quality circles function in the technical environment, one should be familiar with the basis from which a quality circle operates.

Quality Circles are voluntary teams of employees that meet regularly, generally for an hour each week, to discuss and analyze problems, recommend solutions, and take corrective action when they have the authority to do so.

In order to ensure that this discretionary time is well used, both leaders and members receive training in problem solving and meeting management skills. The idea is to get the people closest to the actual work helping

to solve problems they face everyday and improve their overall productivity.



## CHAPTER II

### SURVEY OF LITERATURE

#### Current Evaluation Research

The majority of studies constituting the quality circle evaluation literature are, at best, seriously flawed and, at worst, potentially misleading (Steel and Shane, 1986). The quality circle evaluation literature is generally weak when compared to other field research domains such as job redesign, survey feedback, and goal setting. This observation is not designed to malign the competencies of the investigators who performed these studies. Rather, it refers to a set of design constraints to which much evaluation research is prone, and which are, unfortunately, highly manifest in the quality circle evaluation literature.

Evaluation studies on quality circle program "effects" have for the most part, constituted two principal genre of scientific inquiry. One set of evaluation reports consists of the anecdotal appraisals and cost savings data offered by program sponsors as evidence of program accomplishments (Bryant & Kearns, 1981; Takeuchi, 1981; Yager, 1981). Such reports frequently

provide estimates of anticipated savings rather than actual cost reductions and make optimistic assumptions regarding the productive utilization of work time stemming from labor-saving efficiencies. Therefore, the findings of such reports must be viewed with some measure of caution. This study improves over these earlier studies because the tangible costs and savings are based on actual values when they were incurred and not on projections.

Quality circles have also been subjected to more conventional evaluative research (Nicholas, 1979). These studies are distinguished from the preceding type of investigation by their employment of control groups and/or longitudinal designs including some form of baseline or pretreatment measurement. This "controlled research" genre of quality circle investigation typically has flaws related to one or more design limitations such as no statistical analysis, small sample size, short interval, no baseline measure, or high experimental mortality. This study should be better because there is sufficient sample size to allow statistical analysis, and the data extends over a two year period which is a reasonable time interval.

Pretest-posttest designs have also been utilized to evaluate quality circle programs (Donovan & Jury, 1983; Hunt, 1981; Novelli & Mohrman, 1982). These designs provide

no reliable controls for Hawthorne or novelty effects, a source of bias often linked to programs of this type.

Studies which aggregate data and employ groups as the unit of analysis frequently must contend with small sample size and insufficient statistical power. Several quality circle evaluation studies had this limiting condition in common (Steel et al., 1982, Harper & Jordan, 1982). As mentioned earlier, this study does not have these limitations.

Some studies have evaluated quality circles in "white collar" work settings (Donovan, 1986). Many of these studies focus primarily on the comparison of quality circle performance against non-quality circle performance and investigate the many variables that result in success or not, but none have made a direct comparison of technical versus non-technical circles. This investigation will compare performance of quality circles composed of technical professionals versus quality circles without technical professional members. This comparison of technical "white collar" quality circle participation to the non-technical circles should provide some additional knowledge about the performance of teams composed primarily of members who were already skilled in problem solving. The technical professional is already trained in doing detailed analysis of problems and formulating solutions, but the effectiveness

of the "team" effort between categories should provide evidence as to the benefit of pooling this talent.

The advantages of this study include the two year time interval and large sample size. This study will use data from 127 quality circle teams in 1989, and 117 teams in 1988 to provide sufficient sample size to allow statistical comparison. The tangible costs and savings associated with the team performance are based on actual values when they were incurred and not on projections. This should provide more valid results than estimates that frequently are used to report savings.

## CHAPTER III

### THEORY/RESEARCH DESIGN

#### Hypothesis

The intent of this research report is to investigate the hypothesis that quality circles in the technical/professional environment are not as effective as quality circles in other areas. This hypothesis is based on the theory that many of the attributes of quality circles already exist in the work environment of the technical/professional. These attributes include: 1) training in problem solving, 2) having discretionary time to work on problems, 3) improved visibility with management, and 4) selecting problems to work on. Most technical professionals are already trained to solve problems, their normal job duties include solving problems. They already have a certain amount of discretionary time, and often interact with management on a routine basis. Management is calling on the technical professional to solve problems and develop solutions with frequent interchange occurring almost on a daily basis.

Since the technical professional already works in an environment that provides many of the virtues associated with quality circles, and since the technical professional

is used to working in a highly competitive, individualistic environment and is not accustomed to team dynamics utilized in quality circles, it is anticipated that the benefits of quality circle participation will not be as great when compared to the non-technical environment. One could raise the counter argument that since technical professional persons are more familiar with and possess more of the quality circle attributes, then should these quality circles be more effective than the non-technical circles? I do not believe this to be the case, because the motivation factor for the technical professional is much weaker when compared to the non-technical person.

Quality circles are present in practically every work group throughout the company in this study. There are teams in human resources, marketing, controllers, tax, treasury, and accounting which represent most of the non-technical members. In addition there are many teams in the operating units of the company that have anywhere from no technical members to 100 per cent technical members on a team.

#### Method

This research is based on evaluating data from a major energy company who has had quality circle teams in operation since 1981. Data has been obtained on the

performance of all quality circle teams of the company for the years 1986 through 1989. There is insufficient data to properly classify the team members in 1986 and 1987 so these two years were excluded from the study. All data is provided in Tables II, III, and IV in Appendix A. In 1989, 127 quality circle teams were used in the data base and in 1988, 117 teams were included. If a team did not have a reported cost for the year, then this team was excluded because it was not in operation during that time period. Some teams that were in operation in 1988 were not operating in 1989, and conversely, some teams operating in 1989 were not operating in 1988.

### Subjects

The technical professional was defined as a degreed graduate of at least four years in a technical curriculum which includes engineering, computer science, geology, mathematics, physics, or chemistry. With this definition, each member on a team was classified and then each team composition was known. Several teams in the organization were excluded from the study because of the inability to classify the team membership. The diversity of the members job functions was considerable. The non-technical members included clerical staff, technicians, accountants, mechanics, operators, personnel department employees, and marketing

representatives.

### Measures

The tangible savings were obtained from calendar year reports for 1989 and 1988 from the subject energy company. These reports provided annual costs and gross savings associated with each team. From this data, the net savings for each team was calculated. In addition, the total net savings was ratioed to the total costs. This Savings/Cost ratio was used as another indicator of overall performance. The mean for the net savings per team and per member was then calculated. The focus was primarily on the team performance and therefore the savings per member was not explored any further.

In addition to the tangible savings, another set of data was used based on survey data from quality circle team members. This data was obtained for the years 1983-1985. This survey data was designed to measure and evaluate changes in communications, teamwork, attitudes, morale, and job satisfaction resulting from employee involvement in quality circle participation. The responses on the questionnaires were weighted on a scale with the top value being a +2 corresponding to "great improvement", and a bottom value of -2 corresponding to a "much worse" response, with



a 0 response indicating essentially no change. The complete set of data for the questionnaire can be found in Appendix B.

## CHAPTER IV

### RESULTS AND ANALYSIS

#### Tangible Savings

The principal independent variable in this study is the technical/professional team versus the non-technical team. The Technical quality circle teams consisted of any team which had 75 per cent or more of its members as technical/professionals as defined in Chapter III. It was felt that 75 per cent represented a high enough percentage to accurately reflect overall team performance being attributed to the technical team members. There were 12 teams in 1989 and 8 in 1988 that were made up of 100 per cent technical members.

The Non-technical quality circle team is defined as having no technical/professional members. The final category is the Mixed quality circle team and the teams that did not fit the other two categories fell into this classification. The Mixed teams had less than 75 per cent technical members, but at least one member was technical.

Data was used for 1988 and 1989 for the tangible effectiveness evaluation. The summary of this information is shown in Table I. In 1989 there were 22 Technical, 31 Mixed, and 74 Non-technical teams included in the evaluation.

In 1988 there were 17 Technical, 25 Mixed, and 75 Non-technical teams included.

TABLE I

PERFORMANCE DATA FOR QUALITY CIRCLE TEAMS  
FOR 1988 AND 1989

	No. of Teams	Members (%Tech)	Ave	Net Savings		Costs	Savings
			Team Size	per team	per memb	per team	Costs
Technical Teams	1989 22	186 (92)	8.45	\$259,464	\$30,689	\$7,459	34.79
	1988 17	145 (90)	8.53	64,796	7,597	8,512	7.61
Mixed Teams	1989 31	246 (33)	7.94	93,106	11,733	8,963	10.39
	1988 25	203 (39)	8.12	62,230	7,664	6,277	9.91
Non-Technical	1989 74	532 (0)	7.19	36,969	5,142	4,905	7.54
	1988 75	518 (0)	6.91	49,248	7,130	6,244	7.89

The net savings is based on gross savings minus the labor cost of team members, any training costs incurred, and any implementation cost required to achieve the savings. Tables II, III, and IV in Appendix A provide a listing on each team category from which the data has been summarized in Table I above. The labor cost vary depending upon the wages associated with the different members, but a typical range of values would be from \$400 to \$1200 per member per year. With average team size around 8 (See Table I), then the annual labor costs range from \$3200 to \$9600.

Implementation costs often are negligible, but can approach almost \$100,000, depending on the particular problem being solved. Training costs are typically incurred during the first year the team goes into operation. This start up costs can result in several thousand dollars, but it is a one time cost usually charged to an organization and allocated to several teams that may be starting up.

### Statistical Analysis

As can be seen in the tables of Appendix A, the net savings has a very wide range of values. For example, the Technical teams had a range of -\$12,705 to \$2,526,884 with a mean of \$259,464/team. The cost data did not vary quite as much with a range of \$798 to \$12705. The \$798 figure is abnormally low because it reflects cost on a team that did not operate for the whole year. That points out one deficiency in using the data on an annual basis. Another discrepancy results when the annual costs are compared to the annual savings. Since the savings are not accounted for until the solution to a problem is implemented, considerable costs can be accumulated against no savings. It would perhaps be better if some of the savings could somehow be prorated against the time and cost incurred in achieving the solution. Unfortunately, data was not avail-

able to do this.

A statistical comparison was made on the primary measures used in Table I. The means, standard deviation, variances, and Student's t-test are given in Table V below:

TABLE V  
STATISTICAL COMPARISON FOR QUALITY CIRCLE  
TEAMS FOR 1988 AND 1989

		MEAN		VARIANCE		STANDARD DEVIATION	
		Net Savings	Costs	Net Savings	Costs	Net Savings	Costs
		<u>per team</u>	<u>per team</u>				
Technical Teams	1989	259,464	7,459	$4.852 \times 10^{11}$	$7.530 \times 10^6$	696,547	2,744
	1988	64,796	8,512	$2.251 \times 10^{10}$	$9.765 \times 10^7$	150,032	9,882
Mixed Teams	1989	93,106	8,963	$5.899 \times 10^{10}$	$3.715 \times 10^8$	242,885	19,274
	1988	62,230	6,277	$1.997 \times 10^{10}$	$5.059 \times 10^7$	141,315	7,113
Non-Technical	1989	36,969	4,905	$2.837 \times 10^{10}$	$1.649 \times 10^7$	168,420	4,060
	1988	49,239	6,244	$3.854 \times 10^{10}$	$9.430 \times 10^7$	196,315	9,711

MEANS BEING TESTED	SMALL-SAMPLE TEST STATISTIC FOR THE DIFFERENCE BETWEEN TWO MEANS			
	<u>1989 Savings</u>	<u>1989 Costs</u>	<u>1988 Savings</u>	<u>1988 Costs</u>
Technical-Nontechnical	2.537	2.763	0.307	0.867
Technical-Mixed	1.232	-0.362	0.056	0.853
Mixed-Nontechnical	1.359	1.732	0.305	0.016

The above Student's t statistic values can be used to see if a difference exists between the means being tested. We want to test the null hypothesis  $H_0: (\mu_1 - \mu_2) = 0$  against

the alternative hypothesis  $H_a: (\mu_1 - \mu_2) \neq 0$ . Using an  $\alpha$  of 0.05, and since the degrees of freedom are greater than 29, the  $t_{0.025, \infty}$  taken from the statistic tables is equal to 1.960. Thus, the rejection values for the t statistic would be  $t < -1.960$  and  $t > 1.960$ . Therefore, according to Table V, the only t statistic that falls into the rejection region of the null hypothesis is the savings and costs data comparison between the Technical and Non-technical teams in 1989. This shows sufficient evidence to indicate that the mean net savings and costs do differ between the Technical and Non-technical teams in 1989.

The data from Table I does not support the hypothesis that quality circles in the technical/professional environment are not as effective as quality circles in other areas. In fact when looking at the net savings per team data, and comparing 1989 performance, the Technical teams savings exceeded the Mixed teams savings which in turn exceeded the Non-Technical savings. The same trend held in 1988, but the differences were much smaller.

Another measure of performance which includes the overall costs is the Savings to Cost ratio (S/C ratio). In comparing the S/C ratio, the 1989 data as shown in Table I again shows the Technical team having a larger ratio (34.79) than the Mixed teams (10.39) which in turn

had a larger ratio than the Non-Technical teams (7.54). The 1988 S/C ratio data did not support this trend. The Technical team S/C ratio was 7.61, the Mixed team S/C ratio was 9.91, and the Non-Technical team S/C ratio was 7.89. Even though the Technical teams had a smaller S/C ratio in 1988, their overall savings (\$64,796/team) exceeded the savings from the Mixed teams (\$62,230/team), and the Non-Technical teams (\$49,248/team). This is not too surprising because the implementation costs to achieve the savings were higher for the Technical teams and as a result the total costs for the Technical teams (\$8512/team) were larger than the Mixed teams (\$6277/team) and Non-Technical teams (\$6244/team).

