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THE EFFECTS OF TYPES OF TRAINING EVALUATION ON SUPPORT OF TRAINING AMONG CORPORATE MANAGERS

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ABSTRACT

With organizations becoming leaner during times of cost consciousness, training departments are having to demonstrate their contributions to organizations' bottom lines by becoming more productivity based than they have been historically. For training professionals to obtain the needed financial and organizational support of their training efforts, top management should corroborate the training function. To gain this support, training professionals have evaluation procedures available to them. Evaluation of an organization's training efforts is a primary vehicle for demonstrating training's impact on an organization's bottom line.

The purpose of this study was to determine which type of training evaluation method elicited the most management support of the training function among corporate managers. The investigator designed and distributed a case study survey instrument (TEMS) to assess the extent of management support of training for each type of training evaluation method--reaction, learning, behavior, and results. MBA students with management experience and non-training managers participated in the study.

Prior to the actual study, the investigator conducted reliability and validity studies. Results indicated that the TEMS was reliable and valid.

The data analysis consisted of an ANOVA, a chi-square, and descriptive statistics. For both samples, the data indicated that the results evaluation format received the most support, with progressively less support for behavior, learning, and reaction evaluations, respectively. The data were significant for all sample groups, with values $p<.0001$ for each group using an ANOVA and values $p<.001$ using a chi-square. Percentages of respondents who gave the results evaluation format the most support for each sample group ranged from 79% to 86%. There was no significant difference between the MBA group and the manager group. There were no interaction effects between support of each evaluation type and title, years of experience, number of people managed, annual budget, or sex.

This study provides training practitioners with a mandate for demonstrating training results to top management and for gaining management support of the training function.

CHAPTER ONE

Introduction

Training professionals and upper management have both praised and criticized the impact which training has had upon their organizations. Because many organizations are now running leaner and departments are having to demonstrate their contributions to bottom line results, training professionals are finding themselves in an environment which is productivity-based. Of significance is the demonstration of how training contributes to overall organizational productivity. According to Brown (1980), in the past, upper management simply wanted to know that trainers thought training was relevant and that learning occurred. Brown (1980) noted that more recently,

> Upper management has begun to look at all training as an investment. By looking at training as an investment, it has become increasingly important to determine what economic benefits may be directly attributed to training programs. This recent emphasis on return on investment for training dollars has made several evaluation techniques of prime importance for training directors who are being held accountable for the results their programs are designed to achieve. (p. 11)

For training professionals to obtain the needed financial and organizational support of these training efforts, top management should corroborate the training function. To gain this support, training professionals generally utilize some type of evaluation procedure. From this perspective, training evaluation should focus on how training impacts an organization's bottom line results specifically (Bakken & Bernstein, 1982). Odiorne (1970) provided a summary of this position by noting,

> Training managers today must move more in the direction of economic evaluation of their training efforts. . . . the investment expenses in human capital is [sic] becoming big business, and as a manager of that expense item the training manager must think equally as businessman [business person] as well as educator. (p. 14)

A common complaint of training professionals is lack of management support of training (Dobbs, 1980). Unfortunately, training managers have not consistently conducted effective evaluation programs for convincing top management that training can contribute to an organization's bottom line results. According to a survey of Training and Development Journal readers, Galagan (1983) found that one third regarded evaluation as their most difficult task. Historically, management has responded to training's lack of association with an

organization's productivity by reducing or eliminating training in those departments which do not have a substantial impact on an organization's bottom line results, particularly during times of budget trimming (Barta, 1982; Kelley, Orgel & Baer, 1984; Zenger & Hargis, 1982). These cost conscious measures have placed pressure on training personnel to demonstrate to those management staff responsible for budgeting operations that training can contribute to the productivity of the organization (Shippe, 1980). To accomplish this task training professionals need effective evaluation methods. According to Morano (1975),

> With evaluation and measurement, the training department can not only show payback justification for past budgets, but the evaluation data can serve as the basis for next year's budget. In this way, the budget control is more in the hands of training in that it can now bargain for its funding since it has shown justification for budget dollars spent and has demonstrated how training has contributed to the organization's objectives. (p. 42)

Brown (1980) suggested that "the recent emphasis on return on investment for training dollars has made sound evaluation techniques of prime importance for training directors, who are being held accountable for the results of these programs" (p. 11).

• Since evaluating an organization's training efforts is a primary vehicle for demonstrating training's contribution to an organization's bottom line results, it is useful to assess which type of training evaluation method is most effective for this purpose. With respect to upper management's role in ultimately determining the budget which each functional area receives, it is critical to consider which training evaluation method most effectively communicates to management staff that training can influence an organization's productivity.

The purpose of this study was to determine which training evaluation method elicited the most management support of the training function among corporate managers. The study provided training professionals with a feasible means of obtaining top management support of the training function. To facilitate these processes, the investigator designed a case study survey instrument to assess the extent of management support of training which used each of four types of training evaluation methods. According to Kirkpatrick (1975, 1977, 1979, 1983a), the four evaluation methods consist of an assessment of reaction, learning, behavior, and results. By determining which training evaluation method is associated with the highest level of management support, training professionals may have more data from which to assess how to obtain management support of the training function in their

organizations. With increased management support of the training function, increased financial resources may become available to training. Greater financial resources may stimulate more effective programming in the training area.

CHAPTER TWO

Review of Related Research

Training professionals have several evaluation methods available in order to determine the effectiveness of training in organizations. It is critical that training personnel use those methods which assess whether the organization is receiving a significant return on its investments in terms of human resources, time, and money needed to conduct the training program (Scott, 1975). Some methods of evaluation are more closely aligned with this perspective than are others. A thorough review of these methods is important for understanding the relationship between training evaluation and the organizational bottom line.

There are four types of evaluation methods which training personnel use to assess training effectiveness. These include the following:

1. Reaction by the trainee to training
2. Learning which occurred by the trainee
3. Behavior changes of the trainee on the job
4. Results which reflect changes in organizational or departmental productivity (Brethower & Rummler, 1976; Dopyera & Pitone, 1983; Kirkpatrick, 1975, 1977, 1979, 1983a, 1983b; Swierczek & Carmichael, 1985).

Reaction assesses the trainees' feelings about the quality of the program, their suggestions for improvement, and the extent to which they liked the program. The training professional conducts the reaction format immediately after training through interviews or written comment sheets to which each trainee responds (Kirkpatrick, 1983a, 1983b; Watson, 1979). The reaction method has a high frequency of use because it is easy to use (Newstrom, 1978). A problem with this method is that it is based on opinion rather than fact and is subject to the halo effect in which the trainer's charisma and personality influence the trainee's reaction (Salinger & Deming, 1982). An additional problem is that reaction evaluations do not indicate whether significant changes in the trainee's performance or organizational productivity occur. With this method there is no assessment of whether the trainee and/or the organization profited from the trainee's attendance at the seminar (Dopyera & Pitone, 1983). Subsequently, with the reaction evaluation format it is impossible to demonstrate the effect which training has had on organizational effectiveness.

To evaluate learning, training professionals typically use a pretest-posttest format which assesses the trainee's basic retention of various principles, theory, and information (Kohn & Parker, 1975). The pretest may occur before the training seminar and/or before specific units

are taught within the seminar. Similarly, a posttest may occur after training and/or after specific units which occur during training. A variation of the pretest-posttest format is the pre-then-posttest which assesses knowledge before training through the trainees' hind-sight evaluations after training; it further assesses knowledge after training through the trainees' evaluations of their current abilities at the completion of training. The pre-then-posttest format helps reduce response shift bias which involves the trainee having a different frame of reference from pretest to posttest assessment (Preziosi & Legg, 1983). The problem with both the pretest-posttest and pre-then-posttest formats is that, even if learning does occur, there is no guarantee that the learning has transferred to the work site. Typical indicators of learning include the classroom performance of specific material taught in the seminar and paper-and-pencil tests.

In order to assess the application of newly learned skills to the job, training personnel use evaluations of behavior. A pre-post performance appraisal system is one method which assesses behavior changes on the job. In addition to the trainee and the trainee's supervisor, the trainee's subordinates, peers, and/or clients could participate in the appraisal system. Ideally, training professionals should conduct the performance appraisal immediately before and several months after training to

assure adequate time for behavior changes to develop (Kirkpatrick, 1983a). A primary problem with this method is that performance appraisal systems focus on subjective evaluations of behavior.

Alternative measures for assessing behavior change include questionnaires and interviews. As with performance appraisal systems, questionnaires and interviews are associated with subjective opinions. Another problem with interviews and questionnaires is that, in the measurement of verbal or written behavior, one may be assessing what people say they do rather than actually what they are doing. Verbal and written reports also have low reliability as a measure of behavior change (Brown, 1982). An alternative means of assessing behavioral performance is through direct observation. According to Borg and Gall (1983), direct observation of behavior is very costly, time-consuming, and subject to observer bias. Even if training professionals were able to overcome many of these obstacles, behavioral evaluations may still be difficult to conduct because it is not often feasible to gain access to specific employee performance data (Dopyera & Pitone, 1983).

Currently, a transition is occurring in the variables assessed in training evaluation from one of reaction, learning, and behavior to one of results, primarily because management staff is demanding greater account-

ability for training to prove its worth to the organization (Brinkerhoff, 1981; Parker, 1984). According to Smith (1980), "'accountability' means requiring the training staff to produce documented evidence of training quality and efficiency on a regular or periodic basis" (p. 74). Top management is seeking and demanding proof that the training investment pays off for the organization through improved productivity (Salinger, 1981). A primary indicator of job productivity is a measurable result which is associated with organizational objectives (Alden, 1976). Training personnel determine measurable results through examination of such variables as labor costs, sales records, accident records, grievance claims, disciplinary actions, absenteeism, rejects, and staff turnover (Brinkerhoff, 1983; Hahne, 1981; Kearsley & Compton, 1981; Kirkpatrick, 1975; Rosentreter, 1978; Trapnell, 1984). The most significant problem associated with the results-oriented evaluation method is that training professionals may not know how to demonstrate specifically the effects which training has on these bottom line results (Kelley et al., 1984).

For both behavior and results evaluation strategies, researchers have conducted studies to demonstrate how to use experimental designs in showing training effectiveness (Brethower & Rummler, 1976; Brown, 1980). Researchers have used these designs to assess both behavior changes

and productivity results which occur due to training. The most appropriate experimental designs to assess behavior and results are the before-after design, the control group design, and the multiple baseline design.

The before-after design measures employee behavior or results before training and after training. One problem with the before-after design is that it is difficult to discern whether to attribute a change in performance or results to training or to other variables which happen to occur during that same time period (Brethower & Rummler, 1976). Brown (1980) further noted that with this design the possibility of other explanations accounting for the changes achieved restricted the conclusions one may reach. With the before-after design, external validity--the degree to which changes in the dependent variable(s) are attributed to changes in the independent variable(s) and not to some other environmental variable(s)--is low.

A second type of research design which training professionals use to assess training's impact on behavior or results is the control group design. With this design one group receives training while a comparable group does not. To determine the effects of training the researcher measures each group. A major difficulty with this design in non-research environments such as work settings is that one may not be able to find two naturally occurring groups which are comparable on a variety of dimensions (Brethower

& Rummler, 1976). Other difficulties include the costs associated with this method, problems in holding environmental variables constant, and the ethical problems associated with exposing one group to training and withholding it from another group (Brown, 1980).

A third experimental design for assessing training effectiveness is the multiple baseline design which assesses the same training program with different groups at staggered points in time. Of all the experimental designs relevant for assessing training effectiveness in the work environment, this design appears most useful. The multiple baseline design eliminates many of the problems associated with other experimental designs; this design improves validity and lowers costs because there is no need to use a separate control group which is not exposed to training. A problem which this design appears to pose in an organization is that a company may wish to expand training which has only proven itself successful in the first time interval. An organization may be unwilling to wait for the training program to proceed through all time intervals designated (Brethower & Rummler, 1976).

Two types of multiple baseline designs are available to training professionals for evaluation of training efforts:

1. Multiple baseline design across behaviors or results variables

2. Multiple baseline design across subjects or groups. The first design, across behaviors or results variables, evaluates the effect(s) of one training intervention on two or more different behaviors or productivity results. The second design, across subjects or groups, assesses the effect(s) of a training intervention on two or more classifications or groups of employees (Brown, 1980).

The multiple baseline design is the recommended approach for evaluating the impact which training has on either behavior or results. According to Brown (1980),

> Because of the simplicity of this [multiple baseline] design, and the ease with which the data collected may be analyzed, we believe that it is ideal for use in the "real world" as a practical method for evaluating the impact of training on employee behavior, and/or the results of employee behavior. (p. 16)

Traditionally, most training professionals have not incorporated the results-oriented method into their evaluation strategies. Whether the results-oriented evaluation format increases management support of training is subject to conjecture. What is significant is the fact that the use of productivity indicators in results-oriented evaluations demonstrates to top management that training can contribute to the financial well-being of the organization (Trapnell, 1984).

Several researchers have investigated the trainer's use of each of the four evaluation types--reaction, learning, behavior, and results. In one research study, Catalanello and Kirkpatrick (1975) distributed to trainers in 154 companies questionnaires which assessed frequency of use of each evaluation type. With a response rate of 71%, 78% of the trainers assessed training through a reaction format while about 50% each used learning, behavior, and results evaluation formats. Continuing to investigate these data in further detail, the researchers considered the latter three evaluation methods--learning, behavior, and results--by sending questionnaires to trainers in 86 firms. With a response rate of 55%, the researchers discovered that 91% utilized the learning evaluation method, 45% used the behavior evaluation format, and only 34% used the results evaluation procedure.

In a final segment of the study, the researchers used an analysis to combine the 110 responses (from a 71% response rate for 154 companies), 47 responses (from a 55% response rate for 86 companies), and 10 personal interviews the researchers conducted with training personnel. Results indicated that 77% of those surveyed used reaction evaluation, 51% used learning evaluation, 54% used behavior evaluation, and 45% used results evaluation.

Several weaknesses of this study include a lack of

detail about the interviewing method used, a small N for these interviews, and a lack of clarity regarding how the three data sets were "combined." These concerns pose an issue as to the effectiveness of the methods used, the appropriateness of the analysis conducted, and a questioning of the results obtained. Despite these weaknesses, results consistently demonstrated that training professionals used the results-oriented evaluation format the least. A problem with this study is that the data obtained from the questionnaires distributed to the 86 firms contradicted the data obtained earlier from 154 firms. For example, the researchers demonstrated use of the learning evaluation format by 91% of the companies in the latter segment of the study and only 50% in an earlier segment of the study. Another significant concern with this study is that the percentage of use of behavior and results evaluations appeared unusually high, with respect to both what the research literature demonstrates and what this investigator finds to be common practice in the field of training.

