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ABSTRACT

A study reviewed the progress of the 1978 Management by Objectives (MBO) and other management effectiveness programs initiated in Texas state agencies, 10 years after implementation. Questionnaires were distributed to a 25% random sample of executives, middle managers, and first level supervisors across the 11 largest state agencies. Over 1,700 responses were analyzed, and results addressed issues concerning the successful implementation of MBO, communication factors, outcome factors (i.e. satisfaction, commitment, and productivity), development needs of managers, and demographics. Findings revealed that even though differences exist across agencies, the MBO program has received wide adoption at the managerial level and is producing positive results. In addition, results indicated that the best predictors of effectiveness in Texas state agencies were good communication with the immediate supervisor, good communication with individuals in the agency, clear job objectives, and good downward communication from top management. (Seven tables of data and 42 references are appended.) (Author/MM)

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AN ANALYSIS OF THE IMPLEMENTATION AND EFFECTIVENESS OF
MANAGEMENT BY OBJECTIVES (MBO) IN TEXAS STATE GOVERNMENT

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AN ANALYSIS OF THE IMPLEMENTATION AND EFFECTIVENESS OF
MANAGEMENT BY OBJECTIVES (MBO) IN TEXAS STATE GOVERNMENT

Abstract

In 1978 Management by Objectives (MBO) and other management effectiveness programs were initiated in Texas state agencies. This paper reviews the progress of that implementation after ten years. Questionnaires were distributed to a 25% stratified random sample of executives, middle managers, and first level supervisors across the 11 largest state agencies. Over 1,700 responses were analyzed, and results addressed issues concerning the successful implementation of MBO, communication factors, outcome factors (i.e., satisfaction, commitment, productivity), development needs of managers, and demographics. Findings reveal that even though there are differences across agencies, the MBO program has received wide adoption at the managerial level and is producing positive results. In addition, results indicate that the best predictors of effectiveness in Texas state agencies are good communication with the immediate superior, good communication with individuals in the agency, clear job objectives, and good downward communication from top management.

AN ANALYSIS OF THE IMPLEMENTATION AND EFFECTIVENESS OF
MANAGEMENT BY OBJECTIVES (MBO) IN TEXAS STATE AGENCIES

INTRODUCTION

Two fundamental questions of primary concern to almost all organizational employees are: (1) What is my job? and (2) If I do my job well, how will it benefit me and/or the organization? The first question addresses the basic uncertainty associated with job responsibilities, when work is to be completed, and the quality of performance expected. Research clearly indicates that task uncertainty and lack of feedback regarding job performance have very negative consequences for the organization (Goldhaber & Rogers 1979). If employees do not understand what their job is and how they are performing, the problems of duplicated effort, frustration, reduced motivation, and inefficiency are inevitable.

In like manner, the second question addresses a related but more complex concern of employees. Even though employees might have a very clear understanding of their jobs, they will experience additional frustration and discontent if they do not see how their day-to-day work effects their pay, promotion, or accomplishment of personal goals. If they perceive themselves involved in an endless number of activities which produce little or no reward and if they rarely see the ultimate product or service of their organization, morale and performance wane. Goldhaber (1986) contends that information about personal job-related matters is needed to prevent dissatisfaction but it will not create satisfaction. Information about organization wide concerns such as how individual jobs relate to that of others, plans for the future, and knowledge of the successes and failures of the company are needed to create true satisfaction. Indeed, the longer employees work in an organization, the more they become interested in broader organizational concerns and less with microscopic job concerns (Goldhaber, Yates,

Porter, Lesniak, 1978).

Management by Objectives (MBO) is one program designed to reduce the problem of task uncertainty and at the same time provide a method to integrate individual as well as organizational goals. While many of the ideas underlying this management procedure are not new and have been practiced for decades, Peter Drucker (1954) is generally credited with providing the first definitive statement of the MBO philosophy and process. Others such as Odiorne (1965) further developed the concept of MBO and more clearly articulated how it could be implemented. Variations of MBO were developed under several different names. Schleh (1961) and McConkey (1983) referred to "Management by Results" while McGregor (1960) used the phrase "Management by Integration and Self-Control." Despite the names used, each of these programs was an effort to develop a system to identify the common goal of an organization and involve the employees across the organization in setting clear job objectives as well as plans of action to accomplish those objectives.

Characteristics of MBO Programs

At least five distinct steps or phases of Management by Objectives can be identified (Raia, 1974; Sanford, Hunt, & Bracey 1976). First, the organization's common goals or mission must be determined and stated. These are often general in nature and articulate performance or output goals of the entire organization. These goals express the vision top management has for the organization, and they are the product of discussion and interaction with the departments and individuals in the company. It is important to realize that the Management by Objectives process is initiated at the top of the organization, and any effort to implement such a managerial program is doomed to failure if top management is not strongly committed to it.

Second, individual departments or divisions in the organization select that portion of the common goal which relates to their organizational function and create departmental mission or goal statements. Within each department superiors

and subordinates meet in groups or individually to discuss which organizational goals can be accomplished by their department. Many of these objectives are still rather broad in nature, and they may address long-term or short-term concerns. These departmental objectives are based upon the input of the subordinates but ultimately must fall under the designated function of the department.

The third step in implementing MBO is that superiors and subordinates participate in individual, face-to-face meetings to mutually agree on realistically attainable but challenging short-term goals for the subordinate. The written objectives are stated as behavioral outcomes, quantifiable if at all possible, and measurable by some systematic standard. Quantitative and/or qualitative criteria for assessing the successful completion of each objective are determined. These key objectives and criteria are based upon input from the subordinates but ultimately must fall under the broader goals of the department. The emphasis is on the final outcome or product. MBO is not designed as a control mechanism which forces employees to submit to the mandates of top management. On the contrary, it seeks to integrate the insights of workers who are involved in daily operations with the broader perspective of management to produce target objectives.

Fourth, superiors and subordinates jointly establish a clear action plan to implement the accomplishment of the objectives. A timetable is often created to target dates when certain objectives or sub-objectives should be completed, resources such as staff, equipment and money are discussed, and strategies or procedures which could be used to achieve each objective are considered.

Finally, superiors and subordinates meet at predetermined times following the establishment of the objectives and action plan to periodically review subordinate progress. These checkpoints are very important since they add flexibility to the program. Unexpected factors may impede the accomplishment of certain objectives and the timetable may need to be adjusted. As each objective is completed, the previously established criteria are used to assess the degree of success. Feedback

is then provided to the subordinate as performance is appraised. These meetings also serve a recycling function. As markets or environmental factors change, organizational or departmental goals may need to be reconsidered. Input from the superior as well as the subordinate are employed to eliminate inappropriate goals and create new ones. This step makes MBO a dynamic process which works toward long-term as well as short-term objectives.