In analyzing the data several interesting issues come to surface. There are fewer Technical teams (39 total) in the study than Non-Technical (149 total). This is probably consistent with the composition of the company work force, but no data is available to confirm it. Another reason there are more of the Non-Technical teams could relate to some of the primary virtues of any quality circle program. It provides employees with the opportunity to have some discretionary time to solve problems directly impacting their work place. It trains employees in problem solving and meeting management skills, and it provides a communication channel with management that previously did

not exist. On the other hand, most all of the technical/professional members already function in an environment that includes these traits outside of the quality circle program. Therefore their incentive to participate in the quality circle program is not as great, even though there is evidence that in 1989 the Technical teams out performed the Non-Technical teams. The probable reason for this comes from the fact that the technical member is working on problems that frequently involve millions of dollars, whereas the Non-Technical team, clerical members for example, do not work on problems that have anywhere near the same potential savings. Some Non-Technical teams such as operations or production members do have significant potential, but when you look at the Non-Technical teams as a whole, the savings potential is reduced somewhat by the effects of some of the limited teams as mentioned above.

In reviewing all of the quality circle data from 1986 through 1989, it is apparent that the majority of teams only last for one to two years. Usually after a team is trained, it works on a problem or two and then its activity diminishes or the team ceases to exist. This is consistent with an earlier study (Collard & Dale, 1985). Occasionally a team will not disband, but will go inactive for a while and then after a significant problem surfaces become active again. Quite often, the team membership will decline as



people transfer away, interest wanes, and teams which began with 8-10 members drop to 3-4 members and then eventually disband. Often this happens after the significant problems have been solved and the more trivial problems will not hold the interest of a team. Also, some corporate restructuring has completely eliminated several teams.

### Intangible Benefits

Some very important benefits associated with the quality circle program can not be easily quantified, but are very real. In an effort to evaluate these intangible benefits a questionnaire was designed to obtain feedback from the quality circle participants. This questionnaire was designed to measure changes in communications, teamwork, attitudes, morale, and job satisfaction. The quality circle team is referred to as a Participative Action Team (PAT) in the questionnaire. Data was available for the period 1983-1985. Results from the questionnaires can be found in Appendix B. The respondents were not classified as Technical or Non-technical. Instead, the responses were classified as Exempt or Non-exempt, therefore no direct correlation can be made in interpreting the results relative to the Technical to Non-technical comparison. But all Technical members fall in the Exempt classification

along with other Non-technical professionals, and most all of the Non-technical quality circle members fall into the Non-exempt classification. A summary of responses from the Exempt and Non-exempt members can be found in Table VI.

TABLE VI

COMPARISON SUMMARY OF EXEMPT AND  
NON-EXEMPT RESPONSES

Year	Employee Attitude Response		Total Response	Total Members	Responses % of Total	Overall Weighted Average	
	Exempt Response	Non-exempt Response				Exempt	Non-Exempt
1983	151	212	363	667	54.4	0.80	0.93
1984	200	265	465	774	60.1	0.79	0.94
1985	198	270	468	840	55.7	0.84	0.91

The responses on the questionnaires are weighted on a scale with the top value being a +2 corresponding to "great improvement", and a bottom value of -2 corresponding to a "much worse" response, with a 0 indicating essentially no change. The complete set of data for the questionnaires can be found in Appendix B.

The questionnaire consisted of 17 attitudinal questions whose responses were tabulated. Following is a list of the questions of the survey:

1. As a result of participation in a PAT, have communica-

- tions between you and your supervisor improved?
2. As a result of participating in a PAT, have communications between you and your co-workers improved?
  3. As a result of participating in a PAT, has there been a change in teamwork between your work group and your supervisor?
  4. As a result of participating in a PAT, has there been a change in teamwork among the people in your work group?
  5. As a result of participating in a PAT, do you feel there has been a change in the productivity of your work group?
  6. As a result of participating in a PAT, do you feel that you have more influence on decisions that affect your job?
  7. As a result of participating in a PAT, has your supervisor's appreciation of your work performance changed?
  8. As a result of participating in a PAT, do you see more opportunities for improvement in your work area?
  9. As a result of participating in a PAT, are you better able to use your personal capabilities to improve your work environment?
  10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?
  11. Has PAT participation changed the way you feel about

your job?

12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?
14. As a result of participating in a PAT, has there been a change in your attitude towards your fellow members?
15. Do you feel your supervisor supports your involvement in the PAT program?
16. Considering all factors involved, do you feel the PAT activity is worthwhile?
17. Below are a variety of reasons why people are involved in PAT'S and you may want to add others. Please rank your most important reason for participation.
  - a. Opportunity to contribute my thoughts to improve work environment/solve local problems.
  - b. Greater opportunity to be creative at work.
  - c. Potential PAT awards.
  - d. Self development and growth.
  - e. Greater opportunity for recognition of what I can contribute.
  - f. To learn more about methods/technique.
  - g. To inter-relate more with others.
  - h. Other

The weighted average value on the above 17 questions is given in TABLE VI. This indicates that the Non-Technical member (Non-exempt) gave a more positive response than the Exempt member for all three years. This finding would confirm the previous notion that the intangible benefits are greater for the Non-technical member when compared to the Technical member. It should be pointed out that all responses were positive ranging from a low of 0.79 to a high of 0.94.

The survey also had another interesting finding that relates to the time an employee has been on a quality circle team. Surprisingly, it does not appear to matter how long the employees have been involved in the quality circle program. On an overall basis, employees with less than a year versus more than a year in the program were nearly equal in their overall weighted average response. For those with less than a year the responses were 0.86 for 1983, 1984, and 1985. This compares to the more than a year responses of: 0.88 in 1983, 0.91 in 1984, and 0.89 in 1985. These nearly equal positive responses would tend to indicate that the employees are still realizing many of the intangible benefits as their involvement in the program continues.

## CHAPTER V

### SUMMARY & CONCLUSIONS

The purpose of this study was to evaluate the performance of quality circle teams in a major energy company and investigate the hypothesis that quality circles in the technical/professional environment are not as effective as quality circles in the non-technical areas.

The findings of this study does not support the above hypothesis when the tangible measures were compared. The tangible measure of net savings per team indicated that the Technical teams were more effective than the Non-Technical teams. In 1989, the data also indicated that Technical teams had a larger Savings to Cost ratio than the Non-Technical teams. This could be attributed to the fact that the typical work environment of the Technical employee exposes him to greater potential savings than the Non-Technical employee. This is particularly probable in the atmosphere of a technically oriented company such as the energy company in this study.

Questionnaires were used to obtain attitudinal data in evaluating intangible benefits. The Non-Technical member responses to the questionnaire were slightly more

positive than the Technical member indicating that his intangible benefits were slightly greater.

There are a number of additional factors that impact the performance of the various teams studied. One item of interest relates to the topics that the teams select to work on. Most usually the quality circle teams select the problems they wish to work on. Some of the Technical teams quite often will initially work on problems in their work area that actually have nothing to do with their expertise. Instead they may attack problems that tend to be clerical in nature. Some of these problems do result in significant savings, but quite often the problems tend to decrease in savings potential and as a result the team will disband. This is a factor that contributed to the mortality of some of the Technical teams through the years. Another factor that contributed to Technical team inefficiency is the inaction and delay that often comes from the committee format of quality circles and results in considerable unproductive use of manpower.

#### Implications for Research

This study was done on a rather large sample group, one part over a two year period of time and the intangible evaluation over a three year period. It is important to

avoid small sample sizes and to have reliable longitudinal data to ensure sound results. Therefore, I would suggest that additional data continue to be gathered from the subject energy company of this study, and to evaluate quality circle programs of additional energy companies. Even though energy companies are a very small portion of industry that employees technical/professional people, I would expect similar results in related industries.

#### Implications for Practice

Overall, the quality circle program appears to be very effective with over eleven million dollars in net savings realized in 1989 with the 127 teams included in this study. Also, in 1988, the 117 teams realized over six million dollars in net savings. I would definitely suggest that the energy company continue with their program. One suggestion that I would make relates to the maturity of the program. As the program continues, the participants frequently begin to encounter problems that extend beyond the boundaries of what the quality circle team can address. The complexity of a problem may involve many different groups which the quality circle team has no jurisdiction over. This is frequently encountered in some of the technical quality circle teams. As a result, these problems can not



be effectively solved in the traditional quality circle team. This has led to the utilization of the total quality team concept where members from the various groups are brought together to function in a capacity similar to a task force. I would expect this total quality team concept to grow as more and more complex, system-type problems are identified that require interaction of the various groups impacted.

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APPENDIXES

APPENDIX A

DATA TABLES OF SAVINGS AND COSTS  
FOR QUALITY CIRCLE TEAMS

TABLE II

TECHNICAL QUALITY CIRCLE  
TEAM DATA

TEAM NUMBER	DEPT	TECH MEMBER	NONTECH MEMBER	PER CENT TECH MEMBER	1989 GROSS SAVINGS	1989 COSTS	1988 GROSS SAVINGS	1988 COSTS	1989 NET SAVINGS	1988 NET SAVINGS
34	CE	7	0	100.00	0	7221	35926	17838	-7221	18088
87	CE	9	2	81.82	0	7280	0	3411	-7280	-3411
297	CE	7	0	100.00	0	8500	0	1981	-8500	-1981
387	CE	6	0	100.00	0	6528	0	9268	-6528	-9268
403	CE	10	2	83.33	0	10636	0	7673	-10636	-7673
425	CE	8	1	88.89	0	12705	0	3333	-12705	-3333
446	CE	7	0	100.00	0	8122	0	0	-8122	0
474	CE	11	0	100.00	0	5556	0	0	-5556	0
386	CE	7	1	87.50	2533362	6478	0	10818	2526884	-10818
286	E&P	10	1	90.91	700000	7846	0	4646	692154	-4646
310	E&P	9	0	100.00	103333	9659	387441	6009	93674	381432
344	E&P	8	0	100.00	33923	8093	143800	41370	25830	102430
347	E&P	7	0	100.00	38713	5139	512417	10215	33574	502202
369	E&P	7	1	87.50	0	6764	0	6026	-6764	-6026
399	E&P	4	1	80.00	0	798	0	3832	-798	-3832
404	E&P	8	0	100.00	106322	8143	0	0	98179	0
408	E&P	14	4	77.78	2196000	10805	0	938	2185195	-938
435	E&P	6	1	85.71	5625	7456	0	314	-1831	-314
470	E&P	7	1	87.50	0	4769	0	0	-4769	0
477	E&P	6	0	100.00	0	4292	0	0	-4292	0
219	IS	8	0	100.00	73231	12261	166659	16165	60970	150494
440	NGC	5	0	100.00	81802	5043	0	875	76759	-875
TOTAL		171	15	91.94	\$5,872,311	\$164,094	\$1,246,243	\$144,712	\$5,708,217	\$1,101,531

TABLE III

MIXED QUALITY CIRCLE  
TEAM DATA

TEAM NUMBER	DEPT	TECH MEMBER	NONTECH MEMBER	PER CENT TECH MEMBER	1989 GROSS SAVINGS	1989 COSTS	1988 GROSS SAVINGS	1988 COSTS	1989 NET SAVINGS	1988 NET SAVINGS
26	CE	8	3	73.00	0	7735	58140	12245	-7735	45895
153	CE	6	3	67.00	1150000	21375	503136	10629	1128625	492507
163	CE	5	3	63.00	0	5802	0	3932	-5802	-3932
333	CE	2	7	22.00	731488	109098	29664	17290	622390	12374
415	CE	4	3	57.00	0	1350	0	2415	-1350	-2415
320	CHEM	1	5	17.00	0	846	0	2502	-846	-2502
396	CHEM	5	2	71.43	0	3761	10296	6601	-3761	3695
457	CHEM	3	4	42.86	0	2651	0	0	-2651	0
94	E&P	2	4	33.33	0	3315	0	3289	-3315	-3289
171	E&P	5	4	55.56	0	0	0	192	0	-192
193	E&P	2	7	22.22	91832	10987	161941	6700	80845	155241
205	E&P	2	6	25.00	0	2031	0	1720	-2031	-1720
278	E&P	1	7	12.50	0	3749	0	4890	-3749	-4890
280	E&P	4	2	66.67	0	0	0	110	0	-110
307	E&P	5	5	50.00	127600	8466	145614	11018	119134	134596
376	E&P	3	7	30.00	147179	1880	0	3892	145299	-3892
382	E&P	4	3	57.14	0	5202	0	6652	-5202	-6652
394	E&P	2	4	33.33	7235	4385	0	2228	2850	-2228
409	E&P	1	6	14.29	0	4182	0	2152	-4182	-2152
422	E&P	1	9	10.00	654443	7912	0	2677	646531	-2677
445	E&P	1	10	9.09	0	4530	0	0	-4530	0
458	E&P	1	6	14.29	0	4294	0	0	-4294	0
459	E&P	1	6	14.29	0	4866	0	0	-4866	0
460	E&P	1	6	14.29	0	1776	0	0	-1776	0
464	E&P	2	5	28.57	0	1604	0	0	-1604	0
465	E&P	1	4	20.00	0	2396	0	0	-2396	0
490	E&P	1	6	14.29	0	273	0	0	-273	0
170	G&GL	4	3	57.14	10945	23234	2998	4100	-12289	-1102
218	NGC	7	4	63.64	107635	8506	0	3091	99129	-3091
400	NGC	1	8	11.11	46978	5852	0	1950	41126	-1950
335	PPG	2	7	22.22	0	5618	368244	7439	-5618	360805
336	PPG	1	6	14.29	88800	3904	0	4918	84896	-4918
340	PPG	2	5	28.57	0	6269	432644	34298	-6269	398346
TOTAL		91	170	34.87	\$3,164,135	\$277,849	\$1,712,677	\$156,930	\$2,886,286	\$1,555,747

