MORE NEEDS ANALYSIS

BY DALE F. BARR

In the February, 1980 issue of the *Training and Development Journal*, an article was published about a needs analysis conducted for first-line supervisors in the Kentucky State Department for Human Resources. I applaud the attention given the very real problem of "yesterday a technical wiz, today a supervisor of technical wiz's." In the Bell System this problem has plagued us for years. But with adequate staff and time made available, the needs analysis process was taken a few steps further in a recent study of first-line supervisors.

Webster defines the word "analysis" as "separation of a whole into its component parts; an examination of a complex, its elements, and their relations." And that is exactly what took place last year. I managed a Bell System-wide task force to investigate the generic managerial skill needs of newly appointed first-line supervisors. Members of the task force were subject matter experts. With their

help, and a relatively free hand in managing the project, we were able to go beyond administering simply a survey instrument. I offer our methodology as an alternative for those who are as fortunate as I in terms of being free from time constraints and having the assistance of some very talented people.

The two major activities that provided the task force with data leading to identification of deficiencies and recommendations for their remedy were:

1. Construction of a *mastery model* which details the various management processes by sequential steps, and the associated skills and knowledge required to perform the management process.

2. Administration of a *diagnostic test* to measure the actual performance of the target population against the mastery model.

Constructing a Mastery Model

As the first step in constructing the mastery model, the task force developed a plan for gathering data. It was determined that certain variables should be factored in

when building the mastery model, and again when administering the diagnostic test, to ensure the data would be representative of the target population. The significant variables included were:
- sex
- race
- hired off the street *vs* promoted
- education
- Bell System Training
- Bell Operating Company
- departmental affiliation
- similarity of previous job to supervisory position (analogous background *vs* non-analogous background)
- work location (rural *vs* urban)

Task force collected data for building the model by interviewing and observing first-level supervisors identified by their respective companies as master performers (highly competent supervisors), and by interviewing their second level bosses. The interview approach was taken because the task force determined that data of sufficient detail to build the mastery model could most efficiently be obtained by this method. Observ-

ing the master performer was used when the interview technique failed to give us the necessary step-by-step detail.

The primary purpose of the interviews was to obtain data on activities performed by the master performers in carrying out their roles as supervisors. The interviews focused on 14 managerial processes identified in a preproject study, which was done to determine the general areas to be investigated/studied and the payoff to be tained in taking remedial action. The task force intended also to identify other managerial processes performed at the first level during the interviews. The 14 processes were defined as follows:

Career Counseling is helping subordinates achieve realistic personal job goals. It includes the planning of activities to help place subordinates in appropriate jobs.

Coaching is the process which includes activities to help a subordinate learn to do a job correctly.

Communication is the process used to select the method of communication appropriate for a particular situation.

Controlling the work is applying the results of planning to the people who will be doing the work and to the materials they will use. This includes assigning the work, checking its progress, and measuring the work.

Create and/or Maintain a Motivative Atmosphere includes activities which may lead to an environment conducive to efficient work.

Feedback is informing subordinates how their job performance compares with job requirements so that future job requirements can be met or exceeded.

Formal Oral Communication (Meetings) includes one-to-one encounters (e.g., appraisal sessions) or meetings with more than one person. It requires some preparation and/or some structure during the communication.

Informal Oral Communication occurs in an unstructured situation and requires little or no preparation.

Knowledgeable Representative of the Bell System is a manager within the Bell System perceived as a representative of the Bell System by customers, neighbors, civic groups and subordinates. This process involves representing and sharing knowledge of the Bell System when appropriate.

Planning is the duty performed by the supervisor individually before implementing a course of action. The end result of the *planning* process provides all the information needed to begin to manage an area of responsibility.

Problem Solving is a process used by a supervisor to solve day-to-day problems while managing the work.

Self Development is the process used when supervisors identify their own requirements for producing better results on the current job and implementing plans to meet those requirements.

Time Management is the scheduling of administrative responsibilities. It includes handling telephone calls, office paper flow, and work activities most efficiently.
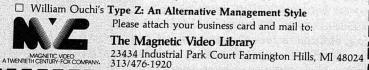
Written Communication includes activities such as writing letters, reports or memos, completing forms or maintaining local documentation.

In order to meet Bell System Training Development Standard sampling requirements, interviews were conducted with 52 people in five departments/segments across three Bell System Operating Companies and AT&T Long Lines.

Construction of Mastery Model and Diagnostic Test

The interview data was summarized and analyzed in order to:

- define characteristics of the various processes such as their importance, and frequency of performance;
- develop flowcharts that would graphically depict the work flow and related decision points (contingencies);
- develop output standards for the processes; and
- derive the skills and knowledge required to perform each process.

Once the first draft of the mastery model was completed it was submitted for critique to a group of subject matter experts throughout the Bell System. This group included training department managers and instructors, second-level supervisors, and other first-level master performers. After receiving their endorsements, additions and/or deletions, the final version of the mastery model was constructed for the 14 processes, which also included flowcharts.

After the mastery model was complete a diagnostic test was developed to accomplish three things:

- to support the model of mastery performance at first level;
- to determine the target population's entry level skills and knowledge; and
- to determine the areas where deficiencies in the target population existed by comparison with the first level mastery model.

Decisions about who to test, what to test, and how to test were made. The target population was first-level supervisors identified by their own Bell System Operating Companies; it included two groups: supervisors who are master performers, and supervisors who are newly appointed.