A fully implemented MBO program provides the organization with a variety of benefits (Ordiorne, 1987; Rausch, 1978). It clarifies group goals as well as individual job objectives, it integrates the information and perceptives of personnel at the top and bottom of the organization in defining the tasks to be completed, and it creates a unified effort toward the accomplishment of organizational goals. MBO encourages managers to employ more of a consulting style and discourages the more traditional authoritarian, overseeing role of the manager. It fosters a more trusting and interdependent relationship between superiors and subordinates, encourages more communication, and can improve subordinate morale and motivation brought about by increased involvement in decision-making and responsibility.

Management by Objectives has also been the target of a variety of criticisms, however (Albrecht, 1978; Goldhaber, 1986; McConkey, 1983). Many contend that it is a very time consuming process and requires a large financial and personnel commitments to coordinate and deliver the system. It has been criticized as a program which generates an excessive amount of paperwork to record and track objectives and action plans. The stress on measurable objectives can put more emphasis on the quantity of work accomplished as opposed to the quality. Important but less visible jobs may be overlooked. In like manner, MBO has been criticized for reducing work down to very specific but trivial outcomes. It is very difficult to articulate all the things most people do in their jobs. Unless the program is designed properly, MBO may encourage personnel to work toward the minimum level

instead of pursuing challenging goals. In addition, it can discourage teamwork if the accomplishment of individual objectives are rewarded but group coordination and teamwork are not reinforced. If performance appraisal, merit raises, and promotion are linked with MBO, organizations could inadvertently be rewarding individuals - creating unnecessary competition among employees for limited resources, and discouraging cooperative teamwork.

Review of Research Investigating MBO

A review of past research reveals how MBO has been implemented in a variety of different types of organizations and the successes of those programs. Evidence supporting the effectiveness of MBO is most prevalent in profit oriented businesses in the private sector. Investigations by Raia (1965; 1966) at Purex showed an increase in productivity following a goal setting program. Tosi and Carroll (1968) reported improved attitudes toward work among MBO trained managers at Black and Decker. The Western Company of North America showed considerable improvements in performance, sales and satisfaction following the implementation of MBO (McConkey, 1983). Steers and Porter (1974) document the successes of MBO in a variety of businesses such as General Electric. Ivancevich, McMahon, Streidl and Szilagyi (1978) reported the effectiveness of MBO in Tenneco. Attitudinal surveys revealed that Tenneco managers using the program had significantly more goal participation, more goal feedback, more role clarity, more job autonomy, and less job tension.

One problem revealed by this research is the failure to precisely measure whether MBO actually existed in an organization and was practiced after the initial training and goal preparation was over. McConkey (1983) and Kirchhoff (1975) have developed measurement procedures to assess the degree of implementation and understanding of the program. The Managerial Style Questionnaire by Kirchhoff (1988) has been used in more than eighteen private sector corporations, including several Fortune 500 companies, and five private sector organizations. Results have shown that neither training nor goal setting automatically leads to knowledge and

practice of MBO. Considerable effort to reinforce and follow-up by top management is necessary for the program to succeed.

Management by Objectives has also been applied to educational institutions ranging from public schools to higher education. A variety of models have been suggested. Gonder (1983) described a program used in the school district in Northglenn, Colorado which developed objectives, clarified responsibilities and teacher involvement, related performance appraisal to the objectives, and structured inservice teacher training. Welch (1986) proposed a development and evaluation program for university faculty based on MBO. Stroup (1983) and Wooten (1980) used principles of MBO to propose guidelines and policy for evaluating college faculty. The use of MBO at the college and university level has produced mixed results, however. Terpstra, et al. (1982) found that after the implementation of MBO in one university, performance increased while satisfaction generally declined. Other research has shown that faculty perceive MBO as decreasing independence and autonomy, challenging academic freedom, and negatively effecting advancement and promotion (Terpstra & Olson, 1984). It appears that MBO programs at the university level require structural modifications as well as increased flexibility if they are to succeed.

In addition to the use of MBO in the private sector and education, there is a limited amount of research demonstrating its application in the public sector. Mackay (1971) described the implementation and effectiveness of MBO in the Canadian Post Office. Brady (1973) reported on the application of MBO in the Department of Health, Education, and Welfare as well as the problems which must be overcome before MBO can become effective in public sector organizations. The Public Service Company of Colorado published an internal report (Management System Implementation Survey, 1978) reporting on the effectiveness of an MBO program in seventeen power generating divisions. A common area of concern identified by these divisions was the need for more specific performance indicators and guidelines from which to

quantify performance indicators. Thompson, et al. (1981) investigated a human services agency and found that quantity and quality of performance measures both showed significant improvement following the implementation of MBO. Tajalli (1988) studied two Texas state agencies with strong on-going MBO systems and two which had little or no identifiable MBO systems. He found that goal setting, task significance, and skill variety were correlated with the effort individuals put into their work. Even though he found that intrinsic motivation was not significantly different for those agencies using and not using MBO, his results showed that MBO improved positive attitudes of public employees toward their job and organization.

The original conceptualization and delivery of MBO as presented by Drucker (1954) has undergone a variety of changes in an effort to not only refine the system but also adapt it to different types of organizations. Kleber (1972) contends that the results oriented MBO program is a natural for managing production line departments but difficult to implement in service or information oriented organizations. Among others, he suggests that public relations programs, educational institutions, nonprofit voluntary organizations, and governmental agencies will have to adapt the principles of MBO if they are to be effective. It was with this understanding that the state of Texas initiated a unique program in 1978 to implement a form of MBO across the agencies in state government. What follows is a discussion of that program and a survey of its effectiveness 10 years later. More specifically, the purpose of this paper is to:

1. Review the implementation of MBO in the 12 largest state agencies in Texas
2. Report the procedures followed to survey managerial personnel in state agencies regarding the use and effectiveness of MBO
3. Report the overall results of the survey, addressing five areas of concern: demographics, the MBO program, communication factors, outcome factors, and development needs
4. Identify which MBO factors and communication factors are the best predictors of effectiveness in Texas state agencies
5. Report the breakdown of results across the three managerial levels of executives, middle managers, and first level supervisors

Implementation of MBO in Texas State Agencies

Early in his first term, 1978-1981, Governor William P. Clements introduced some established management concepts from the private sector to the system of appointed boards and commissions which govern Texas state agencies. Known as the Texas State Government Management Effectiveness Program, the six functional areas of management which were targeted for review and improvement were: board effectiveness, employee reduction, state personnel management, operational audits, management development, and management by objectives. In the area of management development the need was established for intensive management training for all levels of state agency management including first level supervisors, managers of managers, and executives. Management by objectives (MBO) provided the operational framework for the program and was designed to:

1. Develop an objective driven approach to managing the delivery of state services which focuses on the priority results known to be crucial to continued growth and vitality
2. Increase inter- and intra-agency communication through involvement and participation of employees in the objective setting process and periodic process review.

