



THE GROUP REP: EFFECTIVE DECENTRALIZATION OF APPLICATIONS SUPPORT

Steven E. Naron
Manager, Application Programming and Support Division
Computing Services Department
The Center for Naval Analyses,
An Affiliate of the University of Rochester
2000 N. Beauregard Street
Alexandria, Virginia 22311
(703)998-3854

Introduction

At the Center for Naval Analyses (CNA), we have succeeded in providing computation application support to all parts of this decentralized research organization by decentralizing our staff.

CNA is divided into four functionally separate departments, each overseen by a Vice President and broken functionally into smaller programs or divisions. Three departments do studies of day-to-day Navy operations, long-term Navy planning, and the Marine Corps; the fourth is concerned with CNA's administration.

Applications Support operates in an environment much like that of any university user services group serving users with a wide variety of needs, skills, and applications. The application consultants are call Group Representatives.

The Group Reps, serving as the first line of consulting support, share office space with the study teams they support. They speed communications throughout CNA and are in a position to gain detailed knowledge about applications peculiar to their projects. They also tend to build close working relationships with their "customers."

Permission to copy without fee all or part of this material is granted provided that the copies are not made or distributed for direct commercial advantage, the ACM copyright notice and the title of the publication and its date appear, and notice is given that copying is by permission of the Association for Computing Machinery. To copy otherwise, or to republish, requires a fee and/or specific permission.

© 1982 ACM 0-89791-088-5/82/011/0174 \$00.75

Among these Group Reps, technical specialties are divided on the basis of individual skills and interests. These range from computer languages, through computational and analytic techniques, to microcomputers and graphics. These specialties are well advertised through newsletters, courses, and local Group Reps. Again, closeness to the work has improved communication and service. Each Group Rep is the primary supporter of one or more technical specialties and serves as the backup of several more. In the long run, Group Reps tend to support technical specialties used in the research programs they serve.

Finally, Group Reps are often major participants in research for CNA's clients in the Department of the Navy and elsewhere. Research results are reported at the highest levels of government and often affect important decisions. There are four useful results of such participation in research. First, the Group Rep gains greater respect from the line organization. Second, being a "user" endows the Group Rep with a little more understanding and even a touch of humility. Third, the Group Rep develops experience with new tools. Finally, the Group Rep who wants a career path into the line organization is thus provided with one.

The remainder of this paper covers issues that may prove useful to anyone who is considering the advantages of setting up a similarly oriented user services organization. The appendix tries to define the Group Rep position in more detail.

Motivation

Why bother with a Group Rep arrangement? After all, simpler management schemes exist, and this system has its share of problems. We bother because this system has proven to be an effective motivator.

In Frederick Herzberg's important work on employee motivation, we find a theoretical foundation for the Group Rep program. Herzberg isolated important factors affecting job attitudes. He found that the factors that contribute most to significant job dissatisfaction tend to be extrinsic to the job. These factors -- Herzberg termed them "hygiene factors" -- are of the carrot-and-stick school of management. To work, they must be used constantly, often in increasing doses (Ref. 1). (See Table 1.)

Herzberg also isolated "motivator" factors, which, handled properly, most often cause the greatest satisfaction. These factors are typically intrinsic to the job. (See Table 1.)

Hygiene Items	Motivators
Company policy and administration	Achievement
Supervision	Recognition
Relationship with supervisor	Work itself
Work conditions	Responsibility
Salary	Advancement
Relationship with peers	Growth
Personal life	
Relationship with subordinates	
Status	
Security	

Table 1 - Factors That Affect Job Attitudes (Ref. 1)

The hygiene factors are not in themselves good motivators, only sources of dissatisfaction to various degrees. Most classic management theory tells us how to minimize these factors as a source of irritation, and most enlightened companies do, in fact, try to deal with them. Unfortunately, increasing fringe benefits and wages, or instituting human relations techniques and employee counseling can not provide long-term motivation. True motivation of this kind must come from the job itself.

The Group Rep program is a form of meaningful job enlargement tailored to the type of employee who is most likely to be a successful scientific applications consultant. This job enlargement tends to involve directly the motivators I just discussed. (See Table 2.)