TABLE IV

NON-TECHNICAL QUALITY  
CIRCLE TEAM DATA

TEAM NUMBER	DEPT	TECH MEMBER	NONTECH MEMBER	PER CENT TECH MEMBER	1989 GROSS SAVINGS	1989 COSTS	1988 GROSS SAVINGS	1988 COSTS	1989 NET SAVINGS	1988 NET SAVINGS
295	CE	0	7	0.00	0	7400	131572	9273	-7400	122299
303	CE	0	13	0.00	0	10270	330280	9919	-10270	320361
438	CE	0	10	0.00	0	6574	0	0	-6574	0
204	CHEM	0	3	0.00	0	0	0	30	0	-30
229	CHEM	0	9	0.00	0	1566	24076	3401	-1566	20675
231	CHEM	0	11	0.00	14101	7326	34611	7365	6775	27246
319	CHEM	0	6	0.00	0	0	54533	3079	0	51454
334	CHEM	0	5	0.00	0	0	0	25265	0	-25265
355	CHEM	0	5	0.00	0	0	0	140	0	-140
365	CHEM	0	7	0.00	0	0	0	720	0	-720
366	CHEM	0	4	0.00	0	0	15415	560	0	14855
379	CHEM	0	5	0.00	0	0	0	525	0	-525
410	CHEM	0	9	0.00	26288	5268	0	1210	21020	-1210
411	CHEM	0	5	0.00	0	935	0	2034	-935	-2034
413	CHEM	0	4	0.00	10743	680	680	0	10063	680
426	CHEM	0	6	0.00	0	2675	0	338	-2675	-338
427	CHEM	0	6	0.00	0	1352	0	0	-1352	0
441	CHEM	0	7	0.00	0	2480	0	170	-2480	-170
124	E&P	0	7	0.00	50975	9319	0	7222	41656	-7222
125	E&P	0	8	0.00	28680	11038	0	5439	17642	-5439
184	E&P	0	6	0.00	0	4361	0	3888	-4361	-3888
191	E&P	0	4	0.00	0	1043	0	2108	-1043	-2108
206	E&P	0	7	0.00	0	0	0	416	0	-416
233	E&P	0	12	0.00	15822	6035	549864	8513	9787	541351
234	E&P	0	7	0.00	9504	7443	678252	65569	2061	612683
256	E&P	0	7	0.00	0	6642	104913	36137	-6642	68776
257	E&P	0	6	0.00	0	0	0	1096	0	-1096
260	E&P	0	8	0.00	7502	3872	1459921	7474	3630	1452447
263	E&P	0	9	0.00	48068	5118	49805	14166	42950	35639
265	E&P	0	9	0.00	0	3341	0	3831	-3341	-3831
266	E&P	0	8	0.00	20870	8447	108754	35746	12423	73008
268	E&P	0	9	0.00	17957	7842	350000	9400	10115	340600
328	E&P	0	9	0.00	119321	18106	0	1858	101215	-1858
377	E&P	0	8	0.00	0	876	0	0	-876	0
401	E&P	0	12	0.00	0	7518	0	2518	-7518	-2518
402	E&P	0	7	0.00	0	7350	0	3150	-7350	-3150
405	E&P	0	13	0.00	6219	2874	0	818	3345	-818
406	E&P	0	7	0.00	22293	8653	0	2486	13640	-2486
412	E&P	0	5	0.00	0	5208	0	3125	-5208	-3125
424	E&P	0	13	0.00	0	2701	0	2233	-2701	-2233
463	E&P	0	8	0.00	0	672	0	0	-672	0
467	E&P	0	6	0.00	0	2537	0	0	-2537	0
468	E&P	0	7	0.00	0	2400	0	0	-2400	0
469	E&P	0	7	0.00	0	857	0	0	-857	0
471	E&P	0	8	0.00	0	4759	0	0	-4759	0
476	E&P	0	1	0.00	0	1056	0	0	-1056	0
177	G&GL	0	9	0.00	36042	5399	0	1205	30643	-1205
315	HR	0	8	0.00	0	3981	0	5103	-3981	-5103
317	HR	0	8	0.00	0	4651	5672	1058	-4651	4614
330	HR	0	6	0.00	0	5855	0	3446	-5855	-3446



TABLE IV (Continued)

TEAM NUMBER DEPT	TECH MEMBER	NONTECH MEMBER	PER CENT TECH MEMBER	1989 GROSS SAVINGS	1989 COSTS	1988 GROSS SAVINGS	1988 COSTS	1989 NET SAVINGS	1988 NET SAVINGS
452 HR	0	6	0.00	0	4365	0	0	-4365	0
453 HR	0	10	0.00	0	7157	0	0	-7157	0
294 HR&S	0	7	0.00	41661	4267	21629	16769	37394	4860
305 HR&S	0	4	0.00	0	1864	10870	2330	-1864	8540
331 HR&S	0	4	0.00	33655	2138	11941	3072	31517	8869
391 HR&S	0	6	0.00	5347	3862	0	2037	1485	-2037
113 PPG	0	6	0.00	0	0	0	393	0	-393
159 PPG	0	5	0.00	0	714	5565	3904	-714	1661
160 PPG	0	3	0.00	0	1298	0	2993	-1298	-2993
194 PPG	0	1	0.00	22373	3165	0	2205	19208	-2205
306 PPG	0	6	0.00	6799	6557	2500	2274	242	226
309 PPG	0	7	0.00	269509	7618	0	0	261891	0
325 PPG	0	8	0.00	53939	2006	23705	6622	51933	17083
337 PPG	0	9	0.00	0	4683	0	7867	-4683	-7867
338 PPG	0	4	0.00	0	0	0	2357	0	-2357
342 PPG	0	5	0.00	8182	3050	0	3952	5132	-3952
343 PPG	0	8	0.00	0	1848	0	8060	-1848	-8060
356 PPG	0	7	0.00	6101	6401	0	8098	-300	-8098
357 PPG	0	10	0.00	0	5257	64400	6755	-5257	57645
370 PPG	0	8	0.00	332664	9965	0	4341	322699	-4341
371 PPG	0	7	0.00	39766	6849	0	6963	32917	-6963
375 PPG	0	7	0.00	0	0	0	5192	0	-5192
384 PPG	0	1	0.00	0	0	0	1390	0	-1390
388 PPG	0	7	0.00	25190	1527	0	3074	23663	-3074
389 PPG	0	1	0.00	8560	4247	0	5051	4313	-5051
393 PPG	0	1	0.00	112739	704	0	2629	112035	-2629
407 PPG	0	1	0.00	0	0	0	918	0	-918
416 PPG	0	10	0.00	0	5037	0	1599	-5037	-1599
417 PPG	0	9	0.00	12450	9957	0	2173	2493	-2173
418 PPG	0	9	0.00	0	4140	0	1729	-4140	-1729
456 PPG	0	1	0.00	0	330	0	0	-330	0
373 PT	0	5	0.00	0	1395	0	3360	-1395	-3360
313 TAX	0	8	0.00	276978	19500	32800	18677	257478	14123
314 TAX	0	10	0.00	1396940	19948	0	14179	1376992	-14179
242 TR	0	7	0.00	0	1232	10203	6760	-1232	3443
243 TR	0	8	0.00	5575	2021	22810	4386	3554	18424
245 TR	0	8	0.00	5888	2947	10233	4920	2941	5313
246 TR	0	7	0.00	0	0	36600	7608	0	28992
247 TR	0	4	0.00	0	448	10292	1606	-448	8686
TOTAL	0	607	0.00	\$3,098,701	\$362,977	\$4,161,896	\$468,277	\$2,735,724	\$3,693,619

APPENDIX B

QUESTIONNAIRE DATA

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE

DATE: 12/20/83

1. As a result of participating in a PAT, have communications between you and your supervisor improved?
  - (A) 34 great improvement
  - (B) 141 some improvement
  - (C) 185 essentially no change as a result of PAT involvement
  - (D) 2 worse
  - (E) 1 much worse

363
  
2. As a result of participating in a PAT, have communication between you and your co-workers improved?
  - (A) 68 great improvement
  - (B) 206 some improvement
  - (C) 86 essentially no change as a result of PAT involvement
  - (D) 5 worse
  - (E) 1 much worse

366
  
3. As a result of participating in a PAT, has there been a change in teamwork between your work group and your supervisor?
  - (A) 37 much more cooperation
  - (B) 151 some more cooperation
  - (C) 166 essentially no change in cooperation as a result of PAT involvement
  - (D) 3 some less cooperation
  - (E) 0 much less cooperation

357
  
4. As a result of participating in a PAT, has there been a change in teamwork among the people in your work group?
  - (A) 65 much more cooperation
  - (B) 178 some more cooperation
  - (C) 110 essentially no change in cooperation as a result of PAT involvement
  - (D) 7 some less cooperation
  - (E) 1 much less cooperation

361
  
5. As a result of participating in a PAT, do you feel there has been a change in the productivity of your work group?
  - (A) 69 significant increase
  - (B) 137 slight increase
  - (C) 149 no noticeable change as a result of PAT involvement
  - (D) 3 slight decrease
  - (E) 0 significant decrease

358

6. As a result of participating in a PAT, do you feel that you have more influence on decisions that affect your job?
- (A) 57 much, more influence  
 (B) 154 somewhat more influence  
 (C) 141 about the same influence  
 (D) 5 somewhat less influence  
 (E) 2 much less influence  
359
7. As a result of participating in a PAT, has your supervisor's appreciation of your work performance changed?
- (A) 21 much more appreciation  
 (B) 118 somewhat more appreciation  
 (C) 217 essentially no change in appreciation as a result of PAT involvement  
 (D) 3 somewhat less appreciation  
 (E) 0 much less appreciation  
359
8. As a result of participating in a PAT, do you see more opportunities for improvement in your work area?
- (A) 136 many more opportunities  
 (B) 170 a few more opportunities  
 (C) 51 essentially no change in number of opportunities as a result of PAT involvement  
 (D) 1 a few less opportunities  
 (E) 2 many fewer opportunities  
360
9. As a result of participating in a PAT, are you better able to use your personal capabilities to improve your work environment?
- 294 Yes  
64 No  
358
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?
- 345 Yes  
16 No  
361
11. Has PAT participation changed the way you feel about your job?
- (A) 56 much more satisfied  
 (B) 169 somewhat more satisfied  
 (C) 124 essentially no change  
 (D) 14 somewhat less satisfied  
 (E) 1 much less satisfied  
364

12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?
- (A) 169 definitely yes  
 (B) 116 somewhat  
 (C) 52 undecided  
 (D) 23 probably not  
 (E) 2 definitely not  
362
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?
- (A) 123 Definitely yes  
 (B) 140 Probably yes  
 (C) 59 Not sure  
 (D) 28 Probably not  
 (E) 11 Definitely not  
361
14. As a result of participating in a PAT, has there been a change in your attitude towards your fellow team members?
- (A) 87 Feel much closer  
 (B) 178 Feel somewhat closer  
 (C) 90 Essentially no change in attitude towards fellow team members  
 (D) 6 Feel some less closer  
 (E) 1 Feel much less closer  
362
15. Considering all factors involved, do you feel the PAT process is worthwhile?
- (A) 241 definitely yes  
 (B) 76 probably yes  
 (C) 31 neutral feelings  
 (D) 12 probably not  
 (E) 1 definitely not  
361
16. Do you feel that monetary awards are essential to the P.A.T. program?
- (A) 118 definitely yes  
 (B) 96 somewhat  
 (C) 57 not sure  
 (D) 58 probably not  
 (E) 31 definitely not  
360
17. If the PAT process were going to be changed:
- a) what areas would you change?  
 \_\_\_\_\_
- b) what areas would you definitely not change?  
 \_\_\_\_\_

18. Below are a variety of reasons why people are involved in P.A.T.'s and you may want to add others. Please rank your reasons for participation, with (1) = most important, (2) = next most important, etc. Please rank 4 or more reasons.