In the Fall of 1979, Governor Clements' Budget and Planning Office sponsored MBO orientation for agency executives through several three day sessions on the fundamentals of systematic planning. In 1980, Governor Clements requested that each chief executive of the twelve largest agencies appoint a representative to an MBO Task Force which would coordinate the effective implementation of the program. The MBO Task Force served as a forum for information exchange among the agencies regarding the training and performance measurement within state government. The combined size of the agencies participating in the MBO project represented approximately 85% of all state employees (excluding higher education) and about 90% of all agency expenditures.

The degree to which a form of MBO was implemented in each of these agencies varied widely. About half of the twelve agencies implemented systems which produced written plans at each level of responsibility from the executive levels to

the service delivery units. Some of the agencies limited the MBO planning efforts to the central office executive levels and did not initiate the program in their field offices. A few of the agencies linked the MBO planning effort to their performance appraisal systems.

Initial MBO planning formats which were implemented at the inception of the program were modified through the years by evolutionary processes in every agency. The name MBO evolved into terms such as strategic and implementation planning. Periodic reviews were scheduled more or less frequently and were changed from written to oral or the reverse. Agencies instituted planning groups, task forces, quality assurance circles and other participative and communicative procedures.

Throughout Governor Clements' first term of office interest in the participatory planning process was sustained and extended in all state agencies. By the end of 1981, 5,979 managers had been oriented in MBO and 5,145 managers had completed MBO training. With the inauguration of a new governor and sweeping changes in the Office of the Governor in 1982, however, the MBO initiative received less emphasis and interest waned. Agencies with strong commitments to participatory planning processes continued to evolve systems which better served their changing priorities. Some agencies which had less commitment to the objective driven planning process reverted to the fire-fighting styles of management which had characterized state agencies for many years. Since 1986, with the inauguration of Governor Clements' second term of office, a renewal of interest in the management effectiveness program has been evident. The appointment of persons with strong management and private sector experience to head the Governor's Office staff and the Office of Budget and Planning increased the emphasis on effectiveness and efficiency in state agencies. Performance audits were reinstituted and a revived interest in state planning systems was expressed.

Questions were raised in the Governor's Office of Budget and Planning in August, 1987, concerning the extent to which residuals of the MBO initiative of

Governor Clements' first term existed in state agencies. If elements of the MBO process were identifiable, what were the perceptions of state agency managers regarding the effectiveness of the existing planning systems and the participative decision-making processes? A proposal to survey the twelve largest state agencies was submitted and accepted in June, 1988 to study the perceptions of managers regarding the MBO program in Texas state government.

METHODOLOGY

In May and June of 1988 the 12 largest state agencies in Texas were contacted by way of the State Agency Coordinating Committee (SACC), and a liaison person was selected from each agency to work with the investigators in this project. Liaison persons were provided with a preliminary copy of the questionnaire, the purpose of the project was clarified, and responsibilities were discussed. The number of full-time equivalent employees and the management population of each of the agencies was determined and recorded (see Table 1).

Following meetings with individuals in the personnel or data processing divisions, a stratified random sample of 25% of executives, middle management, and first level supervisors was drawn in each agency. This was accomplished by first obtaining a complete list of all executives, middle managers, and first level supervisors. (This survey did not select for analysis non-supervisory personnel.) Some agencies had the names and titles of employees on their computers and were able to draw a random sample using the computer. For example, in the Texas Department of Highways and Transportation there were 44 executives, 544 middle managers, and 768 first level supervisors. A 25% stratified random sample within each level of management produced a sample of 11 executives, 136 middle managers, and 192 first level supervisors. Most agencies, however, had difficulty listing personnel within the three levels of management. These agencies simply identified supervisory or managerial personnel and drew a 25% random sample by hand, selecting every 4th person at the management level (see Table 2).

Almost every agency found it difficult to identify which titles in their agency fell within the three management levels of executive, middle management, and first level supervisor. This was crucial information to obtain so that the overall results of the analysis could be broken down by the three levels of management. Therefore, a page including examples of titles at each of the three levels of management was prepared by each liaison person to help respondents correctly identify their position in the agency. The following conceptual definitions were provided for each level of management, accompanied by examples of titles in that agency.

- Executive - top management, usually of "Exempt" status
- Middle Management - middle level manager whose primary job is to direct the work of supervisors or managers
- First Level Supervisor - staff or line supervisors whose primary job is to direct the work of 2 or more persons who do not supervise anyone
- Non-Supervisory Employee - employee who does not supervise anyone or who does some supervision, but this supervision is not his/her primary job responsibility (This category was included in an effort to identify individuals who were incorrectly selected in the sample. Any respondent who indicated s/he was a non-supervisory employee was eliminated from further analysis.)

The survey questionnaire was the product of a variety of drafts and discussions with representatives from each of the participating agencies. It contained 50 items and used a multiple-choice answer format. Items on the questionnaire addressed the perceptions of managers in 5 main areas related to quality planning and worker cooperation in their agency:

1. Management by Objectives (MBO) Program
2. Communication Factors
3. Outcome Factors (e.g., satisfaction, commitment, productivity)
4. Development Needs of Managers
5. Demographics

Following a thorough review of the characteristics of MBO (McConkey, 1983; Odiorne, 1965, 1987; Raia, 1974), seventeen items concerning the MBO program in Texas agencies were developed. Eight items related to communication were adapted from questions on the ICA and OCD communication audits (Goldhaber & Rogers, 1979; Goldhaber, Dennis, Richetto, & Wilo, 1979). Ten outcome items concerning

satisfaction, commitment, productivity, work group, and trust with superior were adapted from previously developed questionnaires (Downs, 1988; Mowday, Steers, & Porter, 1979; Smith, Kendall, & Hulin, 1969). Seven development needs items which related to human resource development were adapted from existent questionnaires (Hatfield & Huseman, 1983; Moore & Dutton, 1978). The eight demographic items addressed traditional demographic characteristics of employees.

The packet mailed to each participant in the survey included a cover letter signed by a top executive in the agency explaining the survey and assuring confidentiality, a sheet listing examples of titles at the three levels of management, the survey questionnaire, a Scan-Tron answer sheet, and a return envelope. After recording their answers on the Scan-Tron answer sheet, respondents were asked to return just the answer sheet in the enclosed return envelope which was addressed to one of the primary investigators in the project. Participants did not write their name or personally identify themselves on the answer sheets.