Smeltzer (1979) corroborated this concern with more convincing results regarding the frequency of use of each evaluation type. In a survey of 285 training officers in manufacturing, health service, finance, retail, utility, insurance, and government, the researcher assessed their use of each evaluation type--reaction, learning, behavior,

and results. In management/supervisory development programs, training officers stated that they used each evaluation type according to the averaged percentages noted in Table 1. According to Table 1, the least used

Table 1

Average Percentage of Use by Training Officers of Each Evaluation Type in Management/Supervisory Development Programs in a Study Conducted by Smeltzer (1979)

Evaluation type	Average percentage (N = 285)
Reaction	73
Learning	82
Behavior	19
Results	12

evaluation methods were the behavior and results formats, with results-oriented methods having the lowest frequency of use.

These data are important for consideration because they indicate that training professionals may be underutilizing a potent evaluation method--the results-oriented approach. With this low frequency of use of the results-oriented evaluation method, the training function

has less accountability to the organizational bottom line than if this approach were used more frequently. While some organizations still maintain that training is appropriate regardless of the financial benefits to the organization, a results evaluation training format could improve the organization's support and commitment to the training function (Rosentreter, 1978).

Top management is seeking accountability that the money spent on training impacts the organization's bottom line (Parker, 1984; Zenger & Hargis, 1982). Evaluation is an effective strategy for showing that the organization's investment in training contributes to organizational objectives (Morano, 1975). In a summative evaluation of 72 articles regarding training evaluation from 1980 through 1985, Parker (1984) noted that,

> The general purpose of training and development evaluation which is at least <u>implied</u> in 90% of these articles is to provide information for decisions about continuation, expansion, or contraction of training. The summative evaluative objective in these articles seems to be to prove to those who hold the purse strings that the training function is worthwhile (p. 5).

For training professionals, it would be significant to examine which evaluation method influences to the greatest extent management's support of the training function.

To date, the literature indicates that investigators have not examined this situation. An examination of this situation could develop more effective training, improved organizational results, and potentially better relationships between operations managers and training professionals.

CHAPTER THREE

Hypothesis Formulation and Hypotheses

Training is an investment which an organization makes in its human resources to impact the bottom line (Salinger, 1981). Top management is seeking accountability that training yields a return on investment for the organization (Becker, 1981; Scott, 1975; Zenger & Hargis, 1982). Researchers have demonstrated that training professionals can improve accountability through use of evaluation methods which produce documentation of training effectiveness (Brinkerhoff, 1981; Michalak & Yager, 1979; Smith, 1980; Stufflebeam, 1978). From this perspective, it becomes important to associate training with the evaluation method which most clearly contributes to training accountability. The literature indicates that the results-oriented evaluation format most effectively relates to bottom line accountability (Brown, 1980; Parker, 1984). McTague (1981) summarized this position by stating that, "to be effective, HRD [Human Resources Development] must be evaluated by results achieved. . . . even behavior change does not guarantee that the organization will achieve appropriate results" (p. 9).

According to the literature, results-oriented evaluations are associated with training accountability, and accountability is what top management demands of the

training function. From this perspective, it would appear that operations managers would be most likely to support those training efforts which use results evaluation. Subsequently, the research question becomes one of determining the accuracy of this conclusion--are operations managers more likely to support training based on results evaluations than other evaluation methods?

Null Hypotheses:

Ho_1 There is no significant difference in support of training based on evaluation types consisting of (a) reaction, (b) learning, (c) behavior, or (d) results, among MBA managers.

Ho_2 There is no significant difference in support of training based on evaluation types consisting of (a) reaction, (b) learning, (c) behavior, or (d) results, among non-training managers.

Ho_3 There is no significant difference in support of training based on evaluation types consisting of (a) reaction, (b) learning, (c) behavior, or (d) results, among a combined sample of non-training managers and MBA managers.

Directional Hypotheses:

H_1 MBA managers are more likely to support training which uses results evaluation then either reaction, learning, or behavior evaluation.

H_2 Non-training managers are more likely to support training which uses results evaluation than either reaction, learning, or behavior evaluation.

H_3 Non-training and MBA managers are more likely to support training which uses results evaluation than either reaction, learning, or behavior evaluation.

CHAPTER FOUR

Definitions

In this study, the independent variable is the type of evaluation method which training professionals use to assess training effectiveness. The four types of training evaluation methods are those which assess trainee reaction to training, trainee learning, trainee behavior changes, and organizational productivity results.

Reaction evaluation is an immediate assessment following training. This form of evaluation focuses on how the trainee felt about the training program overall, its content, methods, and the skill of the facilitator.

Learning evaluation is an assessment of how well the trainee retained the material taught in the seminar. This form of evaluation focuses on the difference between a pre-measure and a post-measure of learning. Measures usually occur immediately before training (a pretest) to several months after training (a posttest) and are consistent with current training practice.

Behavior evaluation methods assess on-the-job changes in trainee performance through a variety of pre-post measurement systems. This evaluation method assesses how effectively the trainee applies the learning to the job. The trainee, the trainee's supervisor, subordinates(s), and/or peer(s) may complete a behavior evaluation. In the

behavior evaluation format the pre-measure usually occurs immediately before training while the post-measure usually occurs three or more months after training.

Results evaluation uses objective productivity indices to demonstrate the effectiveness of the training program. These indices may include such factors as number of employee grievances, number of disciplinary actions, number of sales contracts, absenteeism figures, sales volume, and turnover rates. These statistics are associated with pre-training and post-training measures of productivity.

The dependent variable is support of the training program. Support is the extent to which managers believe that training is effective, that it should receive top management backing, and the necessary funds to continue its service to the organization.

Non-training manager is any person with the title of "Vice President, Director, Manager, Supervisor, Administrator," or "Coordinator" at Group Health, Inc. For purposes of this study, the investigator excluded from this definition training managers.

MBA manager is any student enrolled in the part-time MBA program at the College of St. Thomas and who is a practicing manager with the title of "Vice President, Director, Manager, Supervisor, Administrator," or "Coordinator." The investigator excluded training

managers and non-managers from this group.

CHAPTER FIVE

Method

The purpose of this chapter is to review the methodology used in this study with respect to subjects, instrument, and procedures. The subjects selected received a case study instrument designed to assess the level of management support of the training function. Before surveying MBA managers and non-training managers, the investigator conducted validity, reliability, and pilot studies.

Population

Two populations in this study were part-time MBA students and non-training managers in industry. In the MBA sample, officials at the College of St. Thomas selected four required classes in the part-time MBA Program at the College of St. Thomas. These four classes are required of all students who are in their second year of a three year MBA program. A total of 90 MBA students from four classes participated. The investigator used MBA students in the part-time program because these students were more likely to be employed as managers than full-time MBA students and more likely to respond from a real-world perspective as to how managers behave. The investigator used required rather than elective classes to reduce any biases which may be associated with students who elect

various courses. The investigator eliminated from the study training managers and respondents who were not managers. The investigator did not replace these eliminated individuals with additional subjects.

In order to determine the generalizability of results across populations, the investigator replicated the study with a random sample of 75 non-training managers from a total of 150 managers within a national organization, Group Health, Inc., headquartered in the Twin Cities.

Instrument

The investigator used the researcher-developed Training Evaluation Methods Survey (TEMS) to assess the level of management support of training for each type of evaluation method (see Appendix A). A cover letter describing the purpose of the study and logistics procedures accompanied the TEMS (see Appendix A). The TEMS described four scenarios, each of which illustrated one of the four evaluation types--reaction, learning, behavior, and results--which Kirkpatrick (1975, 1977, 1979, 1983a, 1983b) described. Following each scenario was a question designed to elicit the extent of management support of the training program discussed in each evaluation scenario. At the end of the TEMS was another question designed to assess the relative level of management support of training based upon consideration of all four evaluation scenario descriptions. Questions relating

to demographic data followed the last evaluation scenario.

Procedure

To be certain that each scenario description was an accurate illustration of each evaluation type, the investigator used expert opinion for arriving at the validity of these descriptions. Each of 11 training experts received a letter requesting their assistance, as well as a cover letter which study participants would receive and the first draft of the TEMS which was the unrevised instrument (see Appendix B). The 11 training experts were to read this first draft of the TEMS and provide suggestions for its improvement and comments regarding how accurately each scenario represented each evaluation type. The investigator incorporated relevant suggestions into a revised version of the first draft--the second draft of the TEMS (see Appendix C).

The investigator used the second draft of the TEMS in the pilot study in order to discover potential problems with the second draft, to make appropriate revisions in this second draft, and to assess the ease of its implementation (see Appendix C). These revisions were incorporated into the final product of the TEMS (see Appendix A). The pilot study consisted of the investigator disseminating the survey to a class of 20 graduate students in the Training and Development Program at the University of Minnesota. In Appendix D is the script

• which the investigator delivered to the pilot sample to explain the procedure to them.

To establish the reliability of the TEMS, the investigator randomly distributed the TEMS to 20 out of a total of 25 exempt professionals in three departments at Group Health, Inc. Using a test-retest reliability procedure, the investigator asked these individuals to complete the TEMS; instructions for their participation are in Appendix A. One week after the first administration of the TEMS, the investigator readministered the TEMS to this same group of individuals.

Responses on the TEMS produced interval data on the Likert-type items to assess the dependent variable--the level of management support of training. Instructions on the TEMS directed participants to select one response for each item on the Likert-type scale.

To reduce the bias associated with the order of presentation of the evaluation scenarios, the investigator randomly ordered these scenarios. The investigator used a random number table to order these scenarios within each TEMS.

Participants received the TEMS in two formats, depending upon the sample. Ninety MBA students from the College of St. Thomas received the TEMS in their class from the investigator. A script of the instructions which the investigator delivered to the MBA sample is contained

in Appendix E. The investigator instructed the MBA students to complete the TEMS during class time and return it in the blank envelope provided. The investigator eliminated from the study training managers and respondents who were not managers. For the manager sample, the investigator randomly selected 75 out of a total of 150 managers at Group Health, Inc. Non-training managers from the management sample at Group Health, Inc. received the TEMS through inter-office mail, with instructions to return it through the same vehicle.

This single factor block design study included four decisions which each subject made regarding level of support. The investigator used a two-way ANOVA and a chi-square to test the hypotheses. In addition, the investigator conducted a chi-square analysis to determine if there was a significant difference between the MBA group and the manager group.

In order to determine if there were interaction effects which contributed to the results obtained, the investigator collected demographic information on each respondent (see Appendix A). The investigator graphed scatter plots to assess these interaction effects according to the following format:

1. (Reaction, Learning, Behavior, Results) x Title
2. (Reaction, Learning, Behavior, Results) x Years of experience

3. (Reaction, Learning, Behavior, Results) x Number of people managed
4. (Reaction, Learning, Behavior, Results) x Annual budget
5. (Reaction, Learning, Behavior, Results) x Sex.

CHAPTER SIX

Results

The training experts established the validity of the TEMS. The investigator asked the training experts to determine if the TEMS measured what it purported to measure. The investigator sent the TEMS to 11 training experts for their review and validation; all 11 reviewed and returned the TEMS. Appendix F lists the name and organization of each of these training experts.

Results from the validation procedure indicated that the TEMS measured the four evaluation types--reaction, learning, behavior, and results. Several experts recommended assessing the learning evaluation in a more objective format. Subsequent to this recommendation, the investigator revised the learning scenario to measure learning via percentage of test items correct rather than subjective ratings of learning effectiveness which the first draft of the TEMS measured.

Another common concern which these training experts had with the TEMS was that the Likert type scale used comparative adjectives--"least, most"--even though there were no comparisons asked of respondents within each scenario description. Subsequently, the investigator changed these adjectives accordingly as Appendix A demonstrates. Another suggestion to improve the scale was

to have internal markings between each numerical marking to increase the investigator's accuracy in interpreting responses. The investigator incorporated this suggestion into the final instrument as Appendix A demonstrates. The investigator incorporated relevant additional comments and suggestions into a revised draft of the TEMS.

Through the pilot study procedure, the investigator determined that it took between 15 and 20 minutes to complete the TEMS and that none of the respondents had difficulty completing the instrument. The response rate was 100%. The most significant comment that respondents had was that the scenarios appeared inequitable, in that the reaction evaluation data from that scenario description were not as positive as the data from the three other evaluation descriptions. To make these scenario descriptions appear in a more equitable format, the investigator adjusted, in the positive direction, the "x's" on the reaction format.

Another common problem which the respondents had was that the sales after training in the results evaluation scenario were unrealistically high in Midwest Sales Districts B and C. Subsequent to these comments, the investigator decreased sales after training to a more realistic level in the results evaluation scenario in these Sales Districts.

To assess reliability, the investigator administered

the TEMS to 20 exempt professionals at Group Health, Inc. Response rates for both the first and second administrations of the TEMS were 100%. The investigator determined reliabilities by comparing the data from the first administration with data from the second administration for each of five sections of the TEMS. These sections consisted of the reaction scenario, the learning scenario, the behavior scenario, the results scenario, and the final section which questioned respondents regarding the evaluation scenario to which they gave the most overall support. Table 2 lists the Pearson product-moment correlation coefficients for each of these sections. Due to the high reliability coefficients for each section, the investigator determined that the TEMS was a reliable instrument in that respondents using it produced consistent data over time. Based upon this evaluation, the TEMS was relatively free of error variance.

In the MBA sample, all 90 participants responded to the TEMS for a response rate of 100%. The investigator eliminated 27 respondents from the study; these respondents were either non-managers or training managers. With the 27 respondents eliminated, there were 63 completed TEMS which the investigator used in the data analysis. In the manager sample, 42 out of 75 participants returned the TEMS for a response rate of 56%.

Table 2

Test-retest Reliability Coefficients (N = 20) for Each Evaluation Section and Final Overall Section of the TEMS

Section of TEMS	Reliability coefficient
Reaction	.93
Learning	.96
Behavior	.89
Results	.88
Final	.95

Within the MBA sample, the mean responses indicated that the results evaluation format elicited the most support (4.44), with progressively less support for behavior (3.57), learning (3.39), and reaction (2.80) evaluations, respectively. As the TEMS (see Appendix A) shows, scores ranged from 1 through 5 with the following benchmark values:

1 - Unlikely to give support

2 - Minimally likely to give support

3 - Somewhat likely to give support

4 - Likely to give support

5 - Very likely to give support.

Table 3 lists the average support scores and standard deviations for all three subject groups--MBA students, managers, and the combined sample of MBA students and managers.