# Resp.

- 164 (A)  Opportunity to contribute my thoughts to improve work environment/solve local problems.
- 13 (B)  Greater opportunity to be creative at work.
- 5 (C)  Potential monetary awards
- 67 (D)  Self development and growth.
- 20 (E)  Greater opportunity for recognition of what I can contribute.
- 19 (F)  To learn more about methods/techniques.
- 17 (G)  To inter-relate more with others
- 13 (H)  Others \_\_\_\_\_

318

19. Any comments about PAT's you would like to make?

\_\_\_\_\_

\_\_\_\_\_

20. What is your role and how long have you been involved in the P.A.T. program.

Role?		How Long?	
Team Member	<u>254</u>	Months	242 < 12 mo.
Assistant Team Leader	<u>26</u>		<u>124</u> > 12 Mo.
Team Leader	<u>60</u>		366
Facilitator	<u>24</u>		
	<u>364</u>		

21. Has your Team made any Management Presentations?

261  Yes      100  No      361 Total Responses

22. What is your major organization? (Check One)

(A). Human Resources	<u>9</u>	(G).	<u>41</u>
(B). Information Services	<u>51</u>	(H). Corporate Engineering	<u>39</u>
(C). Public Affairs	<u>5</u>	(I).	<u>53</u>
(D). Exploration & Production	<u>12</u>	(J). Corporate Services	<u>93</u>
(E). Research & Development	<u>43</u>	(K). Corp. Mgmt. Services	<u>2</u>
(F). Petroleum Products Group	<u>10</u>	(L). Other: _____	<u>5</u>

23. Check applicable box:

151  Exempt      212  Non Exempt (Sal. or Hrly.)      363 Total Resp.

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE  
DECEMBER, 1983

Question	Responses & Weighting Factor*						Graph of Weighted Averages					
		+2	+1	0	-1	-2	Avg.	+2	+1	0	-1	-2
1. Have communications between you and your supervisor improved?	N %	34 9	141 39	185 51	2 1	1 1	0.56					
2. Have communications between you and your co-workers improved?	N %	68 19	206 56	86 24	5 1	1 1	0.92					
3. Has there been a change in teamwork between your work group and your supervisor?	N %	37 10	151 42	166 47	3 1	0 0	0.62					
4. Has there been a change in teamwork among the people in your work group?	N %	65 18	178 49	110 31	7 2	1 1	0.83					
5. Do you feel there has been a change in the productivity of your work group?	N %	69 19	137 38	149 42	3 3	0 0	0.76					
6. Do you feel that you have more influence on decisions that affect your job?	N %	57 16	154 43	141 39	5 1	2 1	0.72					
7. Has your supervisor's appreciation of your work performance changed?	N %	21 6	118 33	217 60	3 1	0 0	0.44					
8. Do you see more opportunities for improvement in your work area?	N %	136 38	170 47	51 14	1 1	2 1	1.21					
11. Has PAT participation changed the way you feel about your job?	N %	56 15	169 46	124 34	14 4	1 1	0.73					
12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?	N %	169 47	116 32	52 14	23 6	2 1	1.18					

42

\* Weighting Factor

- +2
- +1
- 0
- 1
- 2

General Responses  
Great Improvement  
Some Improvement  
Essentially No Change  
Worse  
Much Worse



1982 Weighted Averages

1983 Weighted Averages

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE  
DECEMBER, 1983

Question	Responses & Weighting Factor						Graph of Weighted Averages					
		+2	+1	0	-1	-2	Avg.	+2	+1	0	-1	-2
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?	N	123	140	59	28	11	0.93					
	%	34	39	16	8	3						
14. Has there been a change in your attitude towards your fellow team members?	N	87	178	90	6	1	0.95					
	%	24	49	25	2	1						
15. Considering all factors involved, do you feel the PAT process is worthwhile?	N	241	76	31	12	1	1.51					
	%	67	21	8	3	1						
16. Do you feel that monetary awards are essential to this P.A.T. Program?	N	118	96	57	58	31	0.59					
	%	33	27	16	16	9						
9. Are you better able to use your personal capabilities to improve your work environment?		N		%								
	Yes	294	82									
	No	64	18									
		358	100%									
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?		N		%								
	Yes	345	96									
	No	16	4									
		361	100%									

18. Most important reasons for participation:

1. Opportunity to contribute my thoughts to improve work environment/solve local problems.
2. Self development and growth.
3. Greater opportunity for recognition of what I can contribute.
4. To learn more about methods/techniques.
5. To inter-relate more with others.
6. Greater opportunity to be creative at work.
7. Miscellaneous (curiosity, etc.).
8. Potential monetary awards.

	N	%
1.	164	52
2.	67	21
3.	20	6
4.	19	6
5.	17	5
6.	13	4
7.	13	4
8.	5	2
	318	100%



RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1983

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
1. As a result of participating in a PAT, have communications between you and your supervisor improved?	(.56)	(.40)	(.68)	(.67)	(.65)	(.82)	(.51)	(.55)	(.61)	(.39)	(.62)
. great improvement	9.4	4.0	13.2	12.5	11.7	14.8	7.8	8.0	11.3	2.0	11.9
. some improvement	38.8	33.1	42.9	41.7	46.7	51.9	35.3	40.2	38.7	35.0	40.2
. essentially no change	51.0	62.3	42.9	45.8	38.3	33.3	56.5	51.0	49.2	63.0	46.7
. worse	0.6	0.7	0.5	0.0	1.7	0.0	0.4	0.4	0.8	0.0	0
. much worse	0.3	0.0	0.5	0.0	1.7	0.0	0.0	0.4	0.0	0.0	0.4
2. As a result of participating in a PAT, have communication between you and your co-workers improved?	(.92)	(.82)	(.99)	(.96)	(1.15)	(1.00)	(.84)	(.91)	(.92)	(.73)	(.98)
. great improvement	18.6	14.3	21.7	25.0	24.6	25.9	15.6	17.8	20.0	8.0	22.4
. some improvement	56.3	55.2	57.8	45.8	65.6	48.2	55.6	56.5	54.4	59.0	55.3
. essentially no change	23.5	28.6	19.8	29.2	9.8	25.9	26.5	24.1	24.0	31.0	20.8
. worse	1.4	2.0	0.9	0.0	0.0	0.0	2.0	1.6	0.8	2.0	1.1
. much worse	0.3	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.8	0.0	0.4
3. As a result of participating in a PAT, has there been a change in teamwork between your work group and your supervisor?	(.62)	(.50)	(.71)	(.80)	(.87)	(.74)	(.53)	(.60)	(.64)	(.42)	(.69)
. much more cooperation	10.4	6.7	13.0	5.0	18.3	14.8	8.2	10.1	9.8	1.0	17.9
. some more cooperation	42.3	36.2	46.6	70.0	50.0	44.4	37.8	41.3	44.3	42.3	4.
. essentially no change	46.5	57.1	38.9	25.0	31.7	40.7	52.8	47.4	45.9	54.6	43.9
. some less cooperation	0.8	0.0	1.4	0.0	0.0	0.0	1.2	1.2	0.0	2.1	0.4
. much less cooperation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. As a result of participating in a PAT, has there been a change in teamwork among the people in your work group?	(.83)	(.75)	(.88)	(1.00)	(1.00)	(.89)	(.76)	(.84)	(.80)	(.67)	(.89)
. much more cooperation	18.0	12.1	22.2	20.0	21.3	29.6	15.6	18.3	16.4	11.1	20.6
. some more cooperation	49.3	52.4	47.2	60.0	59.0	37.0	47.7	48.6	51.6	46.5	50.4
. essentially no change	30.5	34.2	27.8	20.0	18.0	25.9	34.4	31.5	27.9	40.4	26.3
. some less cooperation	1.9	1.3	2.4	0.0	1.6	7.4	2.0	1.6	3.3	2.0	2.3
. much less cooperation	0.3	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.8	0.0	0.4

( ) Numbers in parentheses are weighted averages.

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1983

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
5. As a result of participating in a PAT, do you feel there has been a change in the productivity of your work group?	(.76)	(.66)	(.83)	(.80)	(.82)	(.85)	(.74)	(.69)	(.91)	(.44)	(.89)
. significant increase	19.3	13.5	23.3	25.0	17.0	18.5	19.2	16.6	25.2	8.2	23.6
. slight increase	38.3	39.9	37.1	30.0	47.5	48.2	36.5	36.8	41.5	28.6	42.1
. no noticeable change	41.6	45.3	39.1	45.0	35.6	33.3	43.1	45.8	32.5	62.2	33.6
. slight decrease	0.8	1.4	0.5	0.0	0.0	0.0	1.2	0.8	0.8	1.0	0.8
. significant decrease	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(
6. As a result of participating in a PAT, do you feel that you have more influence on decisions that affect your job?	(.72)	(.76)	(.69)	(.83)	(.80)	(.89)	(.68)	(.66)	(.82)	(.59)	(.78)
. much, more influence	15.9	11.9	18.8	13.0	21.7	25.9	13.5	13.8	18.6	10.3	18.1
. somewhat more influence	42.9	53.0	35.6	56.5	41.7	37.0	42.9	41.1	46.0	39.2	43.9
. about the same influence	39.3	34.4	42.8	30.4	33.3	37.1	42.1	42.7	33.9	49.5	36.2
. somewhat less influence	1.4	0.7	1.9	0.0	1.7	0.0	1.2	1.6	1.6	1.0	1.2
. much less influence	0.6	0.0	1.0	0.0	1.7	0.0	0.4	0.8	0.0	0.0	0.8
7. As a result of participating in a PAT, has your supervisor's appreciation of your work performance changed?	(.44)	(.40)	(.47)	(.64)	(.63)	(.55)	(.37)	(.41)	(.50)	(.26)	(.51)
. much more appreciation	5.9	2.0	8.6	4.6	6.8	7.4	5.5	4.9	7.3	4.1	6.6
. somewhat more appreciation	32.9	35.6	31.0	54.6	49.2	40.7	26.8	31.3	37.1	17.4	38.7
. essentially no change	60.5	62.4	59.1	40.9	44.1	51.9	66.5	63.4	54.0	78.6	53.1
. somewhat less appreciation	0.8	0.0	1.4	0.0	0.0	0.0	1.2	0.4	1.6	0.0	1.2
. much less appreciation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1983

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
8. As a result of participating in a PAT, do you see more opportunities for improvement in your work area?	(1.21)	(1.10)	(1.30)	(1.14)	(1.25)	(1.30)	(1.19)	(1.27)	(1.07)	(1.26)	(1.20)
. many more opportunities	37.8	29.1	44.0	27.3	38.3	37.0	38.6	40.5	31.5	41.2	36.8
. a few more opportunities	47.3	52.3	43.5	59.1	48.3	55.6	44.5	47.0	46.6	43.3	47.9
. essentially no change	14.2	17.9	11.5	13.6	13.3	7.4	15.4	11.7	19.4	15.5	14.2
. a few less opportunities	0.3	0.7	0.0	0.0	0.0	0.0	0.8	0.4	0.8	0.0	0.4
. many fewer opportunities	0.6	0.0	1.0	0.0	0.0	0.0	0.8	0.4	0.8	0.0	0.8
9. As a result of participating in a PAT, are you better able to use your personal capabilities to improve your work environment?											
. Yes	82.1	83.6	81.1	95.8	85.0	81.5	80.3	84.8	75.8	86.0	81.3
. No	17.9	16.4	18.9	4.2	15.0	18.5	19.7	15.2	24.2	14.0	18.7
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?											
. Yes	95.6	96.0	95.2	95.5	95.1	92.6	95.7	95.6	94.3	98.0	94.2
. No	4.4	4.0	4.8	4.5	4.9	7.4	4.3	4.4	5.7	2.0	5.8
11. Has PAT participation changed the way you feel about your job?	(.73)	(.69)	(.75)	(.88)	(.92)	(1.04)	(.63)	(.70)	(.74)	(.58)	(.78)
. much more satisfied	15.4	11.1	18.5	16.7	16.4	33.3	12.6	14.8	15.2	8.1	17.9
. somewhat more satisfied	46.4	49.0	44.6	58.3	62.3	37.0	42.4	44.4	48.0	46.5	46.4
. essentially no change	34.1	37.9	31.3	20.8	18.0	29.6	40.8	37.2	32.0	41.4	31.9
. somewhat less satisfied	3.9	2.0	5.2	4.2	3.3	0.0	3.9	3.2	4.8	3.0	3.8
. much less satisfied	0.3	0.0	0.5	0.0	0.0	0.0	0.4	0.4	0.0	1.0	0.0