Of the 12 largest state agencies invited to be part of this investigation, all but the Texas Department of Public Safety chose to participate. Table 1 lists the 11 agencies participating in the analysis and provides a summary of information about the sample. A review of this table reveals that the first set of questionnaires was mailed July 12, 1988, and the last set was mailed August 10, 1988. By August 26, 1988 a total of 1,955 completed answer sheets had been returned, producing an overall response rate of 58.9%. Eight of the 11 agencies had a response rate of 63% or greater, and if the Texas Department of Mental Health and Mental Retardation (with a response rate of only 44.2%) was not included, the overall response rate would have increased to 68%. Even with the inclusion of the Texas Department of Mental Health and Mental Retardation, the 58.9% return is considered to be an acceptable response rate. The results of this analysis are indeed generalizable to state agencies in Texas.

Of the 1,955 returned questionnaires, 1,771 were completed correctly and

returned by executives, middle managers, or first level supervisors. This analysis is based on these 1,771 responses which represents a 53.3% response rate. The overall results of this analysis are generalization to the managers in state agencies with a margin of error of approximately plus or minus 3% for proportional data (Eckhardt & Ermann, 1977).

RESULTS

Demographic Factors

Items 43 to 50 on the questionnaire assessed demographic characteristics of managers in Texas state agencies. Table 3 presents the demographic results.

Primary findings indicate:

1. Fifty-nine percent (59%) of management in state agencies are classified as first level supervisors, 37% are middle managers, and 4% are executives.
2. The majority of managers are male (58%), anglo (79%), and have received an undergraduate or graduate degree in college (62%).
3. The majority of managers have worked in their agency for 11 or more years (57%), with 67% working in a field office.
4. Eighty-seven percent (87%) of managers are 30 to 59 years old, with 34% in the age range of 40 to 49. Only 7% are 60 or older.
5. Twenty-eight percent (28%) write a performance appraisal plan for 1 to 4 persons, and 27% evaluate 5 to 8 persons. Eighteen percent (18%) evaluate 13 or more persons.

MBO Program

Items 1 to 16 and 31 are questions which specifically address the MBO program in state agencies. Alpha reliability for this scale was .85. Table 4 presents the overall results for these items. Primary findings indicate:

1. The large majority (70% or more) agree that:
 - the objectives of their job are clear
 - job objectives are in writing
 - the accomplishment of specific job objectives is a major factor considered in performance evaluation
 - there is a clear understand how their job objectives relate to the job objectives of others in their agency
 - a systematic, scheduled evaluation or review of their performance is received once a year

2. Sixty to sixty-nine percent (60% to 69%) agree that:
 - there are sufficient checkpoints and opportunities to meet with their immediate superior to review or adjust job objectives
 - the overall job objectives program is worthwhile
 - their agency is very objectives/results oriented
3. Fifty to fifty-nine percent (50% to 59%) agree that:
 - top management in their agency supports and is committed to a form of management by objectives
 - short-term objectives (i.e., one year or less) have been established for their job
 - their job objectives were jointly determined (i.e., discussed and negotiated) by themselves and their immediate superior in a face-to-face meeting
 - their job objectives are written in such a way that measurable results can be identified
 - there is an agency record of the degree to which their job objectives are accomplished
4. Forty-seven percent (47%) feel that the program established to monitor job objectives requires an excessive amount of record keeping and paperwork, while 25% do not see this as a problem.
5. Even though 44% feel that long-term objectives (i.e., longer than one year) have been established for their job, 35% do not feel that long-term objectives have been established.
6. Forty-four percent (44%) indicate a clear action plan (or timetable) with intermediate checkpoints is not being used to identify the time it will take to accomplish the various objectives of their job. Only 38% feel such an action plan is being used.
7. Only 36% indicate the approved annual objectives are the basis for the development of their annual budget in the agency. Forty-two percent (42%) are neutral on this question, and 22% indicate annual objectives are not the basis for the annual budget.

Communication Factors

Items 17 to 22, 35 and 36 address communication concerns in state agencies.

Alpha reliability for this scale was .66. Table 5 presents these results. Primary findings indicate:

1. The large majority (78% or more) agree that:
 - communication with individuals in their agency is good
 - communication with their immediate superior is good
 - they have enough face-to-face communication with their immediate superior

2. Only 47% feel that upward communication through channels from work personnel to top management is good, and 47% feel that downward communication through channels from top management to work personnel is good. Approximately 40% think upward and downward communication is bad.

3. There is no clear trend regarding the use of informal channels. Thirty-nine percent (39%) feel they receive more job-related information from informal channels (i.e., the "grapevine") than they prefer, while 37% indicated they do not receive more job-related information from informal channels than preferred.

4. Thirty-two percent (32%) indicate the most prevalent communication problem for them is that information they need is not readily available. Thirty percent (30%) indicate information reaches them too late, and 22% feel they are overloaded and get too much information.

5. Forty percent (40%) indicate they participate in job-related communication with individuals in other agencies daily or several times a week, while 37% communicate once a month or less with individuals in other agencies.

Outcome Factors

Items 24 to 30 and 32 to 34 address a variety of organizational outcomes.

Alpha reliability for this scale was .80. Table 6 presents the results for 5 outcome factors. Primary findings indicate:

1. Commitment : The large majority of management (89%) indicate a strong commitment and loyalty to their agency.

2. Satisfaction : The large majority of management (88%) are satisfied with their job performance in their agency, and they are satisfied with their immediate superior (76%). The majority (61%) are satisfied with their participation in decision-making and the possibilities to influence matters concerning their work. The results indicate a division of opinion regarding chances for advancement. Forty-four percent (44%) are not satisfied with their chances for promotion and advancement, while 43% are satisfied.

3. Productivity : Ninety-one percent (91%) rate their job productivity as high, and 84% think their immediate superior would rate their job productivity as high.

4. Work Group : The large majority of management (87%) feel the quality of work produced by their work group is high, and 78% believe there is a great deal of teamwork in their work group.