PRINCIPLE	MOTIVATORS INVOLVED
A. Removing some controls while retaining accountability	Responsibility and personal achievement
B. Increasing the accountability of individual for own work	Responsibility and recognition
C. Giving a person a complete natural unit of work (module, division, area, and so on)	Responsibility, achievement, and recognition
D. Granting additional authority to an employee in his activity; job freedom	Responsibility, achievement, and recognition
E. Making periodic reports directly to worker himself rather than to his supervisor	Internal recognition
F. Introducing new and more difficult tasks not previously handled	Growth and learning
G. Assigning individual specific or specialized tasks, enabling him to become expert	Responsibility, growth, and advancement

Table 2 - Principles of Effective Job Enlargement (Ref. 1)

Just any job enlargement will not do. More of the same is not enough! Challenging employees to double the number of bolts they tighten in a day is not likely to result in improvements in long-term motivation.

How does the Group Rep system work out? Group Reps have natural, easily defined units of work in their slices of the organization, technical areas, and projects. We publicize these responsibilities and make them more visible, increasing individual accountability. As Group Reps grow into their responsibilities, they are given the opportunity to set their own priorities, subject to overriding organizational constraints. This freedom provides them with authority over their own jobs. For this reason, we try to provide them with some slack in their deadlines.

All staff members contribute to Applications Support Division progress reports. Opportunities abound in all directions of responsibility for new and more difficult tasks. We take volunteers for unallocated responsibilities. Group Reps can promote new courses, specialized user groups, new software, and related activities. We are constantly trying to build new expertise into our staff.

It takes a great deal of psychic energy to be a good consultant. It must come from inside. If consultants are truly motivated and are willing sponsors and entrepreneurs, their manager should simply stay out of their way. It is the manager's responsibility to deal with Herzberg's "hygiene" issues and to impose the necessary oversight procedures and priorities. Anything more can waste energy, time, and motivation.

User Satisfaction

One study involving a variety of companies (Ref. 2) showed the following as primary reasons contributing to user dissatisfaction with DP user services:

- Poor attitude by those supplying the services
- Promises not kept
- Bad estimates
- Little or no communications
- Failure to give status reports.

The original purpose of the Group Rep program was to combat these kinds of problems and/or perceptions by the users. The physical and psychological distances were part of the problem. Another factor was poor on-line and batch response time when the central computer facility was saturated. Little can go well when the underlying computer resources are inadequate. Still, a change was needed. We experimented with the Group Rep concept in an evolutionary fashion, placing one Group Rep at a time, as staff turnover allowed. Since that start, we have gone through good and bad computer performance, without anything like the user dissatisfaction we used to see. The Group Rep program seems to make up for occasional shortcoming in the computing services delivered.

Selecting Good People

In the Group Rep program, the right people must be fitted, one at a time, into the line organization. The Group Reps must have the right human and technical skills, as well as sensitivity to the study programs they support. Not all people can be motivated by this job or can make good consultants. We try to attract egos satisfied by what we provide. We are looking for employees with empathy, flexibility, decisiveness, logical ability, communication skills, intelligence, and proper attitude, as well as ego motivation (Ref. 3). We should add to this list a joy of learning and sponsoring new things and, of course, a collection of technical skills.

For our Applications Support staff, we have hired mathematicians, statisticians, a physicist, a sociologist, a marine biologist, and even computer scientists. Their formal educations have ranged from nearly a B.S. to almost a Ph.D. All have come to CNA with significant computer experience and an expressed willingness to learn. We have found that attitude is the most important determinant of success.

In two successful instances, we have moved people from the line organization into Computing Services. The feel for the research program and the working relationships they had established outweighed by far any lack of specialized education or experience.

Unfortunately, our selection criteria, while producing an effective shop, have sometimes left us weak in such specialized areas as data management and simulation. Further, finding people with all the skills needed to replace our multifaceted Group Reps is seldom feasible. Often, the nature of the work and support need to be changed because of turnover in the staff, while the new members acquire experience and training in specialized areas. Naturally, any critical support has always been staffed.

Keeping Good People

The Group Reps represent a large investment in human capital. They become expensive to replace. These are major causes of DP personnel turnover found elsewhere (ref.4):

- (1) Limited opportunity to learn new skills and perform a variety of tasks
- (2) Disappointment at being overlooked for promotion
- (3) Obsolescence in an employer's facilities or procedures
- (4) Ill-defined, non-existent, or severely limited career paths
- (5) Desire for firsthand experience in new industry applications areas
- (6) Frustration at being involved in an overly ambitious development project
- (7) Real or imagined inequities in salary.