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1983

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?	(1.18)	(1.12)	(1.22)	(1.33)	(1.43)	(1.42)	(1.08)	(1.17)	(1.17)	(1.15)	(1.19)
. Definitely yes	46.7	41.7	50.2	41.7	54.1	57.7	44.1	46.4	45.2	46.4	46.4
. Somewhat	32.0	37.8	28.0	54.2	39.3	30.8	28.0	30.4	36.3	27.8	33.5
. Undecided	14.4	12.6	15.6	0.0	1.6	7.7	20.1	17.2	10.5	20.6	12.6
. Probably not	6.4	6.6	6.2	4.2	4.9	3.9	7.1	6.0	6.5	5.2	6.0
. Definitely not	0.6	1.3	0.0	0.0	0.0	0.0	0.7	0.0	1.6	0.0	0.0
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?	(.93)	(.81)	(1.02)	(1.09)	(1.18)	(1.15)	(.81)	(.93)	(.89)	(.86)	(.96)
. Definitely yes	34.1	29.6	37.3	30.4	46.7	42.3	29.8	34.5	33.1	27.1	36.9
. Probably yes	38.8	40.1	37.8	47.8	33.3	38.5	38.8	36.6	41.1	44.8	37.0
. Not sure	16.3	16.5	16.3	21.7	15.0	15.4	16.9	18.1	12.9	15.6	17.1
. Probably not	7.8	9.2	6.7	0.0	1.7	0.0	11.4	9.2	7.3	11.5	7.2
. Definitely not	3.1	4.6	1.9	0.0	3.3	3.9	3.1	1.6	5.7	1.0	3.8
14. As a result of participating in a PAT, has there been a change in your attitude towards your fellow team members?	(.95)	(.93)	(.97)	(1.21)	(1.12)	(1.00)	(.86)	(.93)	(.94)	(.86)	(.98)
. Feel much closer	24.0	22.4	25.2	34.8	30.0	30.8	20.3	23.5	23.6	18.4	25.9
. Feel somewhat closer	49.2	50.0	48.6	60.9	53.3	46.2	47.7	47.4	51.2	49.0	49.4
. Essentially no change in attitude	24.9	25.7	24.3	4.4	15.0	15.4	30.1	27.9	21.1	32.7	21.0
. Feel some less closer	1.7	2.0	1.4	0.0	1.7	7.7	1.6	1.2	3.3	0.0	2.7
. Feel much less closer	0.3	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.8	0.0	0.4
15. Considering all factors involved, do you feel the PAT process is worthwhile?	(1.51)	(1.47)	(1.53)	(1.83)	(1.67)	(1.62)	(1.41)	(1.53)	(1.42)	(1.46)	(1.59)
. Definitely yes	66.8	61.4	70.7	83.3	78.3	69.2	61.4	66.3	66.1	59.8	68.3
. Probably yes	21.0	28.1	15.9	16.7	15.0	23.1	22.4	22.1	17.7	27.8	18.3
. Neutral feelings	8.6	6.5	10.1	0.0	1.7	7.7	12.2	10.0	8.9	11.3	8.8
. Probably not	3.3	3.9	2.9	0.0	3.3	0.0	3.9	1.6	6.5	1.0	4.2
. Definitely not	0.3	0.0	0.5	0.0	1.7	0.0	0.0	0.0	0.8	0.0	0.4
Overall weighted averages	(.87)	(.80)	(.93)	(1.01)	(1.04)	(1.02)	(.80)	(.86)	(.88)	(.74)	(.93)

~~RESPONSES TO P.A.T. QUESTIONNAIRE~~  
DECEMBER, 1983

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
16. Do you feel that monetary awards are essential to the P.A.T. program?	(.59)	(.17)	(.89)	(.38)	(.45)	(.23)	(.66)	(.58)	(.57)	(.23)	(.79)
. Definitely yes	32.8	20.0	41.9	16.7	27.6	30.8	35.4	31.7	33.6	23.2	36.8
. Somewhat	26.7	26.7	26.7	37.5	29.3	11.5	26.0	27.7	24.6	27.3	25.6
. Not sure	15.8	17.3	14.8	20.8	15.5	19.2	15.8	16.5	16.4	14.1	17.1
. Probably not	16.1	22.7	11.4	16.7	15.5	26.9	15.0	15.3	16.4	20.2	14.7
. Definitely not	8.6	13.3	5.2	8.3	12.1	11.5	7.9	8.8	9.0	15.2	5.8
18. Below are a variety of reasons why people are involved in P.A.T.'s and you may want to add others. Please rank your most important reason for participation.											
. Opportunity to contribute my thoughts to improve work environment/solve local problems.	51.6	50.4	52.5	27.3	44.4	58.3	55.3	51.9	50.9	44.7	55.0
. Greater opportunity to be creative at work.	4.1	2.8	5.1	4.5	1.9	0.0	5.0	4.8	2.7	5.8	3.5
. Potential monetary awards	1.6	0.0	2.8	0.0	1.9	0.0	1.8	1.9	0.9	2.4	1.3
. Self development and growth.	21.1	22.7	19.8	40.9	25.9	25.0	17.8	21.0	21.4	22.4	19.9
. Greater opportunity for recognition of what I can contribute.	6.2	6.3	6.2	0.0	5.6	4.2	7.3	4.8	8.9	4.7	6.9
. To learn more about methods/techniq.	6.0	4.3	7.3	9.1	1.8	4.2	6.9	5.2	7.1	7.1	5.6
. To inter-relate more with others	5.3	9.2	2.3	9.1	14.8	4.2	2.3	5.2	5.4	4.7	5.2
. Other	4.1	4.3	4.0	9.1	3.7	4.1	3.6	5.2	2.7	8.2	2

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE  
DATE: 12/5/84

1. As a result of participating in a PAT, have communications between you and your supervisor improved?  
(A) 37 great improvement  
(B) 180 some improvement  
(C) 237 essentially no change as a result of PAT involvement  
(D) 3 worse  
(E) 2 much worse  
459
  
2. As a result of participating in a PAT, have communication between you and your co-workers improved?  
(A) 80 great improvement  
(B) 262 some improvement  
(C) 118 essentially no change as a result of PAT involvement  
(D) 1 worse  
(E) 0 much worse  
461
  
3. As a result of participating in a PAT, has there been a change in teamwork between your work group and your supervisor?  
(A) 50 much more cooperation  
(B) 170 some more cooperation  
(C) 223 essentially no change  
(D) 10 some less cooperation  
(E) 3 much less cooperation  
456
  
4. As a result of participating in a PAT, has there been a change in teamwork among the people in your work group?  
(A) 71 much more cooperation  
(B) 205 some more cooperation  
(C) 176 essentially no change  
(D) 5 some less cooperation  
(E) 1 much less cooperation  
458
  
5. As a result of participating in a PAT, do you feel there has been a change in the productivity of your work group?  
(A) 78 significant increase  
(B) 186 slight increase  
(C) 182 no noticeable change as a result of PAT involvement  
(D) 10 slight decrease  
(E) 2 significant decrease  
458

6. As a result of participating in a PAT, do you feel that you have more influence on decisions that affect your job?
- (A) 52 much, more influence  
 (B) 202 somewhat more influence  
 (C) 202 about the same influence  
 (D) 2 somewhat less influence  
 (E) 3 much less influence  
461
7. As a result of participating in a PAT, has your supervisor's appreciation of your contribution changed?
- (A) 35 much more appreciation  
 (B) 166 somewhat more appreciation  
 (C) 237 essentially no change  
 (D) 9 somewhat less appreciation  
 (E) 5 much less appreciation  
452
8. As a result of participating in a PAT, do you see more opportunities for improvement in your work area?
- (A) 145 many more opportunities  
 (B) 230 a few more opportunities  
 (C) 79 essentially no change  
 (D) 5 a few less opportunities  
 (E) 1 many fewer opportunities  
460
9. As a result of participating in a PAT, are you better able to use your personal capabilities to improve your work environment?
- 367 Yes  
90 No  
457
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?
- 440 Yes  
22 No  
462
11. Has PAT participation changed the way you feel about your job?
- (A) 46 much more satisfied  
 (B) 210 somewhat more satisfied  
 (C) 184 essentially no change  
 (D) 18 somewhat less satisfied  
 (E) 3 much less satisfied  
461

12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?
- (A) 219 definitely yes  
 (B) 163 somewhat  
 (C) 48 undecided  
 (D) 29 probably not  
 (E) 7 definitely not  
466
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?
- (A) 139 Definitely yes  
 (B) 198 Probably yes  
 (C) 62 Not sure  
 (D) 56 Probably not  
 (E) 9 Definitely not  
464
14. As a result of participating in a PAT, has there been a change in your attitude towards your fellow team members?
- (A) 93 Feel much closer  
 (B) 241 Feel somewhat closer  
 (C) 124 Essentially no change in attitude towards fellow team members  
 (D) 1 Feel some less closer  
 (E) 2 Feel much less closer  
461
15. Do you feel your supervisor supports your involvement in the PAT program?
- (A) 299 definitely yes  
 (B) 86 probably yes  
 (C) 49 neutral feelings  
 (D) 19 probably not  
 (E) 12 definitely not  
465
16. If the PAT process were going to be changed:
- a) what areas would you change?  
 (Various Responses)  
 \_\_\_\_\_  
 \_\_\_\_\_
- b) what areas would you definitely not change?  
 (Various Responses)  
 \_\_\_\_\_  
 \_\_\_\_\_
- c) Any comments about PAT's you would like to make?  
 (Various Responses)  
 \_\_\_\_\_  
 \_\_\_\_\_



17. Below are a variety of reasons why people are involved in P.A.T.'s and you may want to add others. Please rank your reasons for participation, with (1) = most important, (2) = next most important, etc.

# Resp.

- 221 (A)  Opportunity to contribute my thoughts to improve work environment/solve local problems.
- 19 (B)  Greater opportunity to be creative at work.
- 72 (C)  Self development and growth.
- 19 (D)  Greater opportunity for recognition of what I can contribute.
- 22 (E)  To learn more about methods/techniques.
- 32 (F)  To inter-relate more with others
- 15 (G)  Others \_\_\_\_\_
- 400

18. Considering all factors involved, do you feel the PAT process is worthwhile?

- (A) 328 definitely yes
- (B) 95 probably yes
- (C) 30 neutral feelings
- (D) 9 probably not
- (E) 2 definitely not
- 464

19. What is your role and how long have you been involved in the P.A.T. program.

Role?		How Long?	
Team Member	<u>308</u>	Months	278 < 12 Mo.
Assistant Team Leader	<u>39</u>		<u>196</u> > 12 Mo.
Team Leader	<u>74</u>		474
Facilitator	<u>44</u>		
	<u>465</u>		

21. Has your Team made any Management Presentations?

346  Yes    107  No    If yes, how many? \_\_\_\_\_ 453 Total Re<sup>sp.</sup>

22. What is your major organization? (Check One)

(A). Human Resources	<u>8</u>	(G).	<u>42</u>
(B). Information Services	<u>61</u>	(H). Corporate Engineering	<u>81</u>
(C). Public Affairs	<u>6</u>	(I). Chem. Co.	<u>41</u>
(D). Exploration & Production	<u>6</u>	(J). Corporate Services	<u>33</u>
(E). Research & Development	<u>71</u>	(K). Minerals	<u>8</u>
(F). Petroleum Products Group	<u>52</u>	(L). Other: _____	<u>2</u>

23. Check applicable box:

200  Exempt    265  Non Exempt (Sal. or Hrly.)    465 Total Resp.

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE  
DECEMBER, 1984

12/7/84

Question	Responses & Weighting Factor*						Graph of Weighted Averages					
		+2	+1	0	-1	-2	Avg.	+2	+1	0	-1	-2
1. Have communications between you and your supervisor improved?	N %	37 8	180 39	237 52	3 1	2 -	0.54					
2. Have communications between you and your co-workers improved?	N %	80 17	262 57	118 26	1 -	0 0	0.91					
3. Has there been a change in teamwork between your work group and your supervisor?	N %	50 11	170 37	223 49	10 2	3 1	0.56					
4. Has there been a change in teamwork among the people in your work group?	N %	71 16	205 45	176 38	5 1	1 -	0.74					
5. Do you feel there has been a change in the productivity of your work group?	N %	78 17	186 41	182 40	10 2	2 -	0.72					
6. Do you feel that you have more influence on decisions that affect your job?	N %	52 11	202 44	202 44	2 -	3 1	0.65					
7. Has your supervisor's appreciation of your contribution changed?	N %	35 8	166 37	237 52	9 2	5 1	0.48					
8. Do you see more opportunities for improvement in your work area?	N %	145 32	230 50	79 17	5 1	1 -	1.12					
11. Has PAT participation changed the way you feel about your job?	N %	46 10	210 46	184 40	18 4	3 -	0.60					
12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?	N %	219 47	163 35	48 10	29 6	7 2	1.20					

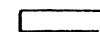
53

\* Weighting Factor

- +2
- +1
- 0
- 1
- 2

General Responses

- Great Improvement
- Some Improvement
- Essentially No Change
- Worse
- Much Worse



1982 Weighted Averages



1983 Weighted Averages



1984 Weighted Averages

Question	Responses & Weighting Factor					Graph of Weighted Averages						
		+2	+1	0	-1	-2	Avg.	+2	+1	0	-1	-2
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?	N	139	198	62	56	9	0.87					
	%	30	43	13	12	2						
14. Has there been a change in your attitude towards your fellow team members?	N	93	241	124	1	2	0.92					
	%	20	52	27	-	1						
15. Do you feel your supervisor supports your involvement in the PAT program?	N	299	86	49	19	12	1.38					
	%	64	19	11	4	2						
18. Considering all factors involved, do you feel the PAT process is worthwhile?	N	328	95	30	9	2	1.59					
	%	71	21	6	2	-						
9. Are you better able to use your personal capabilities to improve your work environment?		N		%								
	Yes	367	80									
	No	90	20									
		457	100									
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?		N		%								
	Yes	440	95									
	No	22	5									
		462	100									

17. Most important reasons for participation:

1. Opportunity to contribute my thoughts to improve work environment/solve local problems.
2. Self development and growth.
3. To inter-relate more with others.
4. To learn more about methods/techniques.
5. Greater opportunity for recognition of what I can contribute.
6. Greater opportunity to be creative at work.
7. Other

	N	%
1. Opportunity to contribute my thoughts to improve work environment/solve local problems.	221	55
2. Self development and growth.	72	18
3. To inter-relate more with others.	32	8
4. To learn more about methods/techniques.	22	5
5. Greater opportunity for recognition of what I can contribute.	19	5
6. Greater opportunity to be creative at work.	19	5
7. Other	15	4
	400	100%