5. Trust Superior : Seventy-two percent (72%) indicate they trust their immediate superior.

Development Needs

Items 23 and 37 to 42 are questions about development needs. Alpha reliability for this scale was .84. Table 7 presents the development needs results. Primary findings indicate:

1. The majority of management (54%) feel they received sufficient management training before assuming their job responsibilities; however, a third of managers (34%) did not feel they received sufficient training before assuming a management position.
2. Approximately 60% of managers indicate they need "some," "much," or "very much" improvement giving oral presentations, leading group problem-solving meetings, conducting performance appraisal interviews, managing conflict between subordinates, and handling subordinates' complaints.
3. The majority (60%) feel they need little or no improvement writing memos, reports, and letters, while 29% indicate they need some improvement. *

Breakdown of Results by Levels of Management

Chi-Square and Analysis of Variance tests were computed to determine if executives, middle managers, and first level supervisors differed in their responses to each of the items on the questionnaire. A summary of the results of this analysis are presented below. Only those results which were statistically significant ($p < .01$) and those results which were felt to be most meaningful are presented. (Tables of breakdown results are available upon request from the first author.)

Demographic differences across levels of management.

1. (Item 43) A larger percentage of males than females are in top level management positions. Fifty percent (50%) of first level managers are female, 31% of middle managers are female, but only 15% of executives are female.
2. (Item 48) Executives have completed higher levels of education than middle managers or first level supervisors. Ninety-three percent (93%) of executives have completed an undergraduate degree or graduate degree. Fifty-nine percent (59%) hold a graduate degree. Seventy-eight percent (78%) of middle managers have completed an undergraduate or graduate degree, and 51% of first level supervisors have completed an undergraduate or graduate degree.

3. (Item 49) Eighty-two percent (82%) of executives and 87% of middle managers are Anglo, while 75% of first level supervisors are Anglo. Ten percent (10%) of first level supervisors are Black and 11% are Hispanic. Five percent (5%) of middle managers are Black and 7% are Hispanic. Seven percent (7%) of executives are Black and 9% are Hispanic.

4. (Item 46) The number of persons managers evaluate by writing a performance appraisal plan varied greatly across the three levels of management. Forty-four percent (44%) of executives evaluate 5-8 persons, 22% evaluate 1-4 persons, and 20% evaluate 9-12 persons. Thirty-five percent (35%) of middle managers evaluate 5-8 persons, 28% evaluate 1-4 persons, and 20% evaluate 13 or more persons. Twenty-nine percent (29%) of first level supervisors evaluate 1-4 persons, 22% evaluate 5-8 persons, and 18% evaluate 13 or more persons.

5. (Item 44) Overall, executives are older than middle managers and first level supervisors. Forty-two percent (42%) of executives are 40-49 years old and 39% are 50-59. Thirty-eight percent (38%) of middle managers are 40-49 while 31% are 50-59. Thirty-two percent (32%) of first level supervisors are 30-39 while 32% are 40-49.

6. (Item 45) The large majority of executives (73%) and middle managers (69%) have worked in their agency for 11 or more years, while only 48% of first level supervisors have worked in the agency that length of time. Seventeen percent (17%) of first level supervisors have worked in their agency 2-4 years, 16% have worked 5-7 years, and 14% have worked 8-10 years.

7. (Item 50) Almost one-half of the executives (46%) are in field offices, but 54% are located in central offices. Fifty-nine percent (59%) of middle managers are in the field, and 74% of first level supervisors are in the field.

MBO program differences across levels of management.

1. (Item 31) The majority of executives (54%), middle managers (67%), and first level supervisors (75%) are systematically evaluated by their immediate superior once a year; however, a larger percentage of executives (25%) are never evaluated compared to middle managers (13%) and first level supervisors (4%).

2. (Item 15) Approximately one-third of middle managers believe that the approved annual objectives are the basis for the development of their annual budget in their agency, a third are neutral, and a third disagree. Almost one-half (48%) of first level supervisors are neutral on this issue. Conversely, only 25% of executives are neutral, while 42% agree that the annual objectives are the basis for developing the budget.

3. (Item 13) Fifty-two percent (52%) of first level supervisors and 42% of middle managers feel that the program established to monitor job objectives requires an excessive amount of record keeping and paperwork. Forty-one percent (41%) of executives do not feel it requires excessive record keeping, while 42% are neutral.

4. (Item 16) While the majority of executives (61%) feel the accomplishment of their job objectives is a major factor considered in their performance evaluation, an even larger percentage of middle managers (68%) and first level supervisors (77%) believe job objectives are considered in their performance evaluation.

5. (Item 8) Executives (68%) are more inclined to believe short-term objectives (i.e., one year or less) have been established for their job than middle managers (63%) or first level supervisors (53%).

6. (Item 9) A majority of executives (54%) feel long-term objectives (i.e., longer than one year) have been established for their job, while 48% of middle managers and only 40% of first level supervisors think long-term objectives have been established.

7. (Item 7) More middle managers (64%) feel top management in their agency supports and is committed to a form of management by objectives than executives (57%) or first level supervisors (55%).

Communication factors differences across levels of management.

1. (Item 22) The majority of executives (57%) do not feel they receive more job-related information from informal channels (i.e., the "grapevine") than they prefer, while only 19% indicate they get too much information from informal channels. Conversely, 44% of first level supervisors and 32% of middle managers feel they get too much information from informal channels, while 32% of first level supervisors and 43% of middle managers indicate they do not receive too much information from informal channels.

2. (Item 36) The majority of executives (54%) indicate they are involved in job-related communication with individuals in other agencies several times a week or daily, while 41% of middle managers and 39% of first level supervisors indicate they communicate with others outside their agency several times a week or daily. Only 13% of executives communicate outside their agency once a month or less, but 36% of middle managers and 39% of first level supervisors indicate their communication outside the agency was this infrequent.

3. (Item 18) The majority of executives (64%) and middle managers (52%) feel that downward communication through channels from top management to work personnel is good. Fewer first level supervisors (43%) think downward communication is good, while 44% believe it is bad.

Outcome factors differences across levels of management.

1. (Item 34) The large majority of executives (91%), middle managers (93%), and first level supervisors (84%) feel that the quality of work produced by their work group is high; however, more first level supervisors (15%) are neutral on this issue than executives (6%) or middle managers (7%).

2. (Item 28) The majority of executives (59%) are satisfied with their chances for promotion and advancement, while 47% of middle managers and only 39% of first level supervisors are satisfied. Approximately one-half (49%) of first level supervisors are dissatisfied with their chances for advancement, while 38% of middle managers and 20% of executives are dissatisfied.

3. (Item 29) The majority of executives (70%), middle managers (68%), and first level supervisors (56%) are satisfied with their participation in decision-making and the possibilities of influencing matters concerning their work. More first level supervisors (31%) are dissatisfied with their participation in decision-making than middle managers (24%) or executives (16%).

4. (Item 30) Executives (86%) trust their immediate superior more than middle managers (77%) or first level supervisors (69%).

5. (Item 32) Ninety-six percent (96%) of executives and 94% of middle managers rate their job productivity as high, while 89% of first level supervisors rate their productivity as high.