The investigator used both the F statistic (checking for equality of treatment means) and a chi-square to test the hypotheses. Scores for the MBA students, on the average, deviated from the mean with values from .59 to .96, as shown in Table 3. For the MBA sample, the ANOVA and chi-square demonstrated significant results, $\underline{F}(3, 186) = 64.05$, $\underline{p}<.0001$ and $\chi^2(3, \underline{N} = 63) = 125$, $\underline{p}<.001$, respectively. From these data analyses, the investigator rejected the null hypothesis and accepted the directional hypothesis for the MBA group.

Mean responses from the manager sample demonstrated that the results evaluation method received the most support (4.44), with progressively less support for behavior (3.75), learning (3.63), and reaction (3.33) evaluations, respectively (Table 3). Standard deviations for this group ranged from .55 to 1.05. For the manager group, the ANOVA and chi-square demonstrated significant results, $\underline{F}(3, 123) = 17.08$, $\underline{p}<.0001$ and $\chi^2(3, \underline{N} = 42) = 65.6$, $\underline{p}<.001$, respectively. From these data analyses, the investigator rejected the null hypothesis and accepted the directional hypothesis for the manager group.

Within the combined sample of MBA students and

Table 3

Average Responses and Standard Deviations for Each Type of Training Evaluation Method for Each Subject Group

	Values on a 5 point Likert scale	
Subject group	Average response	Standard deviation
MBA (N = 63)		
Reaction	2.80	.96
Learning	3.39	.91
Behavior	3.57	.88
Results	4.44	.59
Manager (N = 42)		
Reaction	3.33	1.00
Learning	3.63	1.05
Behavior	3.75	.87
Results	4.44	.55
Combined (N = 105)		
Reaction	3.01	1.02
Learning	3.49	.97
Behavior	3.64	.87
Results	4.44	.57

managers, mean responses demonstrated that the results evaluation format received the most support (4.44), with progressively less support for behavior (3.64), learning (3.49), and reaction (3.01) evaluations, respectively (see Table 3). Standard deviations for this combined group ranged from .57 to 1.02.

For the combined group, the ANOVA demonstrated significant results, $\underline{F}(3, 312) = 74.71$, $\underline{p}<.0001$. From this analysis, the investigator rejected the null hypothesis and accepted the directional hypothesis for the combined group.

Table 4 shows the percentage of respondents who selected the evaluation scenario for which they gave the most support for each subject group. The data demonstrated that the results evaluation format received the most support for all subject groups. In analyzing those percentages in further detail, the investigator found a $\chi^2(3, \underline{N} = 63) = 125$, $\underline{p}<.001$ for the MBA group, and a $\chi^2(3, \underline{N} = 42) = 65.6$, $\underline{p}<.001$ for the manager group. The data were significant with the results evaluation format receiving the most support.

The investigator also computed a chi-square to determine if there was a significant difference between the MBA group and the manager group. Results showed a $\chi^2(2, \underline{N} = 105) = 1.84$, indicating no significant difference between the MBA group and the manager group.

Table 4

Percentage of Respondents Who Selected the Evaluation Type for Which They Gave the Most Support for Each Subject Group

Subject Group	Percentage
MBA (N = 63)	
Reaction	0
Learning	5
Behavior	9
Results	86
Manager (N = 42)	
Reaction	0
Learning	12
Behavior	9
Results	79
Combined (N = 105)	
Reaction	0
Learning	8
Behavior	9
Results	83

In analyzing scatterplots of the demographic data, the investigator found no patterns (see Appendix G). There were no interaction effects between any of the evaluation types and title, years of experience, number of people managed, annual budget, or sex.

CHAPTER SEVEN

Summary and Discussion

The TEMS effectively distinguished among levels of management support of training which used the reaction, learning, behavior, and results scenarios as evaluation methods. In both samples, consisting of MBA students and non-training managers, the data were significant, with respondents giving the most support for the results evaluation format. When the investigator compared the two samples, the data were again significant, indicating no significant difference between the groups. Managers in industry seek accountability of the training function. The present research carries this position one step further by associating accountability with the use of organizational results for demonstrating the effectiveness of the training function.

This research demonstrates similar results for both samples, showing that the model produces consistent data and is not dependent on subject group. Related to this result is an implication for further research. Since this investigator sampled only two population groups, it may be appropriate to test this model on a wide range of industries in order to demonstrate the generalizability of results across populations. The results from this study are generalizable to two population groups--2nd year MBA

students who are non-training managers in required courses at the College of St. Thomas and non-training managers at Group Health, Inc. The current research has set the pace for the replication of an effective model in industries such as high technology, finance, service, health care, retail, and manufacturing.

It may be useful to consider using this model with a much larger number of subjects. The investigator was not able to determine significant interaction effects; this situation may have been due to a relatively small sample size. A larger sample size could contribute to more effective discrimination of interaction effects with the demographic variables used in the study. As Hays (1963) noted, increasing the sample size makes a given statistical test more powerful. Associated with assessing the effects different variables have on the results, future researchers may wish to consider the effects which other variables may have on support of training. Some of these intervening variables may include manager salary, size of the organization, type of industry, and organizational dollars spent on training.

This study assessed support through selected evaluation strategies associated with each evaluation type. The investigator selected the various evaluation strategies, such as multiple baseline and pre-post formats, based upon what the research literature indicated would be

appropriate assessment methods. Of significance is the fact that there were other assessment methods which the investigator could have selected. Subsequently, it may be useful to assess level of support of training through the use of other evaluation strategies. For example, future researchers may wish to assess level of support of the behavior evaluation format through a strategy using a control group design rather than a multiple baseline design. Another possibility is to assess learning through a pre-then-posttest format, as discussed earlier in this paper, rather than a pre-post format. With the development and refinement of a number of assessment strategies, training professionals may have more relevant evaluation tools available.

Related to this issue of using other evaluation strategies, it may be important to assess which evaluation strategy is most effective in obtaining management support within each evaluation method. For example, it may be useful for training professionals to determine, from among several evaluation strategies, which evaluation strategy receives the most support within one evaluation format such as the results evaluation format. This is a refinement of the current research which used only one strategy, the multiple baseline design, for assessing level of management support of the results evaluation format. There could potentially be other designs which

are more effective in gaining management support of the training function than the use of the multiple baseline design with the results evaluation format. This method would facilitate the development of potentially more meaningful evaluation strategies for each evaluation method.

The investigator had selected sales figures as the organizational result in the results evaluation format. It would be interesting to assess other organizational results to determine the level of management support for each of these. Future research could potentially consider such variables as number of grievance claims, accident records, turnover figures, absenteeism data, and scrap rates. Support of these variables could be dependent on such factors as type of industry and the various functional responsibilities of the management group assessed. The implication for further research would be to design a study which determines which <u>type</u> of organizational results receives the most support, with consideration of type of industry and functional management responsibilities of the group surveyed.

While the investigator desired a return rate greater than 56% for the manager sample, the structure of the study reduced the negative effects associated with a lower return rate. Specifically, since the investigator conducted an identical study with the MBA students who

provided a 100% response rate and the results were significant for each group, the 56% response rate is not of critical concern. Since there were no significant differences between groups, the lower response rate for the manager group becomes of even less concern.

A few individuals commented on the TEMS that they could see value in combining evaluation methods. This idea is worth exploring in further detail. While the investigator asked respondents to select only one choice related to their overall level of support, it may be that a combination of methods is more effective than one single evaluation method. This study did not assess the effects which combinations of evaluation formats have on level of managerial support. Because of the progression in level of support from reaction to learning to behavior to results, the research suggests that perhaps behavior and results evaluation formats might be an effective combination to consider. This suggestion can only be subject to conjecture at the present time. Further research might validate this supposition.

Another future direction for training professionals to consider is the contribution which results-evaluation data can make in the area of cost-benefit analyses. This is an important consideration in planning results evaluation studies because the data gathered from these studies must be translatable into a cost-benefit formula; this is

instrumental in determining whether the productivity results from training yield a significant return on investment. A high level of productivity resulting from training is meaningless if the training program costs more than the productivity results achieved. Subsequently, training professionals need more rigorous training, not only in evaluation strategies, but also in designing cost-benefit analyses. According to Mangum (1984), and Mosier (1986), while training directors acknowledge the significance of cost-benefit analyses of training programs, these analyses usually take the form of informal, unstructured, "gut feelings" computations rather than more formal, data intensive approaches. Therefore, it is imperative that training professionals consider the interaction of training evaluation methods with cost-benefit analysis studies.

In conclusion, this research corroborates the model that non-training managers are most supportive of training programs which evaluate their effectiveness through a results-oriented approach. With financial accountability of increasing concern in industry it is becoming necessary to consider training approaches which are associated with this financial perspective. The results evaluation format is directly associated with such an accountability system. To gain momentum for the use of this approach by training professionals, continuing research and increased

education are necessary. Research regarding the most effective evaluation strategies for demonstrating training accountability and educational opportunities in providing training professionals with the most relevant applications of these strategies could improve the training function, as well as organizational productivity. Without such a system, the vitality of the training function will remain at the discretion of non-training professionals who control the budgeting process. With such an accountability system, training will assume a more proactive and professional stance with greater force to affect positively the outcome of the organization.

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APPENDICES

APPENDIX A

Cover Letters to MBA Students, Managers, and Reliability Participants with the Accompanying TEMS

Cover Letter to MBA Students

April 23, 1986

Dear MBA Student:

I am asking for your participation in a study examining training evaluation. The purpose of this study is to assess how supportive managers are of training which uses different types of evaluation methods. The enclosed case study instrument (TEMS) presents a training problem and four scenarios which reflect different methods of training evaluation. You will be asked to respond to a survey question for each method and to respond to general questions at the completion of the scenarios.

Because I am interested in the responses of non-training managers, your responses are particularly important. Individual responses are confidential.

The data from this study will be used for my doctoral dissertation in association with the Training and Development Research Center at the University of Minnesota. My sample size is small and your responses are significant to the success of this project. If you have any questions or concerns, please feel free to contact me at 623-8516.

Please complete the survey during class at the designated time and return it to me in the attached blank envelope. If you would like to receive a summary of the results, please write your name and address on the attached blank note card and give it to your instructor. Thank you for your support.

Sincerely,

Mitchell E. Kusy, Jr.
Doctoral Candidate
University of Minnesota

Cover Letter to Managers

To: GHI Management Staff

From: Mitch Kusy

Re: Research Study

Date: April 23, 1986

I am in the final stage of completing my doctorate from the University of Minnesota and am asking for your participation in my dissertation study examining training evaluation. This research is directly related to a GHI training project which I will be completing at the end of 1986. The purpose of this study is to assess how supportive managers are of training which uses different types of evaluation methods. The enclosed case study instrument (TEMS) presents a training problem and four scenarios which reflect different methods of evaluation. You will be asked to respond to a survey question for each method and to respond to general questions at the completion of the scenarios.

Because I am interested in the responses of non-training managers, your responses are particularly important. Individual responses are confidential.

The data from this study will be used for my doctoral dissertation in association with the Training and Development Research Center at the University of Minnesota. My sample size is small and your responses are significant to the success of this project. If you have any questions or concerns, please feel free to contact me at 623-8516.

Please return the questionnaire to me by April 30. If you would like to receive a summary of the results, please write your name, department, and location on the attached blank note card and return it to me. Thank you for your support.

Cover Letter to Reliability Participants (First Administration)

To: [Department Name] Staff

From: Mitch Kusy

Re: Research Study

Date: April 11, 1986

I am in the final stage of completing my doctorate from the University of Minnesota and am asking for your participation in my dissertation study examining training evaluation. This research is directly related to a GHI training project which I will be completing at the end of 1986. The purpose of this study is to assess how supportive managers are of training which uses different types of evaluation methods.

The enclosed case study instrument (TEMS) presents a training problem and four scenarios which reflect different methods of evaluation. You will be asked to respond to a survey question for each method and to respond to general questions at the completion of the scenarios. Your responses on the TEMS will help me establish the reliability of this instrument. Individual responses are confidential.

The data from this study will be used for my doctoral dissertation in association with the Training and Development Research Center at the University of Minnesota. My sample size is small and your responses are significant to the success of this project. If you have any questions or concerns, please feel free to contact me.

Please return the questionnaire to me by the end of the day. If you would like to receive a summary of the results, please write your name on the attached note card and return it to me. Thank you for your support.

Cover Letter to Reliability Participants (Second Administration)

To: [Department Name] Staff

From: Mitch Kusy

Re: Research Study

Date: April 18, 1986

In order to determine the reliability of the case study instrument which you recently completed, I would like you to complete the TEMS one more time. If you do have any questions regarding this process, please do not hesitate to contact me.

I would appreciate having you return the form by the end of the day. Thank you for your support.

Training Evaluation Methods Survey (TEMS)

Instructions

Please read the description below and respond to the questions which follow. Place an "x" in each category which best describes your response. Thank you.

Background Information

You are the Midwest Sales District Director for a high technology corporation whose headquarters is located on the East Coast. The corporation, HTI Inc., had sales of $300 million in 1982, $425 million in 1983 and $375 million in 1984. In the Midwest region, sales were 5% above projections in 1982, 3.5% above projections in 1983 and 3% below projections in 1984.

The President of HTI has recently called a meeting of all Regional Sales District Directors in order to discuss the decrease in sales from 1983 to 1984. It is the opinion of the President that the decrease in sales is a direct result of poor sales skills of sales professionals at HTI. Market research corroborates this opinion and attributes the decline of new sales to poor sales techniques. The President wants to resolve the problem and it is your responsibility, as the Midwest Sales District Director, to be certain that this occurs in your district.

Subsequent to this meeting, you decide to call a meeting of all your management staff in order to discuss this problem and its resolution. After a thorough investigation of the problem, you and your management staff determine that many of your sales staff do not know how to ask the correct questions to discover client needs; these questions would better equip the sales staff to eventually close a sale.

To validate this conclusion, you consult with the training staff who decide to conduct a needs assessment. After completing the needs assessment, the training staff present you with the results which are in agreement with your original supposition. The results show that many of your sales staff do not know how to consistently and/or appropriately discover client needs. This situation has resulted in a decrease in sales. Of significance is the fact that in 1984, 35% of your sales staff was replaced by new employees. Of this 35%, the needs assessment indicated that almost 90% of these new employees had problems demonstrating an understanding of client needs and in successfully closing a sale.

The training staff selected training as the recommended solution because it was their assessment that these problems related to a skills deficiency. The specific recommendation made by the training staff was to train all new sales staff in the skills necessary to understand customer needs. They agreed to design, develop, deliver and evaluate the training program.

You, as the person responsible for showing an improvement in sales in the Midwest district, are concerned as to how improvement in sales can be most effectively demonstrated. You are confident in the competency of the training staff to select the most appropriate method for demonstrating how training improved sales.

There are four basic types of evaluation procedures available to assess training effectiveness. Any of these four evaluation types could have been selected by the training staff. The four types are described on the following pages. Please read each evaluation type and answer the questions which follow. Each type of evaluation is associated with the critical incident you have just read.