	N	%
Exempt Participants	200	43
Nonexempt Participants	265	57

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE  
DECEMBER, 1984

Question	Responses & Weighting Factor						Graph of Weighted Averages					
		+2	+1	0	-1	-2	Avg.	+2	+1	0	-1	-2
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?	N	139	198	62	56	9	0.87					
14. Has there been a change in your attitude towards your fellow team members?	N	93	241	124	1	2	0.92					
15. Do you feel your supervisor supports your involvement in the PAT program?	N	299	86	49	19	12	1.38					
18. Considering all factors involved, do you feel the PAT process is worthwhile?	N	328	95	30	9	2	1.59					
9. Are you better able to use your personal capabilities to improve your work environment?		N		%								
	Yes	367	80									
	No	90	20									
		457	100									
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?		N		%								
	Yes	440	95									
	No	22	5									
		462	100									

17. Most important reasons for participation:	N	%
1. Opportunity to contribute my thoughts to improve work environment/solve local problems.	221	55
2. Self development and growth.	72	18
3. To inter-relate more with others.	32	8
4. To learn more about methods/techniques.	22	5
5. Greater opportunity for recognition of what I can contribute.	19	5
6. Greater opportunity to be creative at work.	19	5
7. Other	15	4
	400	100%

	N	%
Exempt Participants	200	43
Nonexempt Participants	265	57

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1984

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
1. As a result of participating in a PAT, have communications between you and your supervisor improved?	(.54)	(.41)	(.63)	(.61)	(.72)	(.67)	(.47)	(.51)	(.60)	(.30)	(.62)
. great improvement	8.1	2.6	12.1	7.3	13.5	15.4	5.9	7.9	8.2	3.7	9.0
. some improvement	39.2	36.6	41.1	46.3	44.6	41.0	36.8	37.2	43.1	24.3	43.6
. essentially no change	51.6	59.8	45.7	46.3	41.9	41.0	56.0	53.1	48.8	70.1	46.5
. worse	0.7	1.0	0.4	0.0	0.0	0.0	1.0	1.1	0.0	1.9	0.3
. much worse	0.4	0.0	0.8	0.0	0.0	2.6	0.3	0.7	0.0	0.0	0.6
2. As a result of participating in a PAT, have communication between you and your co-workers improved?	(.91)	(.85)	(.96)	(1.00)	(1.14)	(1.03)	(.83)	(.87)	(.97)	(.71)	(.97)
. great improvement	17.4	12.3	21.1	22.0	25.7	25.6	13.6	16.2	18.4	10.3	19.5
. some improvement	56.8	60.5	54.1	56.1	62.2	51.3	56.6	55.0	60.2	50.5	58.6
. essentially no change	25.6	27.2	24.4	22.0	12.2	23.1	29.5	28.4	21.4	39.3	21.6
. worse	0.2	0.0	0.4	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.3
. much worse	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. As a result of participating in a PAT, has there been a change in teamwork between your work group and your supervisor?	(.56)	(.49)	(.61)	(.63)	(.72)	(.72)	(.49)	(.52)	(.63)	(.31)	(.64)
. much more cooperation	11.0	8.3	12.9	7.5	18.9	18.0	8.5	10.2	12.3	5.8	12.7
. some more cooperation	37.3	36.5	37.9	48.0	37.8	41.0	35.7	36.1	40.5	24.0	41.3
. essentially no change	48.9	51.6	47.0	45.0	39.2	35.9	53.1	50.0	45.6	65.4	43.6
. some less cooperation	2.2	3.1	1.5	0.0	4.1	5.1	1.6	2.9	1.0	4.8	1.5
. much less cooperation	0.7	0.5	0.8	0.0	0.0	0.0	1.0	0.7	0.5	0.0	0.9
4. As a result of participating in a PAT, has there been a change in teamwork among the people in your work group?	(.74)	(.70)	(.77)	(.83)	(.88)	(.87)	(.68)	(.74)	(.75)	(.50)	(.82)
. much more cooperation	15.5	14.0	16.5	15.0	21.6	20.5	13.4	15.6	14.8	3.8	19.3
. some more cooperation	44.8	45.1	44.5	55.0	50.0	48.7	41.7	44.0	46.9	41.9	45.2
. essentially no change	38.4	38.9	38.1	27.5	24.3	28.2	44.6	39.3	36.7	54.3	33.7
. some less cooperation	1.1	1.6	0.8	2.5	2.7	2.6	0.3	1.1	1.0	0.0	1.4
. much less cooperation	0.2	0.5	0.0	0.0	1.4	0.0	0.0	0.0	0.5	0.0	0.3

( ) Numbers in parentheses are weighted averages.

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1984

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
5. As a result of participating in a PAT, do you feel there has been a change in the productivity of your work group?	(.72)	(.61)	(.80)	(.88)	(.91)	(.69)	(.66)	(.65)	(.85)	(.38)	(.82)
. significant increase	17.0	12.9	20.1	22.5	24.3	12.8	15.0	14.9	21.4	4.8	20.7
. slight increase	40.6	39.2	41.7	45.0	43.2	46.2	39.4	38.2	44.4	30.8	44.0
. no noticeable change	39.7	43.8	36.7	30.0	31.1	38.5	42.7	44.4	31.6	62.5	32.5
. slight decrease	2.2	4.1	0.8	2.5	1.4	2.6	2.3	1.8	2.6	1.9	2.3
. significant decrease	0.4	0.0	0.8	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.6
6. As a result of participating in a PAT, do you feel that you have more influence on decisions that affect your job?	(.65)	(.55)	(.71)	(.81)	(.79)	(.72)	(.59)	(.63)	(.69)	(.44)	(.71)
. much, more influence	11.3	6.2	15.0	16.7	14.7	18.0	9.1	11.7	11.7	3.8	14.0
. somewhat more influence	43.8	44.1	43.6	50.0	52.0	41.0	41.7	40.7	47.7	36.2	45.7
. about the same influence	43.8	48.7	40.2	31.0	32.0	38.5	48.5	46.9	39.1	60.0	38.9
. somewhat less influence	0.4	1.0	0.0	2.4	0.0	0.0	0.3	0.0	1.0	0.0	0.6
. much less influence	0.7	0.0	1.1	0.0	1.3	2.6	0.3	0.7	0.5	0.0	0.9
7. As a result of participating in a PAT, has your supervisor's appreciation of your work performance changed?	(.48)	(.39)	(.55)	(.56)	(.66)	(.51)	(.42)	(.44)	(.56)	(.27)	(.55)
. much more appreciation	7.7	3.1	11.1	9.8	13.5	7.7	6.0	7.5	8.2	2.9	8.8
. somewhat more appreciation	36.7	36.7	36.8	41.4	44.6	43.6	33.4	34.2	41.5	24.0	41.2
. essentially no change	52.4	56.6	49.4	46.3	36.5	43.6	58.3	54.5	48.2	70.2	47.1
. somewhat less appreciation	2.0	3.1	1.2	0.0	5.4	2.6	1.3	1.9	2.1	2.9	1.8
. much less appreciation	1.1	0.5	1.5	2.4	0.0	2.6	1.0	1.9	0.0	0.0	1.2

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1984

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
8. As a result of participating in a PAT, do you see more opportunities for improvement in your work area?	(1.12)	(1.01)	(1.20)	(1.10)	(1.21)	(1.23)	(1.09)	(1.17)	(1.06)	(1.03)	(1.15)
. many more opportunities	31.5	25.8	35.7	33.5	36.0	38.5	29.4	33.5	29.4	27.6	33.0
. a few more opportunities	50.0	50.5	49.6	42.9	50.7	46.2	52.0	50.0	50.3	49.5	50.4
. essentially no change	17.2	22.2	13.5	23.8	12.0	15.4	17.0	16.2	17.8	21.9	15.2
. a few less opportunities	1.1	1.6	0.8	0.0	1.3	0.0	1.3	0.4	2.0	1.0	1.2
. many fewer opportunities	0.2	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.5	0.0	0.3
9. As a result of participating in a PAT, are you better able to use your personal capabilities to improve your work environment?											
. Yes	80.3	74.6	84.5	78.1	86.7	89.7	77.6	81.3	78.9	72.0	82.6
. No	19.7	25.4	15.5	22.0	13.3	10.3	22.4	18.8	21.1	28.0	17.4
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?											
. Yes	95.2	95.9	94.7	100.0	93.3	97.4	94.8	94.6	95.9	96.2	94.9
. No	4.8	4.1	5.3	0.0	6.7	2.6	5.2	5.5	4.1	3.8	5.1
11. Has PAT participation changed the way you feel about your job?	(.60)	(.51)	(.67)	(.72)	(.79)	(.72)	(.53)	(.59)	(.64)	(.30)	(.69)
. much more satisfied	10.0	5.6	13.2	16.3	13.3	7.7	8.5	9.2	11.1	3.8	11.7
. somewhat more satisfied	45.6	47.5	44.2	46.5	56.0	56.4	41.8	46.0	46.0	31.4	49.1
. essentially no change	39.9	40.3	39.6	30.2	28.0	35.9	44.4	40.1	38.9	57.1	35.4
. somewhat less satisfied	3.9	5.6	2.6	7.0	1.3	0.0	4.6	4.0	3.5	5.7	3.4
. much less satisfied	0.7	1.0	0.4	0.0	1.3	0.0	0.7	0.7	0.5	1.9	0.3

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1984

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?	(1.20)	(1.14)	(1.24)	(1.57)	(1.44)	(1.59)	(1.04)	(1.24)	(1.17)	(.94)	(1.27)
. Definitely yes	47.0	46.7	47.2	65.9	65.5	66.7	37.7	47.7	47.5	33.3	50.6
. Somewhat	35.0	34.2	35.6	29.6	24.0	28.2	38.7	34.9	34.3	38.9	34.4
. Undecided	10.3	7.5	12.4	2.3	2.7	2.6	14.2	11.4	8.1	17.6	8.0
. Probably not	6.2	9.1	4.1	0.0	5.3	2.6	8.1	5.3	7.6	9.3	5.4
. Definitely not	1.5	2.5	0.8	2.3	2.7	0.0	1.3	0.7	2.5	0.9	1.7
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?	(.87)	(.65)	(1.03)	(1.02)	(1.07)	(1.15)	(.77)	(.86)	(.90)	(.51)	(1.00)
. Definitely yes	30.0	25.3	33.5	41.9	38.7	33.3	26.2	26.8	35.5	19.6	33.6
. Probably yes	42.7	37.4	46.6	39.5	42.7	53.9	41.4	45.3	38.1	36.5	44.2
. Not sure	13.4	17.7	10.2	2.3	8.0	7.7	16.8	15.3	10.7	22.4	10.3
. Probably not	12.1	16.7	8.7	11.6	8.0	5.1	13.9	11.8	12.2	18.7	10.3
. Definitely not	1.9	3.0	1.1	4.7	2.7	0.0	1.6	0.7	3.6	2.8	1.7
14. As a result of participating in a PAT, has there been a change in your attitude towards your fellow team members?	(.92)	(.91)	(.92)	(1.03)	(.88)	(1.05)	(.90)	(.95)	(.88)	(.80)	(.95)
. Feel much closer	20.2	16.9	22.6	22.5	17.3	33.3	19.1	21.2	19.5	14.0	22.1
. Feel somewhat closer	52.3	58.0	48.1	57.5	57.3	43.6	51.5	53.4	50.3	54.2	51.6
. Essentially no change in attitude	26.9	24.6	28.6	20.0	22.7	20.5	29.5	25.1	29.2	30.8	25.8
. Feel some less closer	0.2	0.5	0.0	0.0	1.3	0.0	0.0	0.0	0.5	0.0	0.3
. Feel much less closer	0.4	0.0	0.8	0.0	1.3	2.6	0.0	0.4	0.5	0.9	0.3
15. Do you feel your supervisor supports your involvement in the PAT program?	(1.38)	(1.36)	(1.39)	(1.42)	(1.36)	(1.59)	(1.37)	(1.35)	(1.43)	(1.31)	(1.40)
. Definitely yes	64.3	63.3	65.0	62.8	64.0	74.4	64.2	63.0	66.5	63.0	65.2
. Probably yes	18.5	18.6	18.4	23.3	18.7	18.0	17.4	19.9	16.8	16.7	18.5
. Neutral feelings	10.5	10.6	10.5	7.0	10.7	2.6	11.9	10.3	10.7	13.9	9.7
. Probably not	4.1	5.5	3.0	7.0	2.7	2.6	3.9	2.9	5.6	1.9	4.6
. Definitely not	2.6	2.0	3.0	0.0	4.0	2.6	2.6	3.9	0.5	4.6	2.0



RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1984

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
17. Below are a variety of reasons why people are involved in P.A.T.'s and you may want to add others. Please rank your most important reason for participation.											
. Opportunity to contribute my thoughts to improve work environment/solve local problems.	55.3	49.5	60.1	28.2	58.2	35.3	61.3	51.5	60.7	51.0	56.4
. Greater opportunity to be creative at work.	4.8	3.3	6.0	2.6	3.0	8.8	5.0	4.6	4.8	8.2	3.7
. Self development and growth.	18.0	19.2	17.0	43.6	17.9	29.4	12.6	20.7	14.9	18.4	17.8
. Greater opportunity for recognition of what I can contribute.	4.8	3.9	5.5	2.6	6.0	5.9	4.6	5.1	4.2	4.1	5.0
. To learn more about methods/techniq.	5.5	6.0	5.1	5.1	1.5	8.8	6.1	5.9	4.8	5.1	5.7
. To inter-relate more with others	8.0	11.5	5.1	10.3	10.5	5.9	7.3	8.9	6.6	10.2	7.4
. Other	3.4	6.6	1.4	7.7	3.0	5.9	3.1	3.4	4.2	3.1	4.0
18. Considering all factors involved, do you feel the PAT process is worthwhile?	(1.59)	(1.44)	(1.71)	(1.75)	(1.73)	(1.74)	(1.52)	(1.57)	(1.62)	(1.36)	(1.66)
. Definitely yes	70.7	60.8	78.1	84.1	77.3	82.1	65.9	68.8	72.7	54.7	75.0
. Probably yes	20.5	26.6	15.9	9.1	18.7	12.8	23.4	21.7	19.7	30.2	18.2
. Neutral feelings	6.5	8.5	4.9	4.6	4.0	2.6	7.8	7.7	4.6	12.3	4.6
. Probably not	1.9	3.5	0.8	2.3	0.0	2.6	2.3	1.1	3.0	1.9	2.0
. Definitely not	0.4	0.5	0.4	0.0	0.0	0.0	0.7	0.7	0.0	0.9	0.3
Overall Weighted Averages	(.88)	(.79)	(.94)	(.99)	(1.02)	(1.02)	(.81)	(.86)	(.91)	(.65)	(.95)