6. (Item 24) Ninety-three percent (93%) of executives and middle managers indicate a strong commitment and loyalty to their agency, while 87% of first level supervisors express strong commitment to their agency.

7. (Item 33) Ninety percent (90%) of executives and 87% of middle managers think their immediate superior would rate their job productivity as high, while 82% of first level supervisors believe they would be rated as high.

Development needs differences across levels of management.

1. (Item 38) Executives (49%), middle managers (43%), and first level supervisors (42%) indicate they need some improvement leading group problem-solving meetings. More first level supervisors (22%) express a need for much improvement leading problem-solving meetings than executives (12%) or middle managers (13%).

2. (Item 42) Executives (46%), middle managers (54%), and first level supervisors (46%) indicate they need little improvement handling subordinates' complaints, but more first level supervisors (17%) express a need for much improvement handling complaints. Approximately 37% of all managers indicate a need for some improvement in this area.

3. (Item 40) Half of the executives (49%) indicate they need some improvement managing conflict between subordinates, while 33% of middle managers and 39% of first level supervisors feel they need some improvement managing conflict. Approximately 20% of middle managers and first level supervisors indicate they need much improvement managing conflict.

4. (Item 41) Even though approximately 30% of all managers feel they need some improvement writing memos, reports, and letters, more middle managers (66%) indicate they need little improvement developing writing skills than executives (58%) or first level supervisors (57%).

5. (Item 23) The large majority of executives (68%) feel they received sufficient management training for their present position before assuming their job responsibilities; however, fewer middle managers (58%) and first level supervisors (51%) feel they received sufficient training. Thirty-seven percent (37%) of first level supervisors and 31% of middle managers indicate they did not receive sufficient training before assuming their job responsibilities compared to 19% of executives.

Multiple Regression Analyses

Ten stepwise multiple regression analyses were conducted using each of the outcome factors as criterion variables. These ten outcome factors (Items 24 to 30, 32 to 34) were questions related to commitment, various types of satisfaction, productivity, teamwork, and trust with their superior. The 26 predictor variables used in each multiple regression analysis were the MBO program factors (Items 1 to 16 and 31), communication factors (Items 17 to 22, 35 and 36), and one development needs question (Item 23). Each analysis produced at least one statistically significant predictor ($p < .0001$); however, a second or subsequent predictor variable was not entered into the equation unless the new variable(s) explained at least 1% of the residual variance. The main findings of the multiple regression analysis are presented below. The number in parentheses to the side of each predictor variable is the variance explained by the addition of that variable to the equation.

The four best predictors of managers' commitment and loyalty to their agency (Item 24) were ($F = 69.23$, $df = 4/1621$; 14.6% explained variance):

1. (Item 7) Top management in my agency supports and is committed to a form of management by objectives. (7.7%)
2. (Item 21) Communication between me and individuals in my agency is good. (11.8%)
3. (Item 1) The objectives of my job are clear. (13.4%)
4. (Item 14) The overall job objectives program is worthwhile. (14.6%)

The three best predictors of satisfaction with job performance (Item 25) were ($F = 78.05$, $df = 3/1623$; 12.6% explained variance):

1. (Item 21) Communication between me and individuals in my agency is good. (7.6%)
2. (Item 1) The objectives of my job are clear. (11.5%)
3. (Item 23) I received sufficient management training for my present job before assuming my job responsibilities. (12.6%)

The two best predictors of satisfaction with immediate superior (Item 26) were ($F = 983.66$, $df = 2/1624$; 54.8% explained variance):

1. (Item 20) Communication between me and my immediate superior is good. (52.8%)
2. (Item 6) My job objectives are written in such a way that measurable results can be identified. (54.8%)

The four best predictors of satisfaction with chances for promotion and advancement (Item 28) were ($F = 106.76$, $df = 4/1621$; 20.9% explained variance):

1. (Item 18) In my agency, downward communication through channels from top management to work personnel is good. (15.3%)
2. (Item 20) Communication between me and my immediate superior is good. (17.7%)
3. (Item 10) My agency is very objectives/results oriented. (19.6%)
4. (Item 23) I received sufficient management training for my present job before assuming my job responsibilities. (20.9%)

The four best predictors of satisfaction with participation in decision-making and the possibilities to influence matters concerning work (Item 29) were ($F = 199.12$, $df = 4/1619$; 33.0% explained variance):

1. (Item 18) In my agency, downward communication through channels from top management to work personnel is good. (20.6%)
2. (Item 20) Communication between me and my immediate superior is good. (28.2%)
3. (Item 2) My job objectives were jointly determined (i.e., discussed and negotiated) by me and my immediate superior in a face-to-face meeting. (31.1%)
4. (Item 21) Communication between me and individuals in my agency is good. (33.0%)

The two best predictors of managers' self perception of job productivity (Item 32) were ($F = 29.08$, $df = 2/1622$; 3.5% explained variance):

1. Item 1) The objectives of my job are clear. (2.2%)
2. (Item 21) Communication between me and individuals in my agency is good. (3.5%)

The best predictor of managers' perception of how they think their immediate superior would rate their job productivity (Item 33) was ($F = 219.30$, $df = 1/1625$; 11.9% explained variance):

1. (Item 20) Communication between me and my immediate superior is good. (11.9%)

The three best predictors of managers' belief that there is a great deal of teamwork in their work group (Item 27) were ($F = 141.76$, $df = 3/1618$; 20.8% explained variance):

1. (Item 20) Communication between me and my immediate superior is good. (13.2%)
2. (Item 21) Communication between me and individuals in my agency is good. (18.9%)
3. (Item 1) The objectives of my job are clear. (20.8%)

The best predictor of managers' perception of quality work produced by their work group (Item 34) was ($F = 51.73$, $df = 1/1626$; 3.8% explained variance):

1. (Item 21) Communication between me and individuals in my agency is good. (3.8%)

The three best predictors of managers' trust in their immediate superior (Item 30) were ($F = 566.98$, $df = 3/1622$; 51.2% explained variance):

1. (Item 20) Communication between me and my immediate superior is good. (48.3%)
2. (Item 2) My job objectives were jointly determined (i.e., discussed and negotiated) by me and my immediate superior in a face-to-face meeting. (50.2%)
3. (Item 18) In my agency, downward communication through channels from top management to work personnel is good. (51.2%)

Overall, these ten regression analyses indicate that the four best predictors of all the outcome factors are (in the order presented):

1. (Item 20) Communication between me and my immediate superior is good.
2. (Item 21) Communication between me and individuals in my agency is good.
3. (Item 1) The objectives of my job are clear.
4. (Item 18) In my agency, downward communication through channels from top management to work personnel is good.