The Group Rep system alleviates some of these causes for turnover without seeming to worsen any. As we have seen, the opportunity for new skills and a

variety of tasks is the heart of this system (cause 1 above). The Group Reps are expected to promote new applications (cause 5) and gain expertise in them. They are in a position to participate in change and thus make an active fight against obsolescence in computing facilities and procedures (cause 3). For example, during our present computer acquisition study, four Group Reps are studying the offerings of major computer hardware vendors that would be new to CNA. Also some Group Reps have taken it upon themselves to study such issues as graphics, personal computers, and procedures for data administration.

Certainly all software developers get involved in overly ambitious projects from time to time (cause 6). It seems our fate to be too optimistic. That is why close tabs and old-fashioned management controls must be exercised. Careful sizing and project review are required. Formal approval for new project participation is necessary. Without it, both the user and Group Rep could experience disabling frustration.

Opportunities for promotion are limited to irregular and often infrequent situations (cause 2). We approach the problem in several ways. First, we have neutral job titles to avoid unnecessary irritations. Second, we permit movement into the line organization. Third, Group Reps get specific types of management experience because they oversee aspects of work in their slice of the organization. The opportunities for varied experiences and the ability to move into the line organization can provide a form of career path (cause 4).

Avoiding real salary inequities is one reason we have managers (cause 7). The openness of the CNA personnel performance and salary review give the manager a chance to telegraph this approach to the Group Reps. We try not to lose this opportunity.

Communications

The informal communication channels opened by the Group Reps can go a long way toward justifying the effort to install the Group Rep system. Many an explosive situation has been caught in time and defused by the individual "on the spot." The "inward" flow of problems and issues from the Group Reps is extremely useful. Because of the visibility of Group Reps' responsibilities, any failure to communicate is conspicuous and usually retrievable.

The Group Reps, in turn, deserve special "outward" communications. If they were treated as users, there would be less reason for loyalty and teamwork between themselves and the rest of the Computing Services Department. Among the communication vehicles are frequent meetings, formal and informal, for sharing problems, and monthly progress reports from each Group Rep of about one page of text. These progress reports are merged into an Applications Support Division progress report and every Group Rep has a chance to review and edit the material before it is made final.

The personnel performance and salary review, although prepared only once a year, is a surprisingly useful means of communication because each Group Rep, their manager, and the Computing Services Director add comments and have an opportunity to read them. The line organizations, too, are canvassed for comments, plus or minus. This is an appropriate time to review how individual goals may have changed. The factors that motivate workers -- all workers -- are subject to change and must be reviewed, if professional achievement and satisfaction are to be advanced.

Finally, the Group Reps' manager should be willing to ask tough questions and be a good listener because important information comes from unexpected sources. We have found that the line organizations are willing to provide criticism and praise for the Group Reps -- but only if prompted. Unless such prompting goes on, problems that could easily be solved may instead fester.

We try to use every opportunity to tell the rest of CNA about the special skills and accomplishments of our Group Reps. Tooting our horn is good public relations, and naming names tells the users where to find help. Such a policy can also set off this special class of employee better. We publicize names in our newsletter, our short technical reference sheets, and wherever our short courses are mentioned. We cross-reference names by expertise: on-line and on bulletin boards. All organization-wide memos go out under the writers' names. In every terminal room, the name of the local Group Rep is posted near the telephone. Finally, the names of Group Reps appear, whenever appropriate in the CNA Quarterly Progress Report, which goes to a fairly large audience in the Department of Defense and outside.

Delegation

The Group Reps' manager must learn to delegate without delay. He must resist the temptation to seize projects and hold them, especially those that seem particularly interesting. Otherwise, the manager becomes a source of delay. Group Reps generally volunteer for projects. Where the manager must make the choice, he takes account of the availability and experience (or need for experience) of the Group Reps, as well as the priority assigned the various projects. The Group Reps' manager must continue to periodically review all the ongoing efforts.

Limitations

The Group Rep program may be hard to install in an existing organization in which user services are centralized. It is natural to look upon an assignment "to the boonies" as a cut in status. This attitude must be overcome by the Group Reps' manager. Top management knows the reason for such an assignment and can usually appreciate the maturity of the individual Group Rep who sees it that way. At CNA, the position is both visible and popular. Here's proof: the last time we had a position open many members of the line staff asked to be considered for the job.

Since the Group Rep system was installed, CNA itself has gone through a major restructuring of the line organization. Some reassignment of the Group Reps was necessary. The move went smoothly. The Group Reps and organizations served were happy with the new assignments. Otherwise no intentional rotation of Group Reps between research programs has taken place. The Group Reps are well matched to the programs they serve. Any Group Rep who moves must, of course, spend some time getting up to speed, though not nearly to the same degree as a new employee. Further, the sharing of corporate experience seems likely to make the rotated Group Rep a valuable resource. In the future we plan to promote some Group Rep rotation for the benefits we foresee for CNA and the individuals involved.