Scenario #1

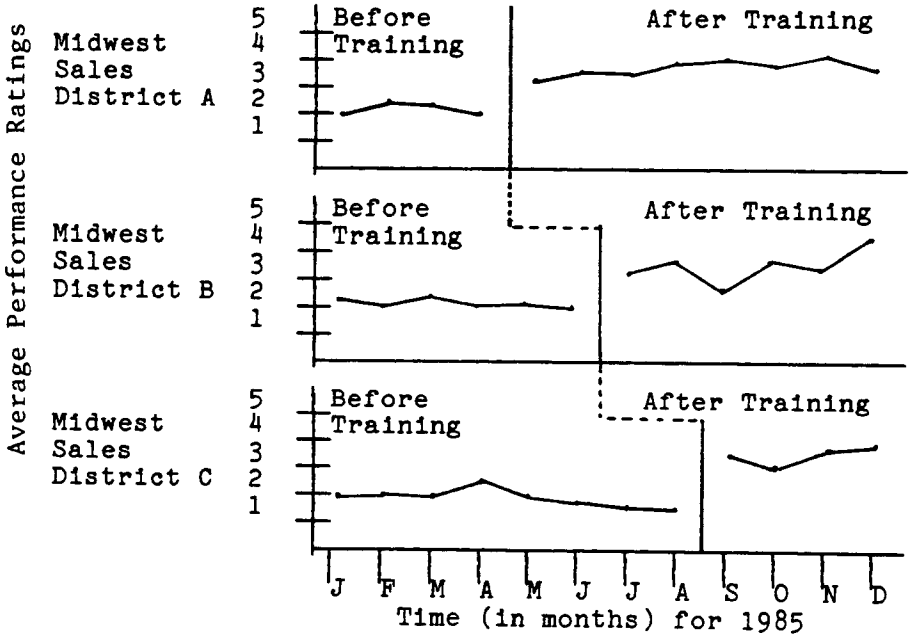
The training staff assessed performance of sales representatives both before and after training regarding how effective sales representatives were in discovering client needs. A performance rating system was used to evaluate performance both before and after training. This rating system consisted of sales representatives sending a performance rating form to their prospective clients. On this form, clients were to respond to 15 items related to effectiveness of the sales representative's questions and whether these questions addressed their needs. Ratings ranged on the continuum below for each of 15 response items related to the needs discovery process.

Range of client ratings for each of 15 response items.

1	2	3	4	5
Very poor questioning skills	Poor questioning skills	Fair questioning skills	Good questioning skills	Very good questioning skills

The before and after training phases continued for varied lengths of time depending on the Sales District of which the sales representative was a member, as indicated by the figure below. The staggered vertical line in this figure represents the actual training program which occurred over a two day period.

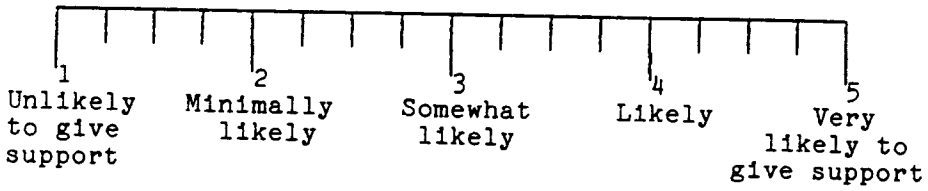
Figure. Average performance ratings of sales representatives by clients regarding effectiveness of needs discovery questions asked.



Scenario #1 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts? Support is defined as your personal position that training is effective, should receive top management backing, and the necessary funds to continue its service to the organization.



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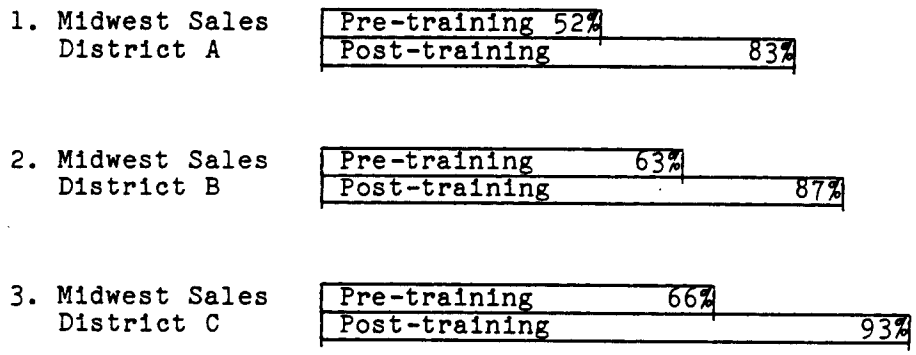
Please proceed.

Scenario #2

The training staff used a pretest and a posttest to assess whether the sales staff learned the basic principles of asking needs discovery questions in the training program. The pretest consisted of 20 questions which addressed the needs discovery process and were to be answered by the sales representatives; an equivalent set of 20 questions were used in the posttest to determine learning as a result of training. At the time the pretest was given, the sales staff were not aware that they would be receiving an equivalent set of 20 questions in the posttest.

With this pre-post test format, the training staff assessed the extent of needs discovery knowledge of each sales representative one week before training (pre-training) and one week after training (post-training). Averaged results of a pretest and posttest of learning effectiveness, based on percentage of total test items correct, are listed in the figure below.

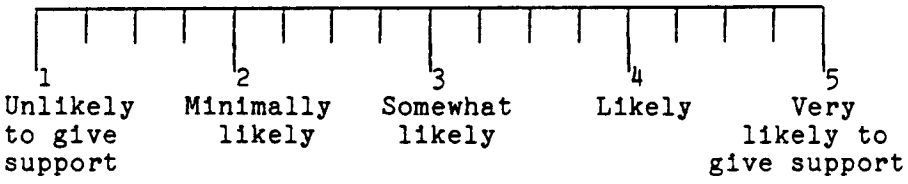
Figure. Average percentage of total test items correct by sales representatives.



Scenario #2 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts? Support is defined as your personal position that training is effective, should receive top management backing, and the necessary funds to continue its service to the organization.



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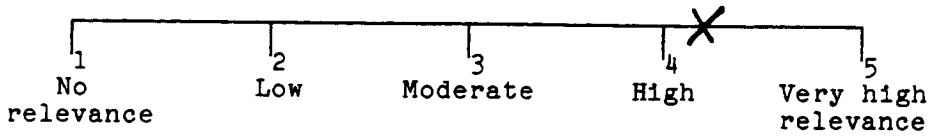
Please proceed.

Scenario #3

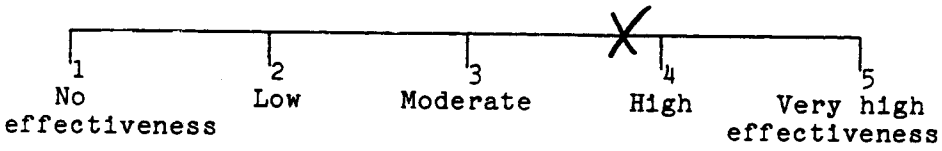
In order to determine the sales representatives' satisfaction with the training program, the training staff decided to measure sales representatives' reactions to the sales training seminar. Immediately at the conclusion of training, a reaction form was distributed to all participants. Averaged results of participant reactions to training are listed below with an "x" indicating the average response.

Sample Questions from Reaction Sheet:

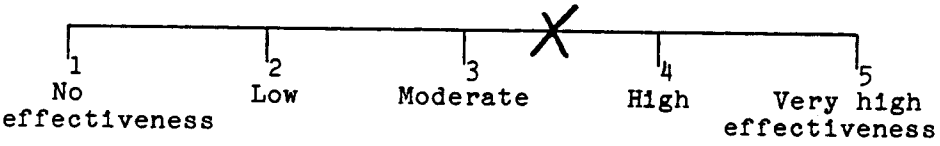
1) To what extent was the seminar content relevant to your job?



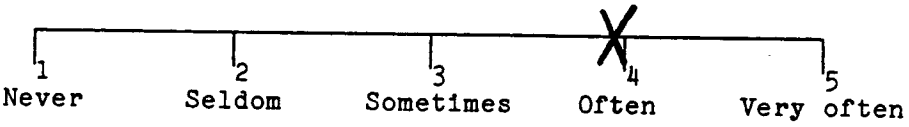
2) To what extent were the workshop methods effective?



3) To what extent was the facilitator effective?



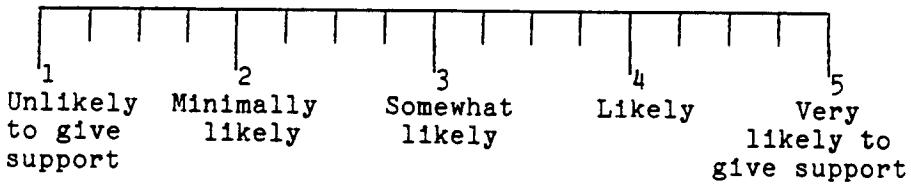
4) To what extent will you use the techniques taught in the seminar?



Scenario #3 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts? Support is defined as your personal position that training is effective, should receive top management backing, and the necessary funds to continue its service to the organization.



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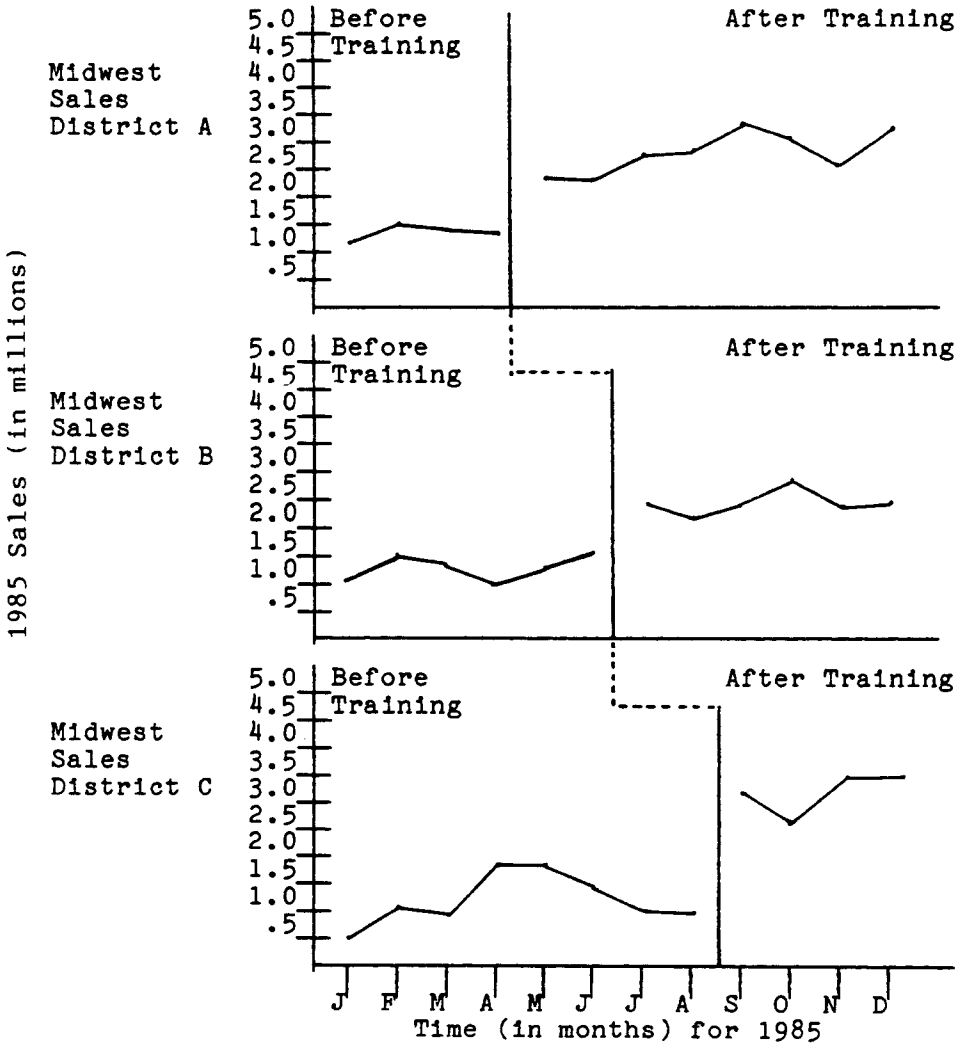
Please proceed.

Scenario #4

The training staff decided to evaluate the effectiveness of the sales training program by considering whether training made an impact on 1985 sales. To conduct this evaluation, they utilized a design which examined sales volume per month across each Midwest sales sub-district before and after training. The length of the before and after training phases was contingent on the sub-district of which the sales representative was a member. The staggered vertical line in the figure below represents the actual training program which occurred over a two day period. The following figure illustrates this method.

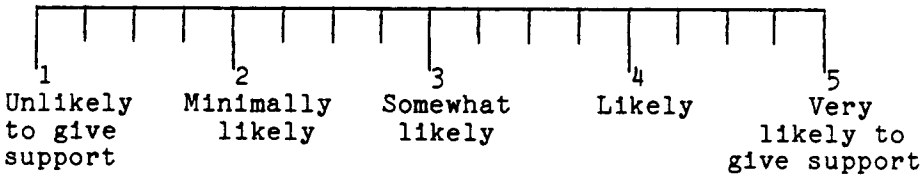
Figure. Sales per month before and after training



Scenario #4 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts? Support is defined as your personal position that training is effective, should receive top management backing, and the necessary funds to continue its service to the organization.



* * *

Please proceed.

With consideration of all the previous scenario descriptions you have just read, please check the appropriate category below.

Based upon which evaluation scenario would you be most likely to give support to the training function? Support is defined as your personal position that training is effective, should receive top management backing, and the necessary funds to continue its service to the organization. Choose only 1.

a. ☐ Evaluation Scenario # 1

b. ☐ Evaluation Scenario # 2

c. ☐ Evaluation Scenario # 3

d. ☐ Evaluation Scenario # 4

Demographic Data:

Please complete the following questions which are for statistical purposes only. As was stated previously, complete confidentiality is guaranteed.

1. What is your job title or occupation?

2. _____ do you have as a manager?
   How many years of experience

3. How many people do you directly manage? _____
4. What is the total annual budget for which you are responsible, including staff salaries and benefits? _____
5. What is your sex? _____

Thank you for your time, consideration, and support.

APPENDIX B

Cover Letter to Training Experts with the Accompanying First Drafts of Cover Letters and TEMS

Cover Letter to Training Experts

March 12, 1986

Dear _____:

I am a doctoral student at the University of Minnesota in Vocational Education with a specialization in training and development. Currently, I am designing my doctoral research project and am requesting your assistance.