Conclusions

The Management by Objectives (MBO) program in Texas state government was initiated in 1978, and after 10 years it appears to have received wide adoption. While there are differences across the various agencies, overall these results indicate that there is strong agreement that the central features of MBO are being practiced at the managerial level. Managers indicate that their agency is very objectives/results oriented, that the program is worthwhile, that job objectives are clear and in writing, and that there are sufficient checkpoints and opportunities to meet with their immediate superior to review or adjust job objectives. While there is less agreement, the majority also indicate that top management is committed to the program, that short-term objectives have been established, that their job objectives were jointly determined by themselves and their immediate superior in a face-to-face meeting, and that their job objectives are written in such a way that measurable results can be identified.

The program has a variety of shortcomings, however. The approved annual objectives are not the basis for the development of the annual budget in the various agencies. Managers indicate that a clear action plan (or timetable) with intermediate checkpoints is not being used to identify the time it will take to accomplish the various objectives of their job. In addition, long-term objectives (i.e., longer than one year) have not been established for their jobs. Finally, managers feel that the program established to monitor job objectives requires an excessive amount of record keeping and paperwork.

The analysis of communication factors reveals that managers' communication with their immediate superior and other individuals in their agency are good. However, approximately one-half do not feel that either downward or upward communication are good. Access to information beyond their immediate work situation appears to be a problem. A large percentage indicate they get more information from informal channels (i.e., the "grapevine") than they prefer, and that the most prevalent communication problem for them is that information they need is not readily available and that information reaches them too late.

Managers, especially first level supervisors and middle managers, express a need for more training prior to assuming their management responsibilities. Less of a need is expressed for improving writing skills, such as writing memos, reports, or letters. The greatest development needs appear to be in the areas of leading group problem-solving meetings, giving oral presentations, managing conflict between subordinates, and conducting performance appraisal interviews. Overall, however, managers express a very strong commitment and loyalty to their agency, feel that their job productivity is high, and feel that the quality of work produced by their work group is high. High satisfaction is expressed in their job, their immediate supervisor, and participation in decision-making. Less satisfaction, however, is expressed with chances for promotion and advancement.

The multiple regression analyses performed in this study produced significant findings. These analyses assessed which MBO and communication items were the best predictors of outcome factors (e.g., commitment, satisfaction, productivity). Findings revealed that the best predictors were good communication with the immediate superior, good communication with individuals in the agency, clear job objectives, and good downward communication from top management. These results confirm prior research which indicates that the quality of the relationship employees have with their immediate superior is an important contributor to satisfaction and organizational effectiveness (Goldhaber, 1986; Goldhaber & Rogers, 1979; Jablin, 1979; Kelly, 1982). In addition, the results reinforce the importance of reducing job or task uncertainty as well as the importance of maintaining good working relationships with co-workers (Salem & Williams, 1984).

While the findings of this investigation are encouraging, additional areas of improvement and research are needed in Texas state government. There is considerable evidence indicating MBO is practiced at the top of the agencies, but important features of the program are not always visible at the first level supervisor or middle manager levels. More must be done, especially with first level supervisors, to involve them in the program as well as to train them in how to effectively implement MBO. Further research should also explore how much MBO is used with non-supervisory personnel. This is very much of an unknown, since the present study looked only at the use of MBO at the managerial level. Discovering how much MBO has and can be used in the various agencies across all levels of the work force is an important concern for future investigations.

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Table 1

SURVEY OF AGENCY MANAGEMENT EFFECTIVENESS:
MANAGEMENT INFORMATION

Agency	Employees In Agency*	Management Population**	% of Employees In Management
Texas Department of Highways and Public Transportation	15,525	1,356	9%
Texas Employment Commission	4,828	668	14%
Texas Department of Human Services	13,284	1,696	13%
Texas Water Commission	836	192	23%
Texas Parks and Wildlife Department	2,344	280	12%
Texas Rehabili- tation Commission	1,907	256	13%
Texas Youth Commission	1,602	336	21%
Texas Department of Mental Health and Mental Retar- dation	24,784	5,104	21%
Texas Department of Health	3,714	840	23%
Texas Education Agency	884	240	27%
Texas Department of Corrections	16,713	2,320	14%
TOTAL	86,421	13,288	15%

* Full-time equivalent state employees on February 29, 1988

** Approximate number of executives, middle managers, and first level supervisors

Table 2

SURVEY OF AGENCY MANAGEMENT EFFECTIVENESS:
SAMPLING INFORMATION

Agency & Date Survey Mailed	Employees In Agency*	Management Population**	Management Sample^	Surveys Returned^^	% Returned
Texas Department of Highways and Public Transpor- tation 7/12	15,525	1,356	339	286	84.4
Texas Employment Commission 7/12	4,828	658	167	150	89.8
Texas Department of Human Services 7/15	13,284	1,696	424	305	71.9
Texas Water Commission 7/15	836	192	48	33	68.9
Texas Parks and Wildlife Department 7/21	2,344	280	70	50	71.4
Texas Rehabili- tation Commission 7/21	1,907	256	64	52	81.3
Texas Youth Commission 7/22	1,602	336	84	56	66.7
Texas Department of Mental Health and Mental Retar- dation 7/26	24,784	5,104	1,276	564	44.2
Texas Department of Health 7/28	3,714	840	210	124	59.0
Texas Education Agency 8/4	884	240	60	38	63.3
Texas Department of Corrections 8/10	16,713	2,320	580	297	51.2
TOTAL	86,421	13,288	3,322	1,955	58.9

* Full-time equivalent state employees on February 29, 1988

** Approximate number of executives, middle managers, and first level supervisors

^ Random sample of 25% of executives, middle managers, and first level supervisors

^^ Cutoff date for processing questionnaires was August 26, 1988

Table 3
DEMOGRAPHIC FACTORS

Question #		Frequency	Percent
47.	Management Level		
	Executive	69	3.9
	Middle Management	654	36.9
	1st Level Supervisor	1048	59.2
43.	Gender		
	Male	1027	58.4
	Female	731	41.6
44.	Age		
	29 or Less	110	6.2
	30 - 39	482	27.3
	40 - 49	609	34.5
	50 - 59	445	25.2
	60 or Up	120	6.8
45.	Agency Tenure		
	1 Year or Less	62	3.5
	2 - 4 Years	240	13.6
	5 - 7 Years	234	13.3
	8 - 10 Years	225	12.8
	11 Years or Up	1001	56.8
46.	How Many Persons Do You Evaluate?		
	0 Persons	203	11.5
	1 - 4	498	28.3
	5 - 8	485	27.5
	9 - 12	255	14.5
	13 or More	331	18.2
48.	Level of Education		
	Less than High School	38	2.2
	High School Graduate	190	10.8
	Some College	442	25.0
	Undergraduate Degree	641	36.3
	Graduate Degree	456	25.8
49.	Ethnic Identification		
	Black	140	8.0
	Hispanic	164	9.4
	Anglo	1388	79.3
	Asian	70	1.1
	Indian or Other	38	2.2
50.	Office Location		
	Central	573	32.6
	Field	<u>1177</u>	<u>67.0</u>
	TOTAL	1771	100.0