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE

DATE: 12/30/85

1. As a result of participating in a PAT, have communications between you and your supervisor improved?
  - (A) 44 great improvement
  - (B) 168 some improvement
  - (C) 246 essentially no change as a result of PAT involvement
  - (D) 3 worse
  - (E) 1 much worse

462
  
2. As a result of participating in a PAT, have communication between you and your co-workers improved?
  - (A) 78 great improvement
  - (B) 258 some improvement
  - (C) 128 essentially no change as a result of PAT involvement
  - (D) 3 worse
  - (E) 0 much worse

467
  
3. As a result of participating in a PAT, has there been a change in teamwork between your work group and your supervisor?
  - (A) 57 much more cooperation
  - (B) 173 some more cooperation
  - (C) 228 essentially no change
  - (D) 4 some less cooperation
  - (E) 2 much less cooperation

464
  
4. As a result of participating in a PAT, has there been a change in teamwork among the people in your work group?
  - (A) 61 much more cooperation
  - (B) 228 some more cooperation
  - (C) 170 essentially no change
  - (D) 5 some less cooperation
  - (E) 1 much less cooperation

465
  
5. As a result of participating in a PAT, do you feel there has been a change in the productivity of your work group?
  - (A) 76 significant increase
  - (B) 174 slight increase
  - (C) 209 no noticeable change as a result of PAT involvement
  - (D) 7 slight decrease
  - (E) 0 significant decrease

466

6. As a result of participating in a PAT, do you feel that you have more influence on decisions that affect your job?
- (A) 47 much, more influence  
(B) 192 somewhat more influence  
(C) 220 about the same influence  
(D) 5 somewhat less influence  
(E) 1 much less influence  
465
7. As a result of participating in a PAT, has your supervisor's appreciation of your contribution changed?
- (A) 40 much more appreciation  
(B) 176 somewhat more appreciation  
(C) 232 essentially no change  
(D) 6 somewhat less appreciation  
(E) 2 much less appreciation  
458
8. As a result of participating in a PAT, do you see more opportunities for improvement in your work area?
- (A) 138 many more opportunities  
(B) 249 a few more opportunities  
(C) 70 essentially no change  
(D) 5 a few less opportunities  
(E) 3 many fewer opportunities  
465
9. As a result of participating in a PAT, are you better able to use your personal capabilities to improve your work environment?
- 384 Yes  
77 No  
461
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?
- 459 Yes  
7 No  
466
11. Has PAT participation changed the way you feel about your job?
- (A) 56 much more satisfied  
(B) 205 somewhat more satisfied  
(C) 184 essentially no change  
(D) 17 somewhat less satisfied  
(E) 2 much less satisfied  
464

12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?
- (A) 223 definitely yes  
 (B) 160 somewhat  
 (C) 44 undecided  
 (D) 38 probably not  
 (E) 2 definitely not  
467
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?
- (A) 141 Definitely yes  
 (B) 192 Probably yes  
 (C) 76 Not sure  
 (D) 43 Probably not  
 (E) 11 Definitely not  
463
14. As a result of participating in a PAT, has there been a change in your attitude towards your fellow team members?
- (A) 99 Feel much closer  
 (B) 252 Feel somewhat closer  
 (C) 108 Essentially no change in attitude towards fellow team members  
 (D) 5 Feel some less closer  
 (E) 1 Feel much less closer  
465
15. Do you feel your supervisor supports your involvement in the PAT program?
- (A) 298 definitely yes  
 (B) 101 probably yes  
 (C) 41 neutral feelings  
 (D) 19 probably not  
 (E) 6 definitely not  
465
16. Considering all factors involved, do you feel the PAT activity is worthwhile?
- (A) 309 definitely yes  
 (B) 112 probably yes  
 (C) 35 neutral feelings  
 (D) 6 probably not  
 (E) 5 definitely not  
467

17. Below are a variety of reasons why people are involved in P.A.T.'s and you may want to add others. Please rank your reasons for participation, with (1) = most important, (2) = next most important, etc. PLEASE RANK 4 OR MORE REASONS.

# Resp.

- 213 (A)  Opportunity to contribute my thoughts to improve work environment/solve local problems.
- 18 (B)  Greater opportunity to be creative at work.
- 16 (C)  Potential PAT awards.
- 82 (D)  Self development and growth.
- 15 (E)  Greater opportunity for recognition of what I can contribute.
- 24 (F)  To learn more about methods/techniques.
- 33 (G)  To inter-relate more with others
- 12 (H)  Others \_\_\_\_\_
- 413

18. If the PAT process were going to be changed:

a) which of the areas in question 17 above would you change?

# Resp.      18      3      133      5      19      18      7      5      368 Total

A     B     C     D     E     F     G     H

b) what areas would you definitely not change?

# Resp.      222      11      16      21      5      11      19      306 Total

A     B     C     D     E     F     G     H

19. What is your role and how long have you been involved in the P.A.T. program.

Role?		How Long?	
Team Member	313	Months	241 < 12 Mo.
Assistant Team Leader	40		227 > 12 Mo.
Team Leader	84		468
Facilitator	28		
	465		

20. Has your Team made any Management Presentations?

398  Yes      76  No      If yes, how many? \_\_\_\_\_ 474 Total Resp.

21. What is your major organization? (Check One)

(A). Human Resources	<u>5</u>	(F). Chem./Petro.Products	<u>54</u>
(B). Information Services	<u>83</u>	(G). _____, Inc.	<u>23</u>
(C). Public Affairs	<u>4</u>	(H). Corp. Engr. & Services	<u>113</u>
(D). Exploration & Production	<u>97</u>	(I). Other:	<u>20</u>
(E). Research & Development	<u>61</u>		

22. Check applicable box:

198  Exempt      270  Non Exempt (Sal. or Hrly.)      468 Total Resp.

23. Is this the first time you have participated in the PAT survey?

275  Yes      192  No      467 Total

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE  
DECEMBER, 1985

12/30/85

Question	Responses & Weighting Factor*						Graph of Weighted Average Change				
		+2	+1	0	-1	-2	Avg. +2	+1	0	-1	-2
1. Have communications between you and your supervisor improved?	N %	44 10	168 36	246 53	3 1	1 -	.54				
2. Have communications between you and your co-workers improved?	N %	78 17	258 55	128 27	3 1	0 0	.88				
3. Has there been a change in teamwork between your work group and your supervisor?	N %	57 12	173 37	228 49	4 1	2 1	.60				
4. Has there been a change in teamwork among the people in your work group?	N %	61 13	228 49	170 37	5 1	1 -	.74				
5. Do you feel there has been a change in the productivity of your work group?	N %	76 16	174 37	209 45	7 2	0 0	.68				
6. Do you feel that you have more influence on decisions that affect your job?	N %	47 10	192 41	220 48	5 1	1 -	.60				
7. Has your supervisor's appreciation of your contribution changed?	N %	40 9	176 39	232 51	6 1	2 -	.54				
8. Do you see more opportunities for improvement in your work area?	N %	138 30	249 54	70 15	5 1	3 -	1.11				
11. Has PAT participation changed the way you feel about your job?	N %	56 12	205 44	184 40	17 4	2 -	.64				
12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?	N %	223 48	160 34	44 10	38 8	2 -	1.21				

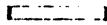



65

\* Weighting Factor

- +2
- +1
- 0
- 1
- 2

General Responses  
Great Improvement  
Some Improvement  
Essentially No Change  
Worse  
Much Worse

Overall

+0.82  1982 Weighted Average Change  
+0.87  1983 Weighted Average Change  
+0.88  1984 Weighted Average Change  
+0.88  1985 Weighted Average Change

RESPONSES TO  
PARTICIPATIVE ACTION TEAM QUESTIONNAIRE  
DECEMBER, 1985

Question	Responses & Weighting Factor					Graph of Weighted Average Change						
		+2	+1	0	-1	-2	Avg.	+2	+1	0	-1	-2
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?	N	141	192	76	43	11						
	%	31	42	16	9	2	.88					
14. Has there been a change in your attitude towards your fellow team members?	N	99	252	108	5	1						
	%	22	54	23	1	-	.95					
15. Do you feel your supervisor supports your involvement in the PAT program?	N	298	101	41	19	6						
	%	64	22	9	4	1	1.43					
16. Considering all factors involved, do you feel the PAT process is worthwhile?	N	309	112	35	6	5						
	%	66	24	8	1	1	1.53					
9. Are you better able to use your personal capabilities to improve your work environment?		N		%								
	Yes	384		83								
	No	77		17								
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?		N		%								
	Yes	459		98								
	No	7		2								

17. Most important reasons for participation:	N	%
1. Opportunity to contribute my thoughts to improve work environment/solve local problems.	213	52
2. Self development and growth.	82	20
3. To inter-relate more with others.	33	8
4. To learn more about methods/techniques.	24	6
5. Greater opportunity to be creative at work.	18	4
6. Potential PAT awards.	16	4
7. Greater opportunity for recognition of what I can contribute.	15	3
8. Other	12	3
	<u>413</u>	<u>100%</u>

	N	%
Exempt participants	198	42
Nonexempt participants	270	58



RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1985

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	IDR.	ASST. IDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
1. As a result of participating in a PAT, have communications between you and your supervisor improved?	(.54)	(.47)	(.60)	(.73)	(.68)	(.79)	(.47)	(.47)	(.62)	(.22)	(.60)
. great improvement	9.5	5.6	12.4	10.0	11.9	17.5	7.8	8.0	11.2	2.7	10.7
. some improvement	36.4	35.9	36.7	53.3	45.2	37.5	32.1	32.1	41.0	20.0	38.9
. essentially no change	53.3	58.5	49.4	36.7	41.7	45.0	59.2	59.0	47.0	74.7	49.9
. worse	0.7	0.0	1.1	0.0	1.2	0.0	0.6	0.8	0.4	1.3	0.5
. much worse	0.2	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.4	1.3	0.0
2. As a result of participating in a PAT, have communication between you and your co-workers improved?	(.88)	(.90)	(.87)	(.90)	(1.04)	(1.08)	(.80)	(.88)	(.86)	(.61)	(.93)
. great improvement	16.7	14.7	18.2	13.3	23.5	22.5	14.1	17.6	15.6	4.0	19.1
. some improvement	55.3	60.1	51.7	63.3	56.5	62.5	52.2	53.2	56.1	54.7	55.1
. essentially no change	27.4	25.3	29.0	23.3	20.0	15.0	32.5	28.8	27.0	41.3	25.1
. worse	0.6	0.0	1.1	0.0	0.0	0.0	1.2	0.4	1.3	0.0	0.8
. much worse	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. As a result of participating in a PAT, has there been a change in teamwork between your work group and your supervisor?	(.60)	(.59)	(.61)	(.83)	(.61)	(.80)	(.54)	(.51)	(.69)	(.23)	(.66)
. much more cooperation	12.3	10.7	13.5	20.0	13.1	20.0	9.9	9.6	15.0	4.0	13.7
. some more cooperation	37.3	37.1	37.5	43.3	38.1	40.0	35.3	32.4	41.6	16.0	40.5
. essentially no change	49.1	52.3	46.8	36.7	46.4	40.0	53.6	57.6	41.2	78.7	44.6
. some less cooperation	0.9	0.0	1.5	0.0	1.2	0.0	0.9	0.4	1.3	1.3	0.8
. much less cooperation	0.4	0.0	0.8	0.0	1.2	0.0	0.3	0.0	0.9	0.0	0.5
4. As a result of participating in a PAT, has there been a change in teamwork among the people in your work group?	(.74)	(.76)	(.72)	(.80)	(.80)	(.78)	(.69)	(.71)	(.75)	(.51)	(.77)
. much more cooperation	13.1	12.2	13.8	16.7	11.8	12.5	12.7	13.6	12.3	4.0	14.6
. some more cooperation	49.0	52.3	46.6	50.0	58.8	52.5	45.4	44.4	53.2	42.7	49.9
. essentially no change	36.6	35.0	37.7	30.0	28.2	35.0	40.4	41.2	32.3	53.3	34.0
. some less cooperation	1.1	0.5	1.5	3.3	0.0	0.0	1.5	0.8	1.7	0.0	1.3
. much less cooperation	0.2	0.0	0.4	0.0	1.2	0.0	0.0	0.0	0.4	0.0	0.3

( ) Numbers in parentheses are weighted average change factors (maximum = ± 2.00)