I will be conducting a case study survey to assess how supportive managers are of training which uses each of four evaluation types --

- Reaction -- how trainees feel about the training program
- Learning -- how effectively trainees retain the material taught in training
- Behavior -- how effectively trainees apply the skills learned to the job
- Results -- how effectively the training program impacts the organization's productivity results.

Attached is a case study survey (TEMS) and its accompanying cover letter which all participants will receive. Each scenario within the TEMS describes each evaluation type; following each scenario is a series of questions designed to assess level of support. In order to arrive at the face validity of this instrument, please comment on whether I have accurately represented each evaluation type and what I could do to improve the accuracy of the scenario description. While the scenario descriptions will be randomly ordered in the actual case study survey to reduce any bias associated with order, for the purposes of this assignment I have sequenced the descriptions in the following order --

#1 Behavior

#2 Learning

#3 Reaction

#4 Results

Please feel free to make corrections within the TEMS and to write any comments in the margins. I will use these suggestions to improve the validity of the instrument. Please let me know if you would like to receive a summary of my findings at the completion of the study. If you would like, you may contact me at 623-8516.

Thank you for your cooperation and support.

Sincerely,

Mitchell E. Kusy, Jr.

First Draft of Cover Letter to Managers

To: GHI Management Staff

From: Mitch Kusy

Re: Research Study

Date: April 23, 1986

I am in the final stage of completing my doctorate from the University of Minnesota and am asking for your participation in my dissertation study examining training evaluation. This research is directly related to a GHI training project which I will be completing at the end of 1986. The purpose of this study is to determine how management support of the training function is influenced by various types of training evaluations used. The enclosed case study presents a training problem and four scenarios which reflect different methods of evaluation. You will be asked to respond to a survey question for each method and to respond to general questions at the completion of the scenarios.

Because I am interested in the responses of non-training managers, your responses are particularly important. Individual responses are confidential.

The data from this study will be used for my doctoral dissertation in association with the Training and Development Center at the University of Minnesota. My sample size is small and your responses are significant to the success of this project. If you have any questions or concerns, please feel free to contact me at 623-8516.

Please return the questionnaire to me by April 30. If you would like to receive a summary of the results, please write your name on the attached blank envelope and return to me. Thak you for your support.

First Draft of the TEMS

Training Evaluation Methods Survey (TEMS)

Instructions

Please read the description below and answer the questions following each description and at the end of the survey. Place an "X" in each category which best describes your response. Thank you.

Background Information

You are the Midwest Sales Division Manager for a Fortune 500 high technology corporation whose headquarters is located on the East Coast. The corporation, HTI Inc., had sales of $18 billion in 1982, $18.5 billion in 1983 and $18.3 billion in 1984. The President of HTI has recently called a meeting of all Regional Sales Division Managers in order to discuss the decrease in sales from 1984 to 1985. It is the opinion of the President that the decrease in sales is a direct result of poor customer service. The President attributes this decrease to two factors -- declining new sales and current customers leaving HTI to go to the competition. The President wants the problem resolved and it is your responsibility to be certain that this occurs.

Subsequent to this meeting, you decide to call a meeting of all your management staff in order to discuss this problem and its resolution. After a thorough investigation of the problem, you and your management staff determine that HTI sales staff do not know how to practice the basic elements of good customer service. To validate this conclusion, you consult with the training staff who agree to conduct a needs assessment. The results of this needs assessment is in agreement with your original supposition -- that your sales staff do not know how to work with "problem" customers and they do not know how to demonstrate to their customers that they really care about their technology needs. The primary recommendation made by the training staff is to train all sales staff in the effective delivery of good customer service. The training staff agree to design, develop, deliver and evaluate the training program.

You, as the person who must show an improved record to the President, are concerned as to how this can be demonstrated effectively. You leave it to the professional discretion of the training staff to select the most appropriate method for demonstrating training effectiveness and sales improvement.

There are four basic types of evaluation procedures available to assess training effectiveness. Any of these four evaluation types could have been selected by the training staff. The four types are described on the following pages. Please read each evaluation type and answer the questions which follow. Each of the evaluation types is associated with the critical incident you have just read.

Scenario #1

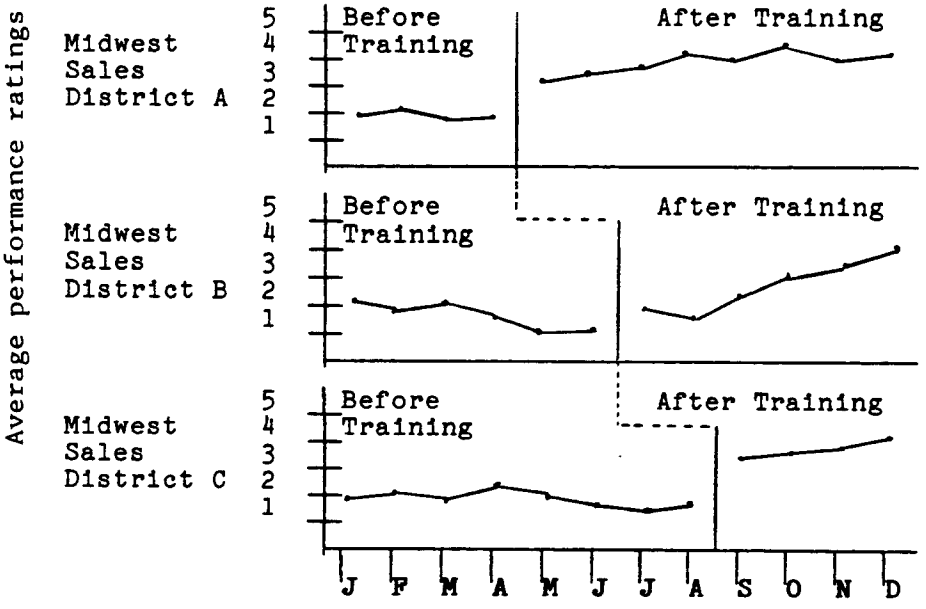
The training staff assessed performance of sales representatives both before training and after training regarding how effective sales representatives were in discovering client needs. A performance rating system was used to evaluate performance both before and after training. This rating system consisted specifically of sales representatives sending a performance rating form to all their prospective clients. On this form clients were to respond to 15 items related to effectiveness of the sales representative's questions and whether these questions addressed their needs. Ratings ranged on the continuum below for each of 15 response items related to the needs discovery process.

Range of client ratings of sales staff questions.

1	2	3	4	5
Very poor questioning skills	Poor questioning skills	Fair questioning skills	Good questioning skills	Very good questioning skills

The before training phases and after training phases continued for staggered lengths of time depending on the Sales District of which the sales representative was a member, as indicated by the Figure below. The staggered line represents the actual training program which occurred over a two day period.

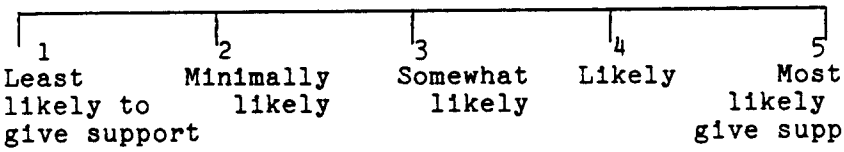
Figure. Average performance ratings of sales staff by prospective customers regarding effectiveness of needs discovery questions asked.



Scenario #1 (continued)

Please respond to the survey guestion below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts through your personal position that training is effective and should receive top management backing with the necessary funds to continue its service to the organization?

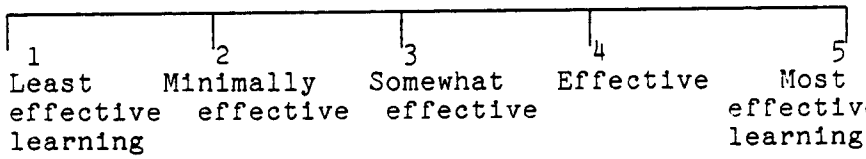


* * *

Please proceed.

Scenario #2

In order to assess whether the sales staff learned the basic principles of good customer service in the training program, the training staff used a pre-post test of learning retention. With this format, the training staff assessed the extent of customer service knowledge of each sales person one week before training (pre-training) and one week after training (post-training). Ratings of learning effectiveness range from one through five on the following continuum.



Results using this continuum are listed below.

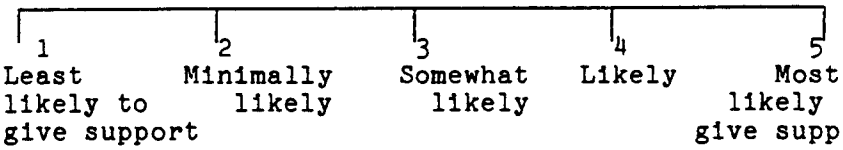
Average Ratings of Learning of Sales Staff

	Pre-training	Post-training
1. Is able to explain the basic principles of providing empathy.	1.4	3.6
2. Is able to list steps to effective negotiation.	2.1	4.3
3. Is able to explain 3 principles of good communication.	1.9	4.1
4. Is able to explain 3 basic principles of effective customer service.	2.8	3.7

Scenario #2 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts through your personal position that training is effective and should receive top management backing with the necessary funds to continue its service to the organization?



* * *

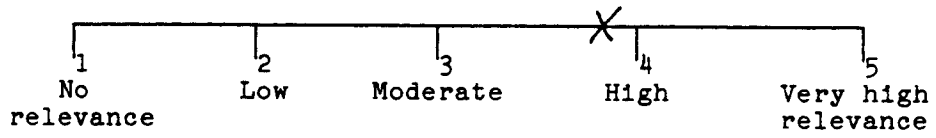
Please proceed.

Scenario #3

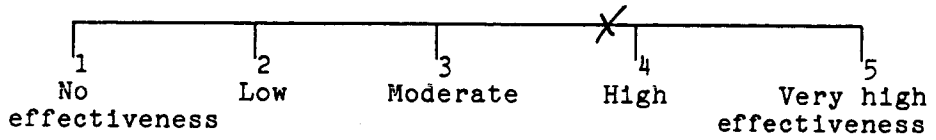
In order to determine the sales representatives' satisfaction with the training program, the training staff decided to measure sales representatives' reactions to the needs discovery training seminar. Immediately at the conclusion of training, a reaction form was distributed to all participants. Averaged results of participant reactions to training are listed below with the average indicated by an "x".

Sample Questions from Reaction Sheet:

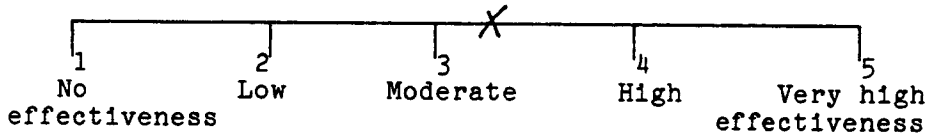
1) To what extent was the seminar content relevant to your job?



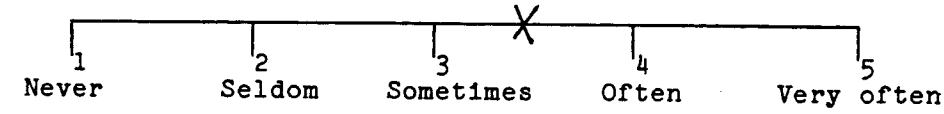
2) To what extent were the workshop methods effective?



3) To what extent was the facilitator effective?



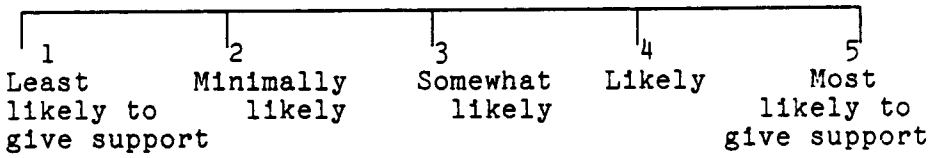
4) To what extent will you use the techniques taught in the seminar?



Scenario #3 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts through your personal position that training is effective and should receive top management backing with the necessary funds to continue its service to the organization?



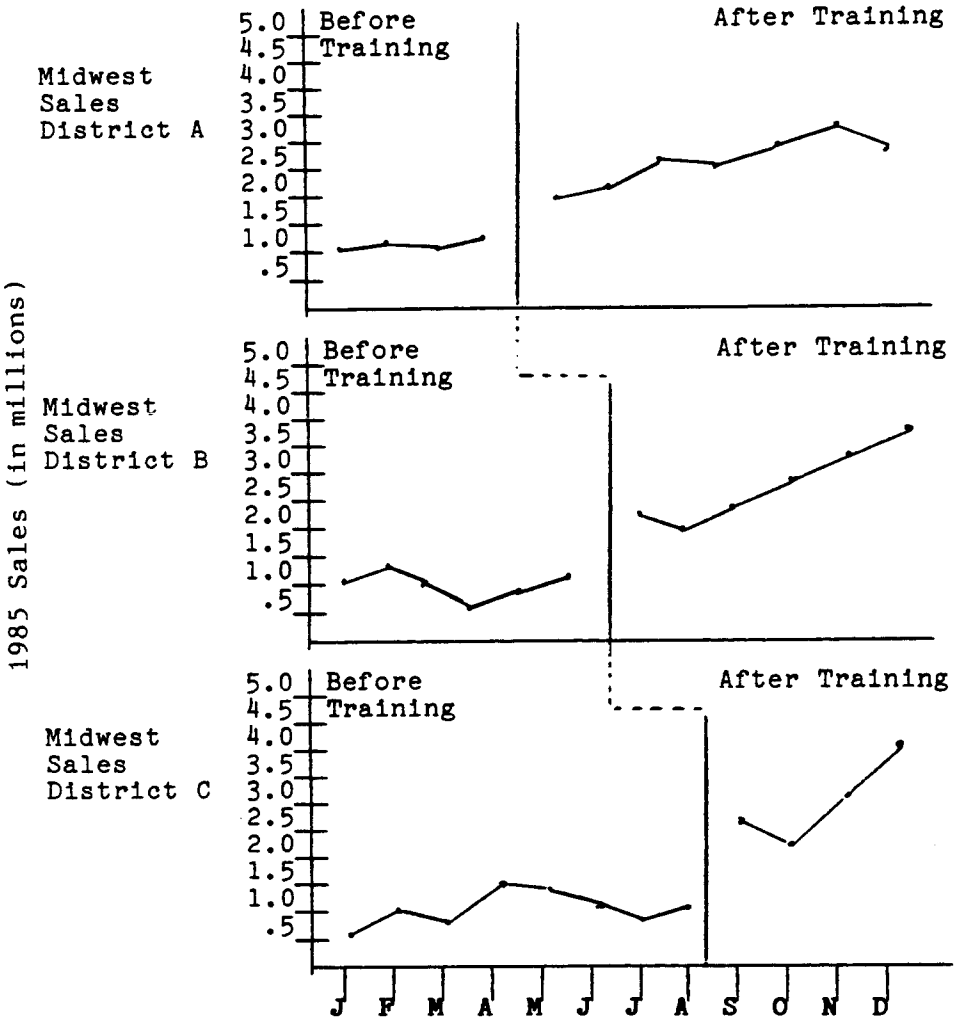
* * *

Please proceed.