By testing both groups we were able to determine the skill and knowledge level of each. This enabled us to diagnose performance deficiencies more accurately, and design training for newly appointed first-level supervisors. We were able to verify also the mastery model by testing the master performers. The total sample selected to participate in the diagnostic test was 460 first-level supervisors. They represented the departments and variables previously identified as potentially impacting performance, and were spread across 20 Bell System Operating Companies.

The next considerations were what to test and how to test it. Each skill (200) and knowledge (380) contained in the mastery model was considered for inclusion in the diagnostic test. Each of the latter was placed in one of three categories:

1. not to be tested,
2. to be tested in writing, and
3. to be tested through observation or simulation.

The task force had three reasons not to include a particular skill or knowledge in the test. They were:

1. the skill or knowledge was included as a definition,
2. the skill or knowlewdg was tested in another portion of the test, and
3. the skill or knowledge was considered too obvious.

After decisions were made about what and how to test a particular skill or knowledge, a three-part diagnostic instrument was developed by the task force:

Objective: short essay, multiple choice, true/false, etc., questions on selected skills/knowledge from all of the 14 processes of the mastery model.

Simulation: a written activity similar to an in-basket exercise, involving the managerial processes of *planning* and *controlling*, and

Role Play: a situation involving the test participant role playing as a supervisor and a task force member as the subordinate, which measured the test participant's performance in informal oral communication, feedback to and coaching of a subordinate, controlling the work and written communication.

The diagnostic test and mastery model were sent to outside consultants selected by AT&T for assessment of the test's content validity. The consultants confirmed that all three sections were valid measures of the mastery model.

A face validity check was made by asking each person who took the diagnostic test how well the test measured skills and knowledge they needed to perform their jobs.

The task force also performed a reliability test on those of its members who scored the role play portion of the diagnostic. During the trial of the test, task force members compared their scoring of the same role play. Reliability testing

was continued until there was less than a five percent difference in the scoring by different members of the task force. The diagnostic test was then administered to the target population and the results were summarized by a computer program in order to assist in analyzing the data by variables.

Skill and knowledge deficiencies were evident in each of the 14 processes. These deficiencies were reviewed according to the variables studied to determine if training needs differed. In order to determine the criticality of taking remedial action within each process, a formula was used that translated data related to eight factors into a common mathematical language for each of the 14 processes. The latter then could be given ranks based on a comparison of the eight factors. For each process, the eight factors addressed were:

1. number of deficient skills and knowledge within a process;
2. number of key decision points within a process;
3. criticality ranking by master performers (highly competent supervisors) in the *test* population;
4. criticality ranking by second levels (supervisors of the master performers);
5. criticality ranking by first level master performers who were interviewed for development of

the mastery model;
6. number of times a process is performed by first-level supervisors;
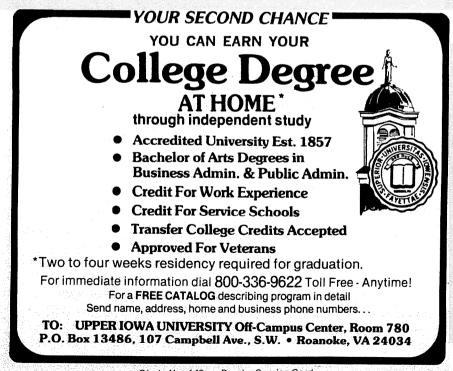7. amount of time spent on performing a process; and
8. complexity of the process.

The formula gave each process a possible total weight ranging from zero points (least important to address) to 48 points (most important to address). The results are shown as follows:

Planning the Work 45
Controlling the Work 45
Problem Solving 40
Provide Performance Feedback 36
Coaching a Subordinate 34
Create and/or Maintain a
    Motivative Atmosphere 33
Time Management 32
Communication 31
Informal Oral Communication 31
Self Development 21
Written Communication and/or
    Documentation 21
Knowledgeable Representative
    of the Bell System 15
Career Counseling a Subordinate 12
Formal Oral Communication (Meetings) . . . 8

The four major recommendations presented to the AT&T Human Resource Advisory Board were:

1. Based on the weightings of planning the work, controlling the work, and problem solving, as well as the associated role that feedback plays in each, the task force recommended that the deficient skills and knowledge in these four

processes be remedied immediately through training. These processes are labeled the "survival" processes, because they are essential for a new supervisor to be effective on the job and to provide results.

2. The task force recommended that deficiencies in the next five processes listed in the weighting be remedied through training. Each has a relatively high weighting, and it was determined that expertise in them would facilitate performance of the top four processes. Hence, these four processes are labeled "facilitative."

3. The final five processes were determined to be the least essential in the performance of a first-level supervisor's job. Consequently, the task force recommended that the deficient skills and knowledge diagnosed be remedied wtih job aids.

4. As the skills and knowledge associated with master performance were analyzed, it was evident that other areas of knowledge enabled performance in the management skills area. The data collected indicated first-level supervisors need to obtain a knowledge of local practices and procedures in order to function effectively as managers. Examples were:

- local procedures for logging results,
- attendance practices,
- union policies, and
- performance review procedures.

The important conclusion provided by this study is the demonstrated need for job administration training, and knowledge of local procedures as prerequisite to some areas of managerial skill training.

Based upon the research findings, work has begun on the development of training materials for the identified deficient skills and knowledge in the "survival" processes. The development work will be done by a newly formed task force consisting of course developers and project managers from Bell Operating Companies throughout the Bell System.

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