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1985

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	IDR.	ASST. IDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
5. As a result of participating in a PAT, do you feel there has been a change in the productivity of your work group?	(.60)	(.66)	(.71)	(.70)	(.77)	(.68)	(.64)	(.58)	(.78)	(.29)	(.75)
. significant increase	16.3	14.1	17.9	13.3	21.2	20.0	13.9	13.6	18.6	1.3	18.8
. slight increase	37.3	39.4	35.8	43.3	34.1	32.5	37.9	32.8	41.5	28.0	39.2
. no noticeable change	44.9	44.4	45.2	43.3	44.7	42.5	46.8	51.6	39.0	69.3	40.5
. slight decrease	1.5	2.0	1.1	0.0	0.0	5.0	1.5	2.0	0.9	1.3	1.5
. significant decrease	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. As a result of participating in a PAT, do you feel that you have more influence on decisions that affect your job?	(.60)	(.57)	(.62)	(.87)	(.65)	(.68)	(.54)	(.58)	(.62)	(.47)	(.62)
. much, more influence	10.1	8.6	11.2	20.0	9.5	15.0	8.3	10.4	9.4	4.0	11.1
. somewhat more influence	41.3	40.4	42.0	46.7	47.6	37.5	39.4	39.6	43.4	40.0	41.1
. about the same influence	47.3	50.5	44.9	33.3	41.7	47.5	50.8	48.0	46.8	54.7	46.6
. somewhat less influence	1.1	0.5	1.5	0.0	1.2	0.0	1.2	1.6	0.4	1.3	1.0
. much less influence	0.2	0.0	0.4	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.3
7. As a result of participating in a PAT, has your supervisor's appreciation of your work performance changed?	(.54)	(.50)	(.58)	(.87)	(.66)	(.78)	(.44)	(.49)	(.59)	(.28)	(.58)
. much more appreciation	8.7	5.6	11.1	10.0	11.0	20.0	6.6	9.0	9.0	2.7	9.7
. somewhat more appreciation	38.9	39.3	38.6	66.7	43.9	40.0	33.4	33.1	43.4	27.0	40.7
. essentially no change	50.1	54.1	48.1	23.3	45.1	37.5	57.8	56.3	45.9	67.6	48.1
. somewhat less appreciation	1.3	1.0	1.5	0.0	0.0	2.5	1.6	1.2	1.3	1.4	1.3
. much less appreciation	0.4	0.0	0.8	0.0	0.0	0.0	0.6	0.4	0.4	1.4	0.3

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1985

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	IDR.	ASST. IDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
8. As a result of participating in a PAT, do you see more opportunities for improvement in your work area?	(1.11)	(1.03)	(1.16)	(1.00)	(1.17)	(1.20)	(1.10)	(1.11)	(1.13)	(1.03)	(1.12)
. many more opportunities	29.7	23.2	34.5	20.0	31.3	40.0	29.5	28.7	32.1	22.4	31.3
. a few more opportunities	53.6	58.6	49.8	60.0	57.8	42.5	53.4	55.8	50.9	60.5	52.0
. essentially no change	15.1	16.2	14.2	20.0	7.2	15.0	16.0	13.9	15.4	15.9	14.9
. a few less opportunities	1.1	1.5	0.8	0.0	3.6	2.5	0.3	0.8	1.3	0.0	1.3
. many fewer opportunities	0.7	0.5	0.8	0.0	0.0	0.0	0.9	0.8	0.4	1.3	0.5
9. As a result of participating in a PAT, are you better able to use your personal capabilities to improve your work environment?	83.3	84.0	82.8	90.0	88.0	79.5	82.0	85.0	82.1	86.5	82.5
. Yes	16.7	16.0	17.2	10.0	12.1	20.5	18.0	15.0	17.9	13.5	17.5
. No											
10. Do all team members in your PAT have about an equal opportunity to make contributions to the PAT process?	98.5	98.0	98.9	100.0	98.8	95.0	98.5	99.2	97.5	100.0	98.0
. Yes	1.5	2.0	1.1	0.0	1.2	5.0	1.5	0.8	2.5	0.0	2.0
. No											
11. Has PAT participation changed the way you feel about your job?	(.64)	(.55)	(.71)	(.90)	(.74)	(.85)	(.57)	(.66)	(.62)	(.48)	(.66)
. much more satisfied	12.1	9.1	14.3	23.3	13.1	25.0	9.0	11.6	12.0	4.0	13.4
. somewhat more satisfied	44.2	39.4	47.7	46.7	51.2	35.0	44.1	46.8	41.9	45.3	44.2
. essentially no change	39.7	40.5	33.1	26.7	32.1	40.0	42.0	38.4	39.7	46.7	38.1
. somewhat less satisfied	3.7	3.0	4.1	3.3	3.6	0.0	4.3	2.8	5.1	2.7	4.0
. much less satisfied	0.4	0.0	0.8	0.0	0.0	0.0	0.6	0.4	0.4	1.3	0.3

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1985

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	IDR.	ASST. IDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
12. Do you feel the training you have received in the PAT program helps make you a more valuable employee?	(1.21)	(1.13)	(1.27)	(1.50)	(1.50)	(1.45)	(1.07)	(1.26)	(1.14)	(1.21)	(1.20)
• Definitely yes	47.8	40.9	52.8	70.0	61.9	65.0	39.5	48.2	46.2	42.1	48.0
• Somewhat	34.3	40.4	29.7	13.3	29.8	22.5	38.8	36.7	32.6	44.7	32.9
• Undecided	9.4	9.6	9.3	13.3	4.8	5.0	11.0	8.0	11.0	6.6	10.1
• Probably not	8.1	9.1	7.4	3.3	3.6	7.5	10.1	6.8	9.8	5.3	8.8
• Definitely not	0.4	0.0	0.7	0.0	0.0	0.0	0.6	0.4	0.4	1.3	0.3
13. Do you feel the time spent in PAT meetings is made up for by increased effectiveness on your job?	(.88)	(.68)	(1.04)	(1.04)	(1.02)	(1.02)	(.81)	(.90)	(.86)	(.80)	(.89)
• Definitely yes	30.5	19.4	38.6	34.5	34.5	35.0	27.5	28.8	30.9	21.1	31.7
• Probably yes	41.5	45.4	38.6	41.4	40.5	42.5	42.6	44.4	39.9	51.3	39.8
• Not sure	16.4	20.9	13.1	17.2	17.9	15.0	16.1	16.0	16.7	17.1	16.5
• Probably not	9.3	12.2	7.1	6.9	7.1	5.0	10.8	9.2	9.4	7.9	9.9
• Definitely not	2.4	2.0	2.6	0.0	0.0	2.5	3.1	1.6	3.0	2.6	2.3
14. As a result of participating in a PAT, has there been a change in your attitude towards your fellow team members?	(.95)	(.96)	(.95)	(1.00)	(1.01)	(1.05)	(.91)	(.96)	(.93)	(.91)	(.95)
• Feel much closer	21.3	21.3	21.3	20.7	23.8	22.5	20.3	20.3	22.2	18.4	21.4
• Feel somewhat closer	54.2	54.8	53.7	58.6	56.0	60.0	52.2	56.2	50.9	54.0	54.4
• Essentially no change in attitude	23.2	22.8	23.5	20.7	17.9	17.5	26.4	22.7	25.2	27.6	22.7
• Feel some less closer	1.1	0.5	1.5	0.0	2.4	0.0	0.9	0.8	1.3	0.0	1.3
• Feel much less closer	0.2	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.0	0.3
15. Do you feel your supervisor supports your involvement in the PAT program?	(1.43)	(1.54)	(1.35)	(1.60)	(1.54)	(1.53)	(1.37)	(1.40)	(1.45)	(1.37)	(1.44)
• Definitely yes	64.1	69.2	60.3	66.7	67.9	65.0	61.2	61.6	64.3	60.5	63.9
• Probably yes	21.7	19.7	23.2	26.7	21.4	25.0	22.5	23.2	23.0	26.3	21.7
• Neutral feelings	8.8	7.1	10.1	6.7	7.1	7.5	9.5	10.0	7.2	5.3	9.3
• Probably not	4.1	4.0	4.1	0.0	3.6	2.5	4.9	4.0	4.3	5.3	4.0
• Definitely not	1.3	0.0	2.3	0.0	0.0	0.0	1.9	1.2	1.3	2.6	1.0

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1985

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	LDR.	ASST. LDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
16. Considering all factors involved, do you feel the PAT activity is worthwhile?	(1.53)	(1.47)	(1.58)	(1.70)	(1.60)	(1.50)	(1.47)	(1.58)	(1.47)	(1.48)	(1.53)
. definitely yes	66.2	60.1	70.6	76.7	73.8	67.5	62.4	68.9	62.7	64.5	65.6
. probably yes	24.0	29.3	20.1	16.7	21.4	22.5	26.0	23.1	25.4	23.7	24.6
. neutral feelings	7.5	8.6	6.7	6.7	3.6	5.0	9.2	6.4	8.9	9.2	7.5
. probably not	1.3	1.0	1.5	0.0	1.2	2.5	1.2	0.4	2.1	0.0	1.5
. definitely not	1.1	1.0	1.1	0.0	0.0	2.5	1.2	1.2	0.9	2.6	0.8
17. Below are a variety of reasons why people are involved in P.A.T.'s and you may want to add others. Please rank your most important reason for participation.											
. Opportunity to contribute my thoughts to improve work environment/solve local problems.	51.6	46.0	56.1	16.7	54.4	50.0	54.6	50.9	52.2	58.2	50.6
. Greater opportunity to be creative at work.	4.4	4.3	4.4	6.7	5.1	0.0	4.3	4.5	3.9	3.0	4.6
. Potential PAT awards.	3.9	1.6	5.7	0.0	1.3	0.0	6.4	3.6	5.3	6.0	4.0
. Self development and growth.	19.9	22.7	17.5	60.0	21.5	27.8	13.8	20.5	19.3	13.4	20.5
. Greater opportunity for recognition of what I can contribute.	3.6	4.3	3.1	10.0	5.1	5.6	2.1	3.1	3.9	4.5	3.4
. To learn more about methods/techniq.	5.8	6.0	5.7	0.0	2.5	2.8	7.5	7.1	3.9	6.0	5.7
. To inter-relate more with others	8.0	10.8	5.7	3.3	10.1	11.1	7.8	7.6	8.7	6.0	8.5
. Other	2.9	4.3	1.8	3.3	0.0	2.8	3.6	2.7	2.9	3.0	2.8

RESPONSES TO P.A.T. QUESTIONNAIRE  
DECEMBER, 1985

QUESTION AND RESPONSES	% DISTRIBUTION										
	OVERALL	EMPLOYEES		ROLE IN P.A.T.				TIME IN P.A.T.		PRES. MADE	
		EXEMPT	NON-EXEMPT	FAC.	IDR.	ASST. IDR.	MEMBER	UNDER 12 MO.	OVER 12 MO.	NO	YES
18. If the PAT process were going to be changed: which of the areas in question 17 above would you change?											
• Opportunity to contribute my thoughts to improve work environment/solve local problems.	5.0	3.4	5.9	3.6	4.6	3.1	5.2	4.1	5.4	3.6	5.1
• Greater opportunity to be creative at work.	0.8	0.0	1.4	0.0	1.5	0.0	1.2	0.5	1.6	0.0	1.0
• Potential PAT awards.	36.1	33.8	37.7	60.7	43.9	31.3	31.1	30.6	41.2	23.6	37.7
• Self development and growth.	1.6	1.4	1.8	0.0	0.0	6.3	1.6	2.1	1.1	5.5	1.0
• Greater opportunity for recognition of what I can contribute.	5.2	5.4	5.0	3.6	1.5	12.5	5.6	5.2	5.4	7.3	5.1
• To learn more about methods/techniq.	4.9	4.7	5.0	7.1	9.1	6.3	4.0	5.2	5.4	7.3	4.8
• To inter-relate more with others	1.9	0.7	2.7	3.6	0.0	9.4	1.2	1.6	2.1	0.0	2.2
• Other	1.4	1.4	1.4	0.0	0.0	0.0	2.0	1.6	1.1	1.8	1.3
• None	43.2	49.3	39.1	21.4	39.4	31.3	48.2	49.2	36.9	50.9	42.1
what areas would you definitely not change?											
• Opportunity to contribute my thoughts to improve work environment/solve local problems.	72.6	77.4	69.6	54.2	80.0	58.3	74.3	73.8	71.6	84.4	70.8
• Greater opportunity to be creative at work.	3.6	1.7	4.7	0.0	1.8	4.2	4.3	3.8	3.2	0.0	4.2
• Potential PAT awards.	5.2	4.4	5.8	4.2	5.5	4.2	5.7	3.8	7.1	4.4	5.3
• Self development and growth.	6.9	8.7	5.8	33.3	0.0	16.7	4.8	6.9	7.1	4.4	7.2
• Greater opportunity for recognition of what I can contribute.	1.6	0.0	2.6	0.0	3.6	0.0	1.4	2.5	0.7	0.0	1.9
• To learn more about methods/techniq.	3.6	0.9	5.2	4.2	7.3	8.3	1.9	4.4	2.6	2.2	3.8
• To inter-relate more with others	6.2	7.0	5.8	4.2	1.8	8.3	7.1	4.4	7.7	4.4	6.4
• Other	0.3	0.0	0.5	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.4
Overall Weighted Averages	(.80)	(.84)	(.91)	(1.03)	(.99)	(1.01)	(.82)	(.86)	(.89)	(.71)	(.91)

VITA

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