Scenario #4

The training staff decided to evaluate the effectiveness of the needs discovery training program by considering whether training made an impact on 1985 sales. To conduct this evaluation, they utilized a design which examined sales volume per month across each sales district before training and after training. The length of the before and after training phases was contingent on the Sales District of which the sales representative was a member. The staggered line represents the actual training program which occurred over a two day period. The following figure illustrates this method.

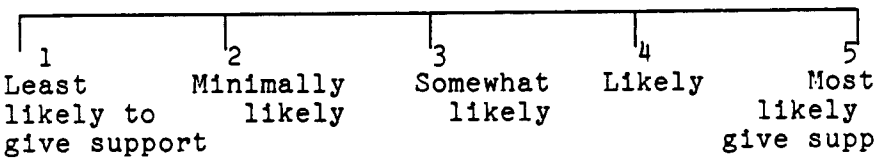
Figure. Sales per month before and after training



Scenario #4 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts through your personal position that training is effective and should receive top management backing with the necessary funds to continue its service to the organization?



* * *

Please proceed.

With consideration of all the above evaluation descriptions, please check the appropriate category below.

For which evaluation scenario would you be most likely to support the training function? Support in this context is defined as your personal position that training is effective and should be given top management backing and the necessary funds to continue its service to the organization.

a. ☐ Evaluation Scenario # 1

b. ☐ Evaluation Scenario # 2

c. ☐ Evaluation Scenario # 3

d. ☐ Evaluation Scenario # 4

Demographic Data:

Please complete the following questions which are for statistical purpose only. As was stated previously, complete confidentiality is guaranteed.

1. If you are currently employed, what is your title?

2. How many years experience do you have as a manager?

3. How many people do you manage? _____
4. What is the total annual budget you are responsible for? _____
5. What is your sex? _____

Thank you for your time, consideration and support. If you would like to receive a summary of the results, please write your name and address on the attached blank envelope.

APPENDIX C

Cover Letter to Pilot Study Participants with the Accompanying Second Draft of the TEMS

Cover Letter to Pilot Sample

April 3, 1986

Dear Student:

I am asking for your participation in a study examining training evaluation. The purpose of this study is to assess how supportive managers are of training which uses different types of evaluation methods. Because you are participating in a pilot study, your responses are particularly important in helping me refine the self-designed instrument (TEMS), as well as determine potential problems associated with it. Please feel free to provide comments and/or suggestions throughout the TEMS.

The enclosed case study presents a training problem and four scenarios which reflect different methods of training evaluation. You will be asked to respond to a survey question for each method and to respond to general questions at the completion of the scenarios.

The data from this study will be used for my doctoral dissertation in association with the Training and Development Center at the University of Minnesota. My sample size is small and your responses are significant to the success of this project. If you have any questions or concerns, please feel free to contact me at 623-8516.

Please complete the survey during classtime at the time indicated by your instructor and return it to me in the attached blank envelope. If you would like to receive a summary of the results, please write your name and address on the attached blank note card and give to your instructor. Thank you for your support.

Sincerely,

Mitchell E. Kusy, Jr.
Doctoral Candidate
University of Minnesota

Second Draft of the TEMS

Training Evaluation Methods Survey (TEMS)

Instructions
Please read the description below and respond to the questions which follow. Place an "X" in each category which best describes your response. Thank you.

Background Information
You are the Midwest Sales District Manager for a high technology corporation whose headquarters is located on the East Coast. The corporation, HTI Inc., had sales of $300 million in 1982, $425 million in 1983 and $375 million in 1984. In the Midwest region, sales were 5% above projections in 1982, 3.5% above projections in 1983 and 3% below projections in 1984.

The President of HTI has recently called a meeting of all Regional Sales District Managers in order to discuss the decrease in sales from 1983 to 1984. It is the opinion of the President that the decrease in sales is a direct result of poor sales skills of sales professionals at HTI. Market research corroborates this opinion and attributes the problem to poor sales techniques which have resulted in a decline of new sales. The President wants to resolve the problem and it is your responsibility, as the Midwest Sales District Manager, to be certain that this occurs.

Subsequent to this meeting, you decide to call a meeting of all your management staff in order to discuss this problem and its resolution. After a thorough investigation of the problem, you and your management staff determine that HTI sales staff do not know how to ask the correct questions to discover client needs; these questions would better equip the sales staff to eventually close a sale.

To validate this conclusion, you consult with the training staff who decide to conduct a needs assessment. After completing the needs assessment, the training staff present you with the results which are in agreement with your original supposition -- that many of your sales staff do not know how to consistently and/or appropriately discover client needs; this has resulted in a decrease in sales. Of significance is the fact that in 1984 35% of the sales staff was replaced by new employees. Of this 35%, the needs assessment indicated that almost 90% of these new employees had problems demonstrating an understanding of client needs and in successfully closing a sale. The training staff selected training as the

recommended solution because it was their assessment that these problems related to a skills deficiency. The specific recommendation made by the training staff was to train all new sales staff in the skills necessary to understand customer needs. They agreed to design, develop, deliver and evaluate the training program.

You, as the person responsible for showing an improvement in sales in the Midwest district, are concerned as to how improvement in sales can be most effectively demonstrated. You are confident in the competency of the training staff to select the most appropriate method for demonstrating how training improved sales.

There are four basic types of evaluation procedures available to assess training effectiveness. Any of these four evaluation types could have been selected by the training staff. The four types are described on the following pages. Please read each evaluation type and answer the questions which follow. Each type of evaluation is associated with the critical incident you have just read.

Scenario #1

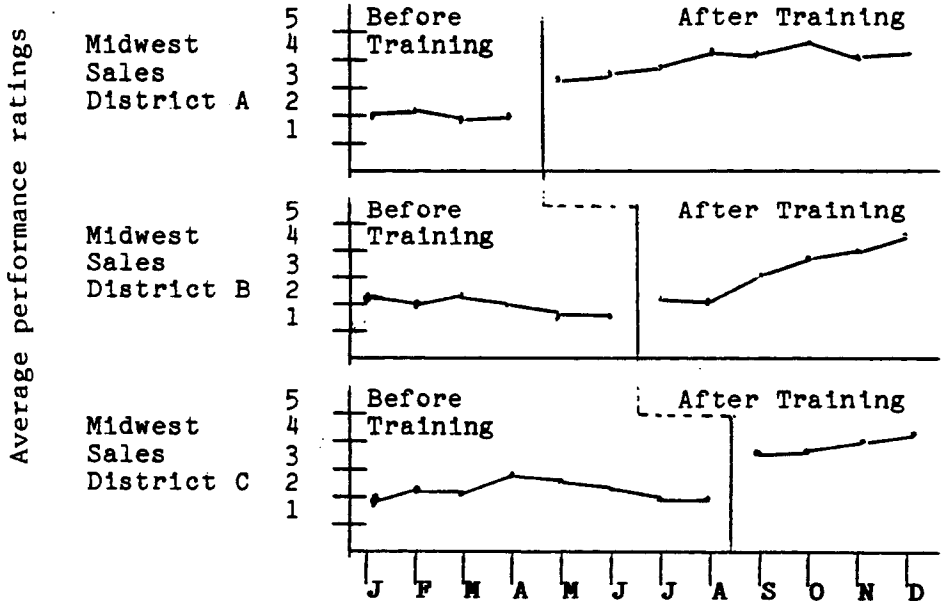
The training staff assessed performance of sales representatives both before training and after training regarding how effective sales representatives were in discovering client needs. A performance rating system was used to evaluate performance both before and after training. This rating system consisted specifically of sales representatives sending a performance rating form to all their prospective clients. On this form clients were to respond to 15 items related to effectiveness of the sales representative's questions and whether these questions addressed their needs. Ratings ranged on the continuum below for each of 15 response items related to the needs discovery process.

Range of client ratings of sales staff questions.

1	2	3	4	5
Very poor questioning skills	Poor questioning skills	Fair questioning skills	Good questioning skills	Very good questioning skills

The before training phases and after training phases continued for staggered lengths of time depending on the Sales District of which the sales representative was a member, as indicated by the Figure below. The staggered line represents the actual training program which occurred over a two day period.

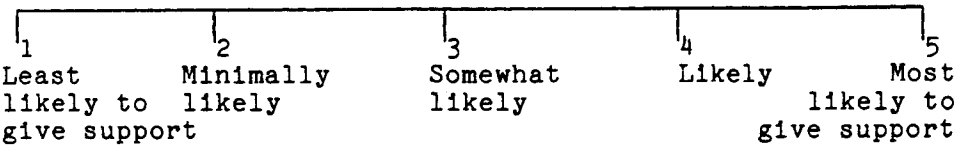
Figure. Average performance ratings of sales staff by prospective customers regarding effectiveness of needs discovery questions asked.



Scenario #1 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts? Support in this context is defined as your personal position that training is effective and should receive top management backing with the necessary funds to continue its service to the organization.



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Please proceed.

Scenario #2

In order to assess whether the sales staff learned the basic principles of asking needs discovery questions in the training program, the training staff used a pre-test and a post-test. The pre-test consisted of 20 questions which addressed the needs discovery process and were to be answered by the sales representatives; the same 20 questions were used in the post-test to determine learning as a result of training. With this pre-post test format, the training staff assessed the extent of needs discovery knowledge of each sales representative one week before training (pre-training) and one week after training (post-training). Averaged results of a pre-test and post-test of learning effectiveness, based on percentage of total test items correct, are listed below.

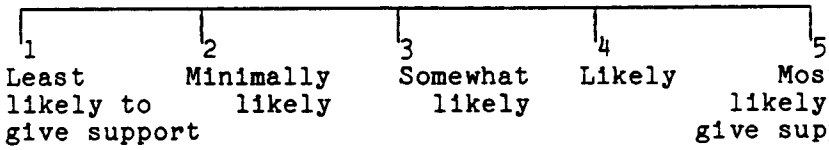
Average percentage of total test items correct by sales representatives.

	Pre-training	Post-training
1. Midwest Sales District A	52%	83%
2. Midwest Sales District B	63%	92%
3. Midwest Sales District C	66%	93%

Scenario #2 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts? Support in this context is defined as your personal position that training is effective and should receive top management backing with the necessary funds to continue its service to the organization.



* * *

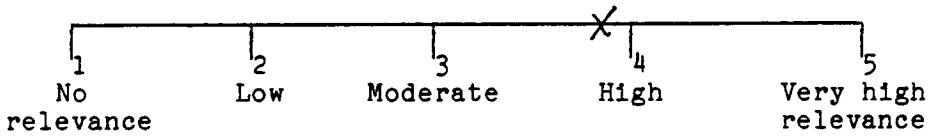
Please proceed.

Scenario #3

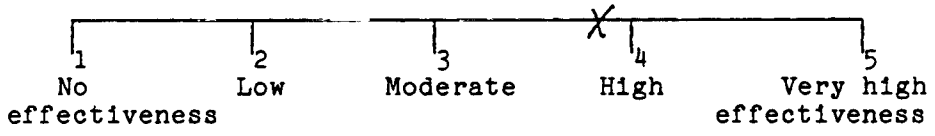
In order to determine the sales representatives' satisfaction with the training program, the training staff decided to measure sales representatives' reactions to the needs discovery training seminar. Immediately at the conclusion of training, a reaction form was distributed to all participants. Averaged results of participant reactions to training are listed below with the average indicated by an "x".

Sample Questions from Reaction Sheet:

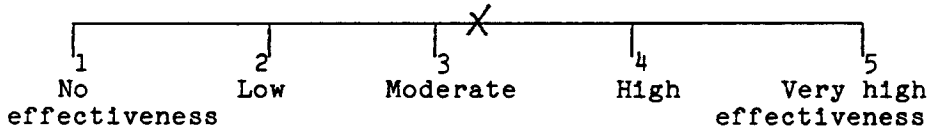
1) To what extent was the seminar content relevant to your job?



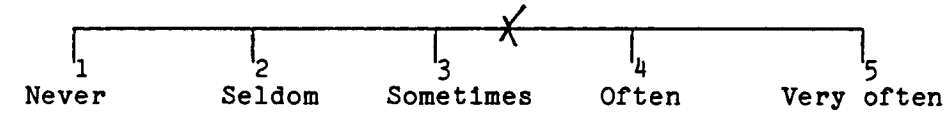
2) To what extent were the workshop methods effective?



3) To what extent was the facilitator effective?



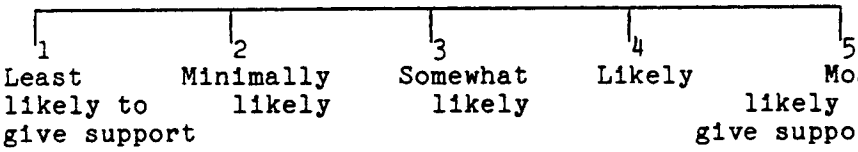
4) To what extent will you use the techniques taught in the seminar?



Scenario #3 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts? Support in this context is defined as your personal position that training is effective and should receive top management backing with the necessary funds to continue its service to the organization.