Conclusions

The Group Rep system works at CNA. It should work elsewhere. It is a collection of not very original ideas that work well in a user services environment where users allow consultants full participation. It can bring motivation to the job and provide a career path that allows for real growth by the individual.

References

1. Herzberg, Frederick "One More Time: How Do You Motivate Employees?"
How Successful Executives Handle People, Harvard Business Review,
vol.46 no.1, Jan-Feb 68, pp53-62.
2. "Study finds 60% of users happy with DP depts.", Computerworld,
19 April 82, p4.
3. "Happy Shop? Find What Motivates People", Management Information
System Week, 9 June 1982, p58.
4. "Exec identifies seven reasons why DPers quit", Computerworld,
19 April 82, p25.

Appendix

What follows is drawn from a memo, June 1981, that defines the many-faceted functions of the Group Reps. It was meant as a guideline, not as a set of minimum requirements. This outline was contributed to, and reviewed by, the Group Reps.

The Group Rep has a highly visible, professional consulting position. Because of the nature of that role, Group Reps must enjoy considerable latitude in their help to their research groups. Because each Group Rep has different strengths, interests, and backgrounds and each research group has different needs and problems, a single, standardized job definition would be useless. The following is a general outline of the responsibilities of the Group Rep. A rough priority is implied by the order of sections II through IX.

I. CS Department Responsibilities

- A. Feed work whenever appropriate to specialists in Applications Division.
- B. Inform Applications specialists of issues affecting their work in each research department.
- C. Work with Systems and Operations on problems and future plans.
- D. Present rundown at weekly meetings on activities between Group Rep, Applications Support, and Computing Services.
- E. Involve other members of Computing Services staff in effort whenever appropriate.

II. Answer Group's questions

- A. Preempt most activities.
- B. Keep a brief log of which users were helped, questions asked, and the answers.
- C. Refer problem to other members of CS, when required, call ahead and confirm details.

III. Follow-up

- A. Check day or so later to determine if suggestions were correctly used.
- B. Follow-up referrals as sender and receiver.
- C. Note follow-up in log.

IV. Know Computer Users in group

- A. Track weekly usage: amount and tools (cf. VI.C.2).
- B. Meet on a regular basis (at least informally once a week.)

V. Know Research department

- A. Attend group meetings.
- B. Meet (at least once per month) and be on-call to the group

director.

VI. General Project Support

- A. Know about on-going studies:
 - 1. Read study plans.
 - 2. Monitor Milestone Report.
 - 3. Peruse intermediate publications.
 - 4. Meet all study directors - at least twice a month if their study uses computation.
 - 5. Attend initial teach-ins.
 - 6. Attend lunchtime study reviews.
- B. Get involved early:
 - 1. Find opportunity for Group Rep or other CS staff contribution where appropriate and effective.
 - 2. Suggest opportunities for automation or problems with existing automation plans.
- C. Monitor usage and activities for appropriateness, quantity, and efficiency including:
 - 1. Program tools and methods
 - 2. Computer resources (coordinate all medium-to-large uses both within group and CNA-wide.)
- D. Help plan schedule of computer usage.
- E. Oversee computer programming and documentation standards.
- F. Help archive all computer readable and computation-related material.

VII. Individual expertise (i.e. Data Management, APL, Statistics, etc.)

- A. Be available for special consulting.
- B. Maintain expertise - readings, projects, conferences.
- C. Monitor use of related tools.
- D. Improve capabilities and documentation.
- E. Teach related courses.
- F. Contribute to Newsletter, TECHNOTE, and HELP documentation.
- G. Sponsor use and improvements in related tools.
- H. Seek out users and arrange users groups.
- I. Spend a maximum of 20 hours in any week on this.

VIII. Direct Formal Project Participation

- A. Make sure other activities are covered.
- B. Do no more than two at a time.
- C. Charge time and computer to project.
- D. Document scope and need.
- E. Obtain formal approval from Manager, Applications Support, to prevent overly optimistic estimates.
- F. Maintain milestone progress;
notify Manager, Applications, at first sign of slippage.

IX. Facilities

- A. Use group's terminal rooms daily.
- B. Report all problems to Operations and check repairs completed.
- C. Check documentation on tables and boards for timeliness.