Table 4

MBO FACTORS
N=1771

Question	% Strongly Agree	% Agree	% Neutral/ No Opinion	% Disagree	% Strongly Disagree	Mean Score*
1. The objectives of my job are clear.	34	52	4	8	2	4.08
2. My job objectives were jointly determined (i.e., discussed and negotiated) by me and my immediate supervisor in a face-to-face meeting.	17	39	9	23	11	3.27
3. My job objectives are in writing.	27	48	8	11	6	3.81
4. A clear action plan (or timetable) with intermediate checkpoints is used to identify the time it will take to accomplish the various objectives of my job.	7	30	18	32	13	2.89
5. There are sufficient checkpoints and opportunities to meet with my immediate superior to review or adjust the objectives of my job.	19	46	12	17	6	3.54
6. My job objectives are written in such a way that measurable results can be identified.	14	42	16	21	8	3.33
7. Top management in my agency supports and is committed to a form of management by objectives.	17	41	23	12	7	3.49
8. Short-term objectives (i.e., one year or less) have been established for my job.	13	45	16	19	8	3.36
9. Long-term objectives (i.e., longer than one year) have been established for my job.	9	35	21	26	10	3.08
10. My agency is very objectives/results oriented.	19	41	22	13	6	3.54
11. There is an agency record of the degree to which my job objectives are accomplished.	14	42	25	14	5	3.44

*"Strongly agree" response was coded "5." Standard deviations for items 1-16 ranged from .92 to 1.30.

MBO FACTORS CONTINUED

		% Strongly Agree	% Agree	% Neutral/ No Opinion	% Disagree	% Strongly Disagree	Mean Score*
12.	I understand how my job objectives relate to the job objectives of others in my agency.	17	52	16	11	3	3.69
13.	The program established to monitor job objectives requires an excessive amount of record keeping and paperwork.	20	27	28	22	4	3.40
14.	The overall job objectives program is worthwhile.	14	49	26	8	3	3.62
15.	The approved annual objectives are the basis for the development of our annual budget in this agency.	8	27	42	15	8	3.14
16.	The accomplishment of my specific job objectives is a major factor considered in my performance evaluation.	26	47	13	9	5	3.80

		% 3 or More A Year	% Twice Year	% Once Year	% Every 2 Year	% None
31.	My immediate superior provides me with a systematic, scheduled evaluation or review of performance:	8	10	71	4	8

Table 5
COMMUNICATION FACTORS
N=1771

Question	% Strongly Agree	% Agree	% Neutral/ No Opinion	% Disagree	% Strongly Disagree	Mean Score*
17. I feel that I have enough face-to-face communication with my immediate superior.	36	42	6	12	5	3.92
18. In my agency, downward communication through channels from top management to work personnel is good.	9	38	12	27	14	3.01
19. In my agency, upward communication through channels from work personnel to top management is good.	8	39	16	25	12	3.08
20. Communication between me and my immediate superior is good.	36	46	7	8	3	4.05
21. Communication between me and individuals in my agency is good.	22	63	8	6	1	3.99
22. I receive more job-related information from informal channels (i.e., the "grapevine") than I prefer.	11	28	24	32	5	3.08
	Not Readily Avail.	Not Reliable Accurate	Reaches Me Too Late	Useless Not Import	Too Much Informat Overload	
35. The most prevalent communication problem I must deal with in this agency is:	32%	11%	30%	5%	22%	
	Daily	Several Times/wk	Once Week	Several Times/mo	Once Month/less	
36. Job-related communication between me and individuals in other agencies occurs:	21%	19%	6%	17%	37%	

*"Strongly agree" response was coded "5." Standard deviations for items 17-22 ranged from .80 to 1.26.

Table 6
OUTCOME FACTORS
N=1771

Question	% Strongly Agree	% Agree	% Neutral/ No Opinion	% Disagree	% Strongly Disagree	Mean Score*
24. I have a strong commitment and loyalty to this agency.	54	35	7	3	1	4.39
25. I am satisfied with my job performance in this agency.	38	51	5	6	1	4.18
26. I am satisfied with my immediate superior.	33	43	11	8	5	3.90
27. There is a great deal of teamwork in my work group.	32	46	10	9	3	3.94
28. I am satisfied with my chances for promotion and advancement.	11	32	13	23	21	2.89
29. I am satisfied with my participation in decision-making and the possibilities I have to influence matters concerning my job.	18	43	11	19	9	3.42
30. I trust my immediate superior.	33	40	13	8	7	3.83
	% Very High	% High	% Average	% Low	% Very Low	Mean Score*
32. I would rate my job productivity as:	38	53	8	1	0	4.28
33. I think my immediate superior would rate my job productivity as:	33	51	14	1	1	4.15
34. The quality of work produced by my work group is:	33	54	12	0	0	4.20

*"Strongly agree" or "very high" response was coded "5."

Standard deviations for items 24 - 30 ranged from .80 to 1.35.

Standard deviations for items 32 - 34 ranged from .64 to .73.

Table 7

DEVELOPMENT NEEDS FACTORS
N=1771

Question	% Strongly Agree	% Agree	% Neutral/ No Opinion	% Disagree	% Strongly Disagree	Mean Score*
23. I received sufficient management training for my present job before assuming my job responsibilities.	14	40	12	24	9	3.25

	% Very Much Improve	% Much Improve	% Some Improve	% Little Improve	% Very Little No Improve	Mean Score*
37. Giving oral presentations.	6	13	44	21	16	2.71
38. Leading group problem-solving meetings.	3	15	42	27	13	2.69
39. Conducting performance appraisal interviews.	4	14	39	26	17	2.61
40. Managing conflict between subordinates.	5	16	37	26	16	2.66
41. Writing memos, reports, and letters.	3	8	29	32	28	2.26
42. Handling subordinates' complaints.	4	11	37	30	19	2.50

**Strongly agree" or "need verymuch improvement" response was coded "5."

The standard deviation for item 23 was 1.23.

Standard deviation for items 37 to 42 ranged from .99 to 1.07.