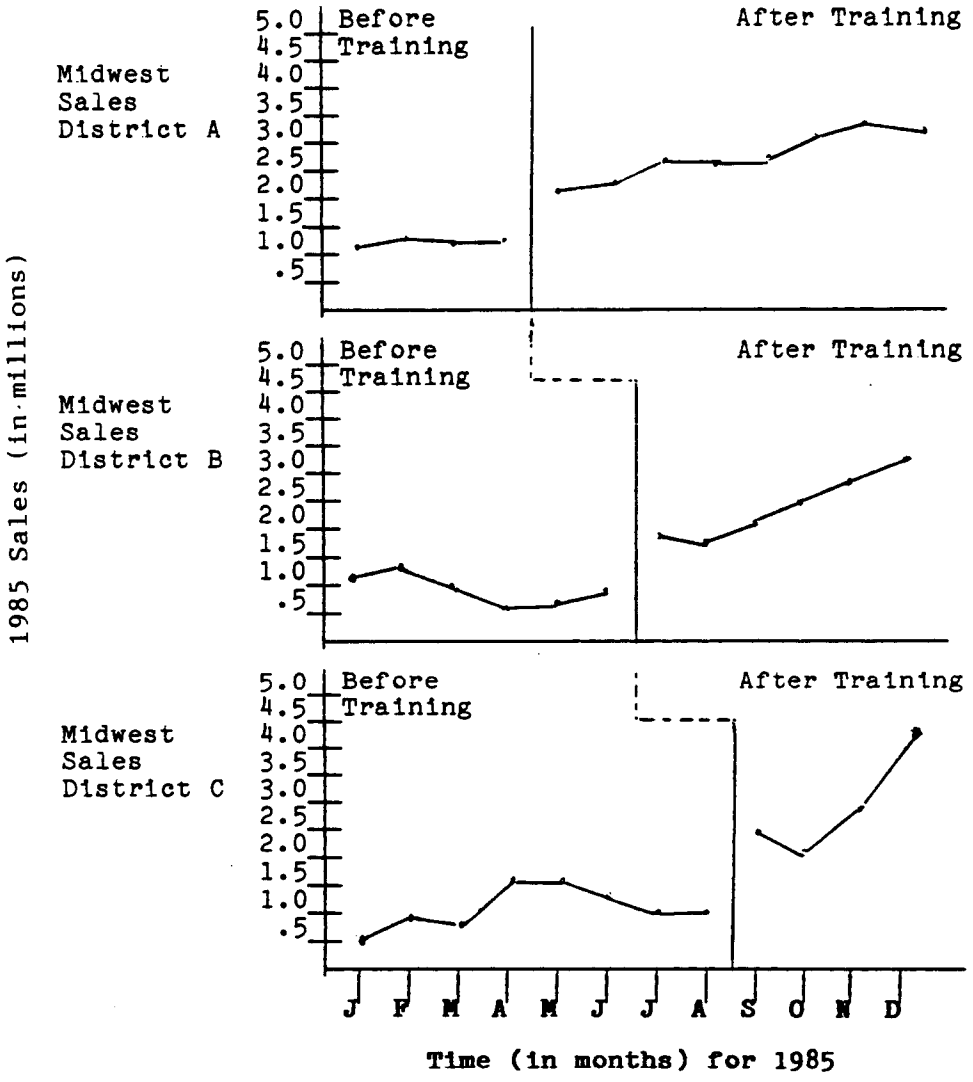
* * *

Please proceed.

Scenario #4

The training staff decided to evaluate the effectiveness of the needs discovery training program by considering whether training made an impact on 1985 sales. To conduct this evaluation, they utilized a design which examined sales volume per month across each sales district before training and after training. The length of the before and after training phases was contingent on the Sales District of which the sales representative was a member. The staggered line represents the actual training program which occurred over a two day period. The following figure illustrates this method.

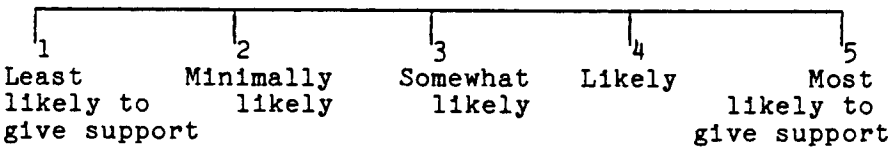
Figure. Sales per month before and after training



Scenario #4 (continued)

Please respond to the survey question below by placing an "x" along the appropriate response.

Based upon this evaluation scenario, to what extent would you support these training efforts? Support in this context is defined as your personal position that training is effective and should receive top management backing with the necessary funds to continue its service to the organization.



* * *

Please proceed.

With consideration of all the previous scenario descriptions you have just read, please check the appropriate category below.

Based upon which evaluation scenario would you be most likely to give support to the training function? Support in this context is defined as your personal position that training is effective and should be given top management backing and the necessary funds to continue its service to the organization. Choose only 1.

a. ☐ Evaluation Scenario # 1

b. ☐ Evaluation Scenario # 2

c. ☐ Evaluation Scenario # 3

d. ☐ Evaluation Scenario # 4

Demographic Data:

Please complete the following questions which are for statistical purposes only. As was stated previously, complete confidentiality is guaranteed.

1. What is your job title or occupation?

2. _____ How many years experience do you have as a manager?

3. _____ How many people do you currently manage? _____
4. What is the total annual budget you are responsible for excluding staff salaries and benefits? _____
5. What is your sex? _____

Thank you for your time, consideration and support.

APPENDIX D

Script Describing Instructions Which Investigator Delivered to Pilot Study Participants

Script to Pilot Study Participants

As a doctoral student at the University of Minnesota, I am currently working on my dissertation in the area of training and development. Your assistance is critical in completing my research.

I am conducting a case study survey to assess how supportive managers are of training which uses different types of evaluation methods. Because this is a pilot study responses are critical in helping me refine the instrument. I hope you'll take the time to complete the case study survey during class and send it back to me in the blank attached envelope. Your responses will remain confidential. I have also attached a blank note card for you to place your name and address if you're interested in receiving a summary of the results.

Are there any questions?

Thank you for your time, support, and cooperation.

APPENDIX E

Script Describing Instructions Which Investigator Delivered to MBA Class

Script to MBA Class

As a doctoral student at the University of Minnesota, I am currently working on my dissertation in the area of training and development. Your assistance is critical in completing my research

I am conducting a case study survey to assess how supportive managers are of training which uses different types of evaluation methods. Because I am conducting this research with a relatively small sample all of your responses are critical to the success of the study. I hope you'll take the time to complete the case study survey during class at the designated time. Please return it to me in the envelope provided. If you would like to receive a summary of the results, please write your name and address on the blank note card attached to the survey. Your responses will remain confidential.

Are there any questions?

Thank you for your time, support, and cooperation.

APPENDIX F

Participants in the Validity Procedure

Participants in the Validity Procedure

Joseph Martelli
Manager, Technical & Skill Training
Kellogg Corporation

Ron Jacobs
Graduate Studies in Training & Development
The Ohio State University

Gary R. Sisson
President
Paradigm Corporation

Patricia McLagan
President
McLagan & Associates, Inc.

Barbara L. Parker
Process Management Institute, Inc.

Brian P. Murphy
The HRD Department

Dave Ritzman
Training Administrator
Group Health, Inc.

Connie Steward
President
Stewardship, Inc.

Mike Driscoll
Director, Employee Development
Land O'Lakes

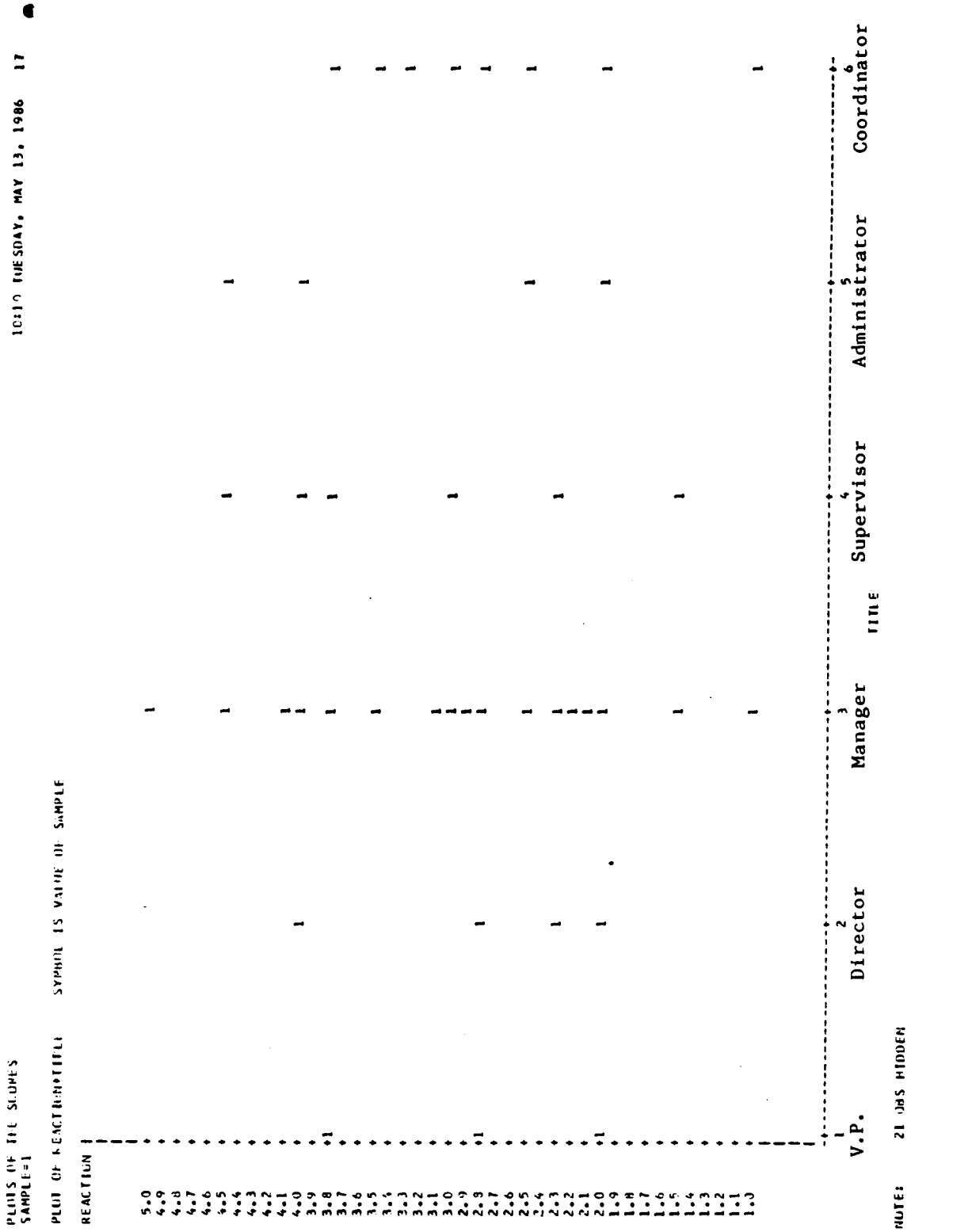
Bob Lauer
Manager, Human Resources Development
MSI

Jerry Brown
Manager, Safety & Employee Relations
Universal Cooperatives

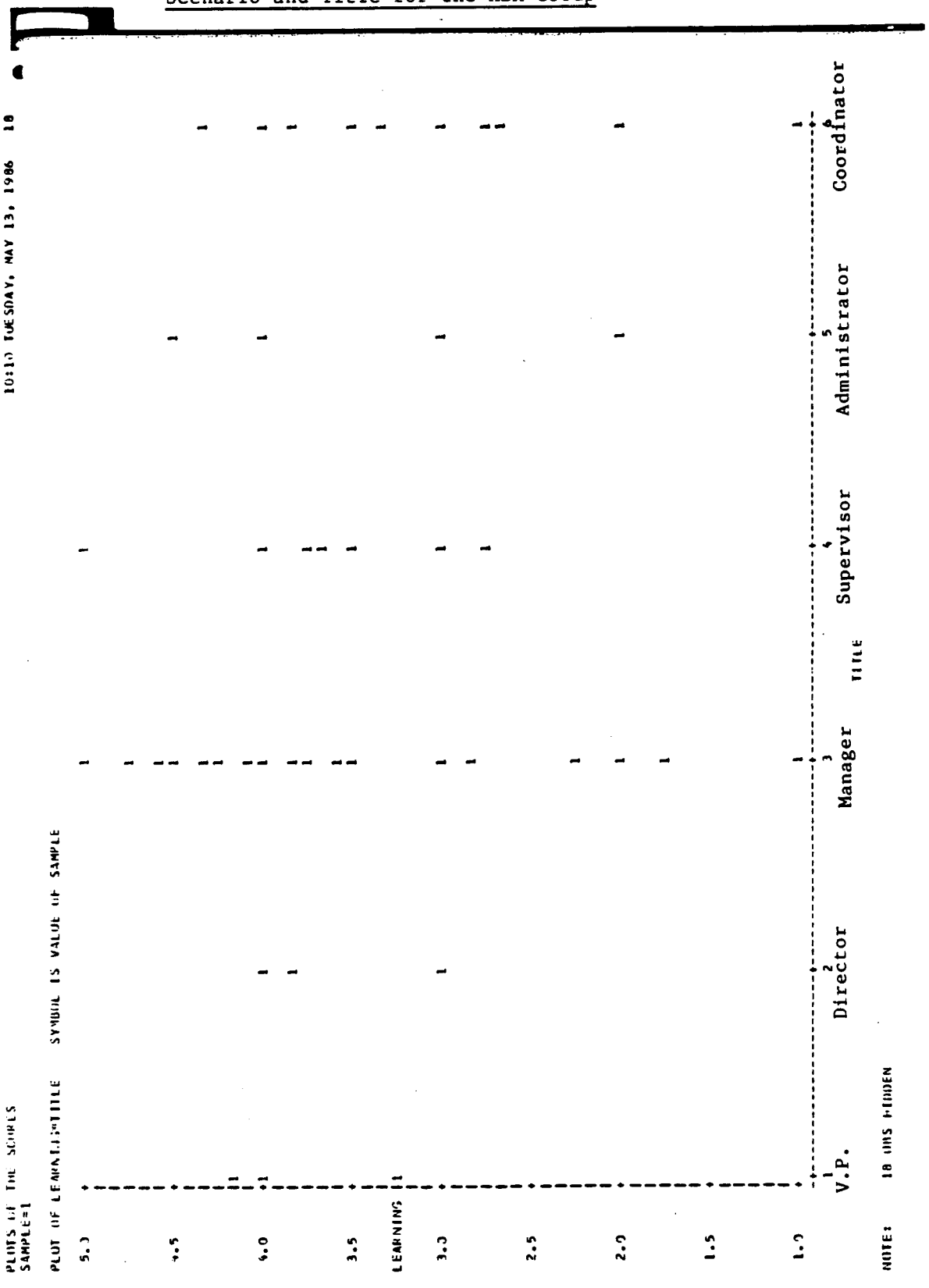
APPENDIX G

Scatterplots of Interaction Between Evaluation Type and Demographic Data

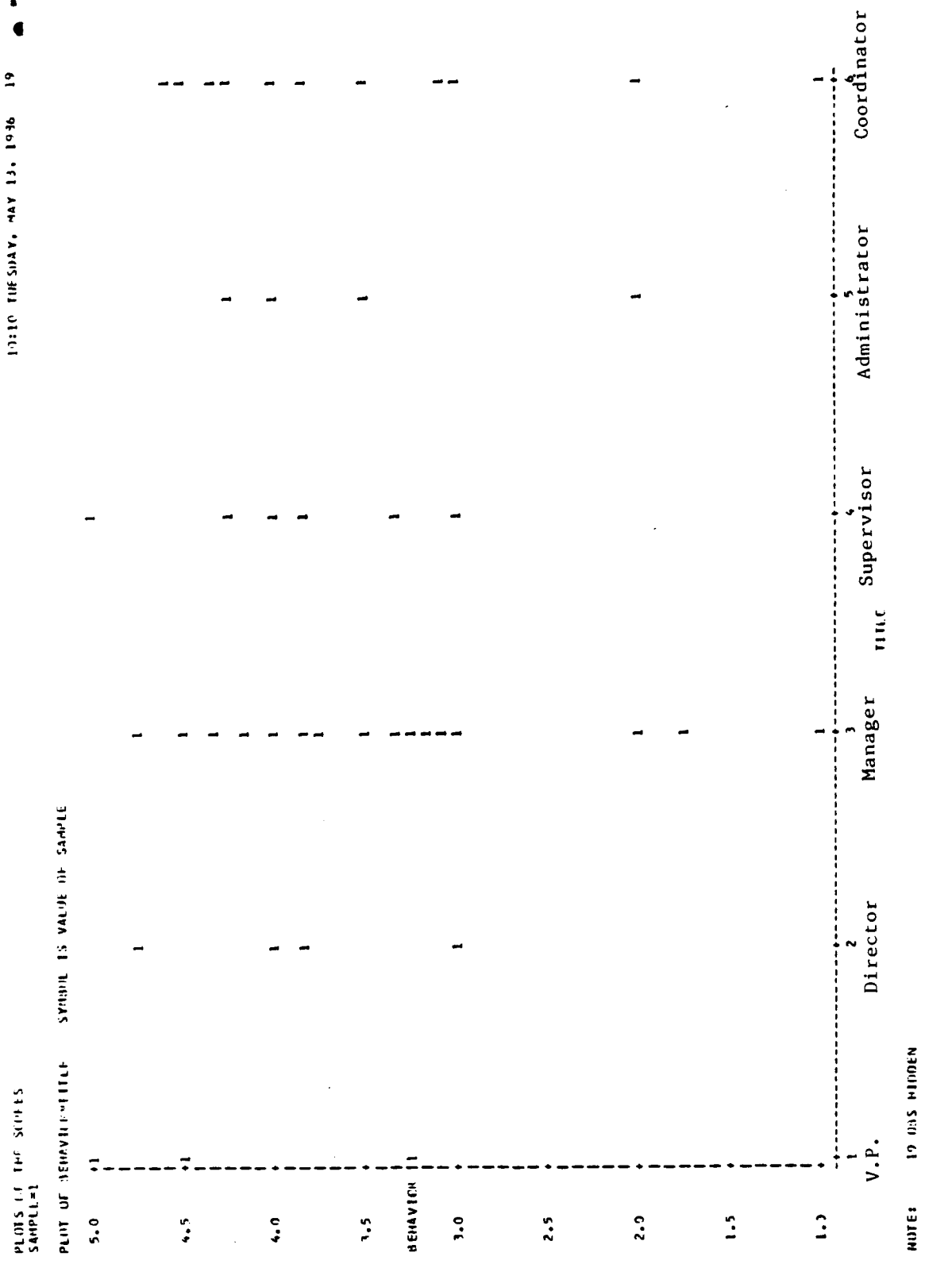
Scatterplot of Interaction Between the Reaction Scenario and Title for the MBA Group



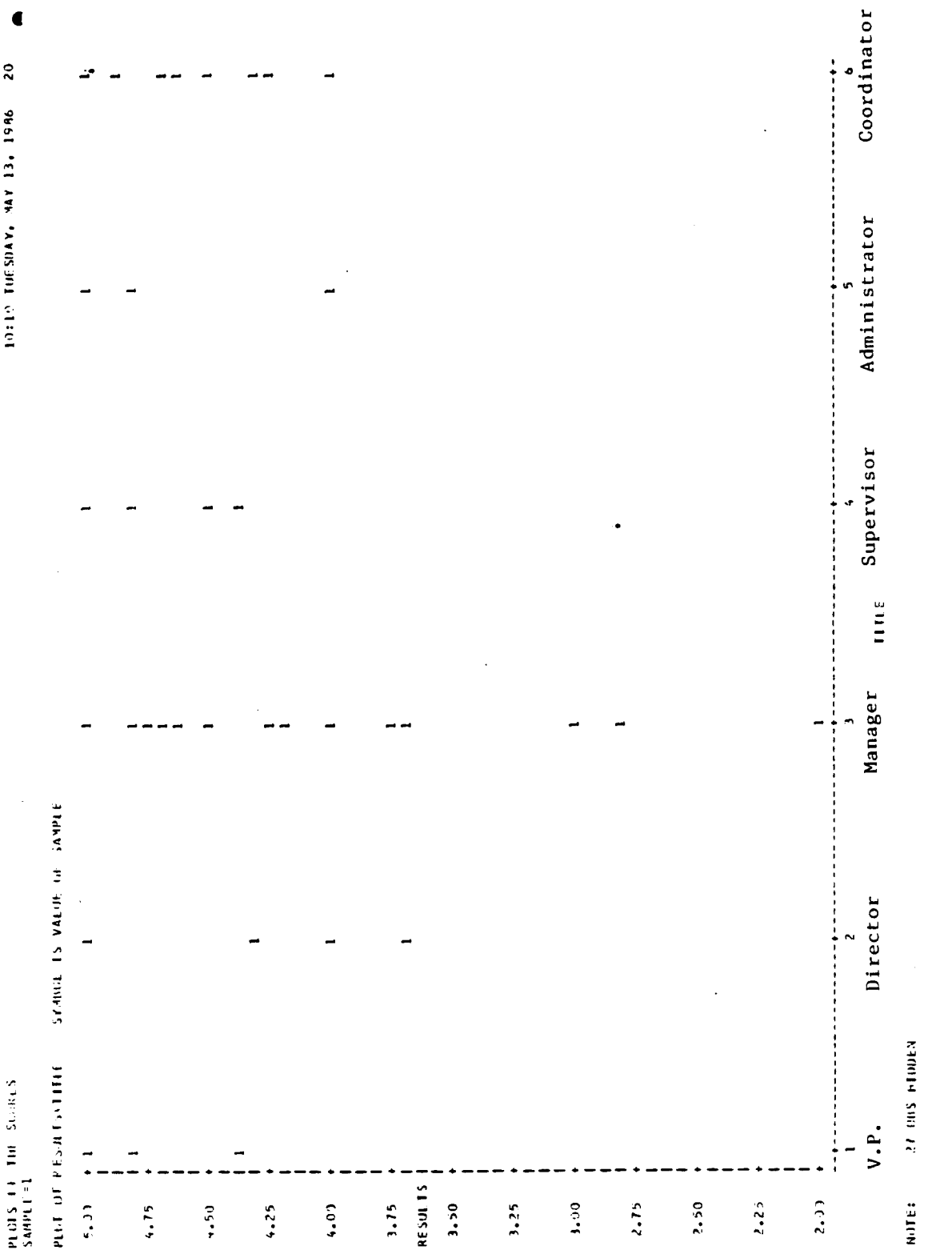
Scatterplot of Interaction Between the Learning Scenario and Title for the MBA Group



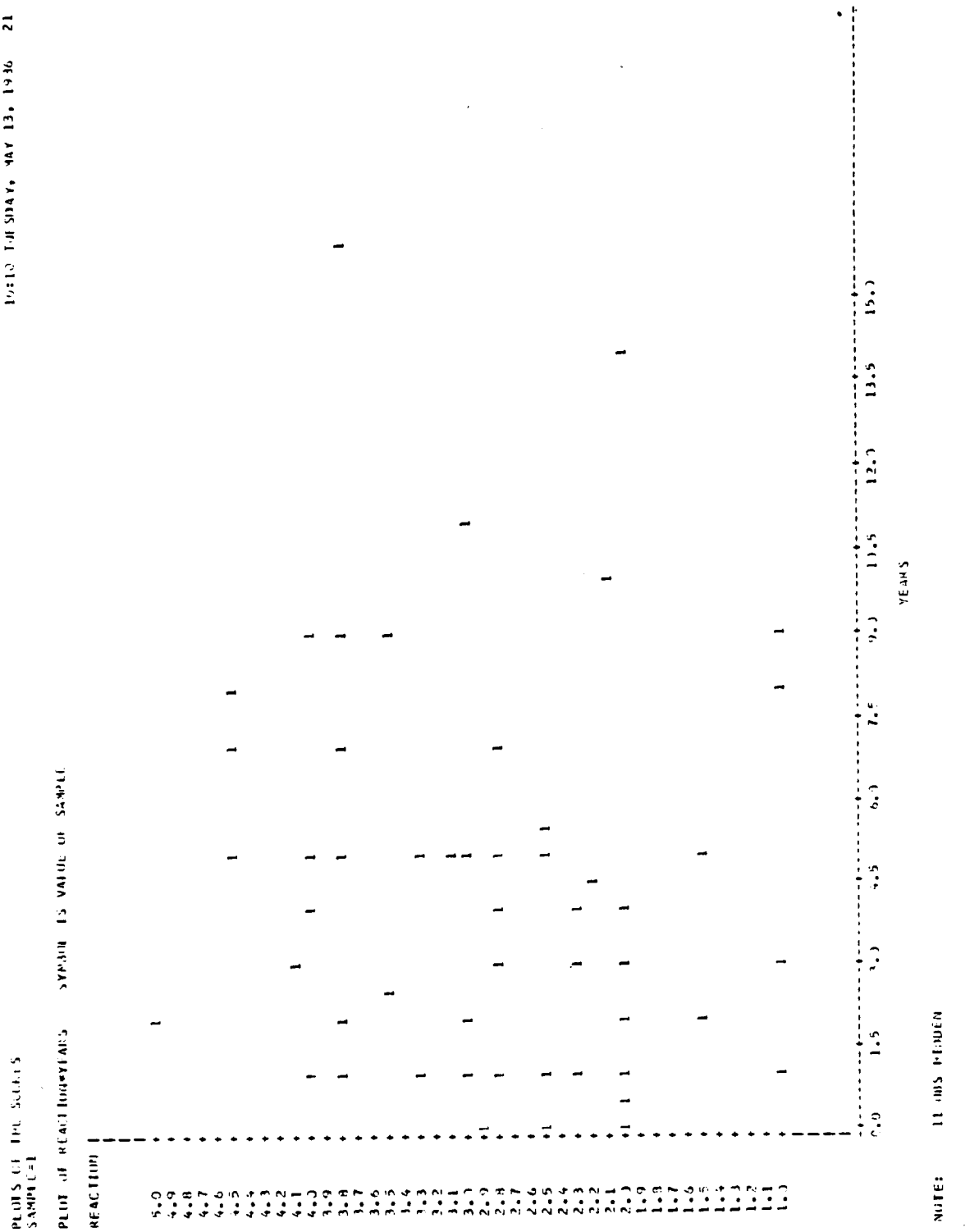
Scatterplot of Interaction Between the Behavior Scenario and Title for the MBA Group



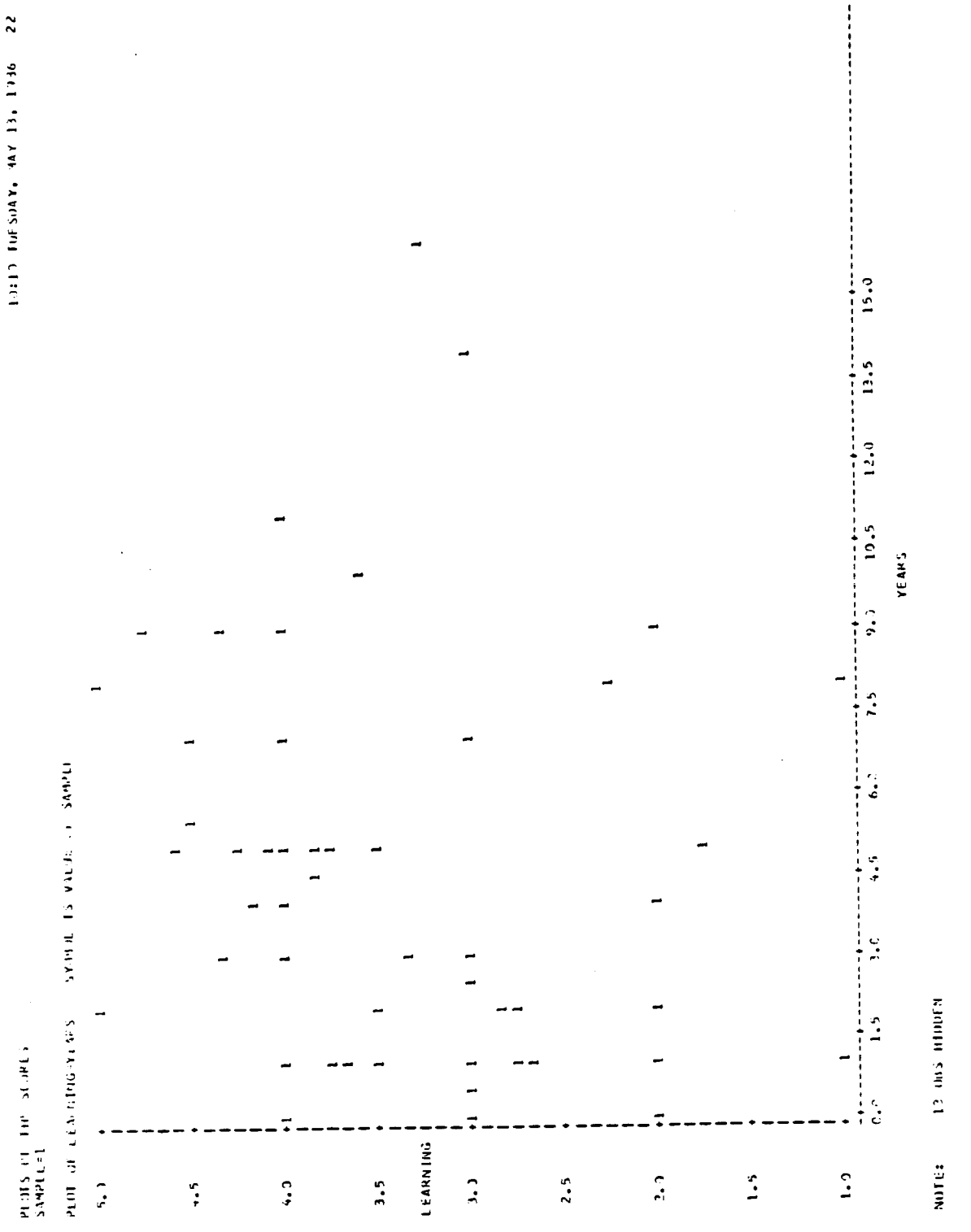
Scatterplot of Interaction Between the Results Scenario and Title for the MBA Group



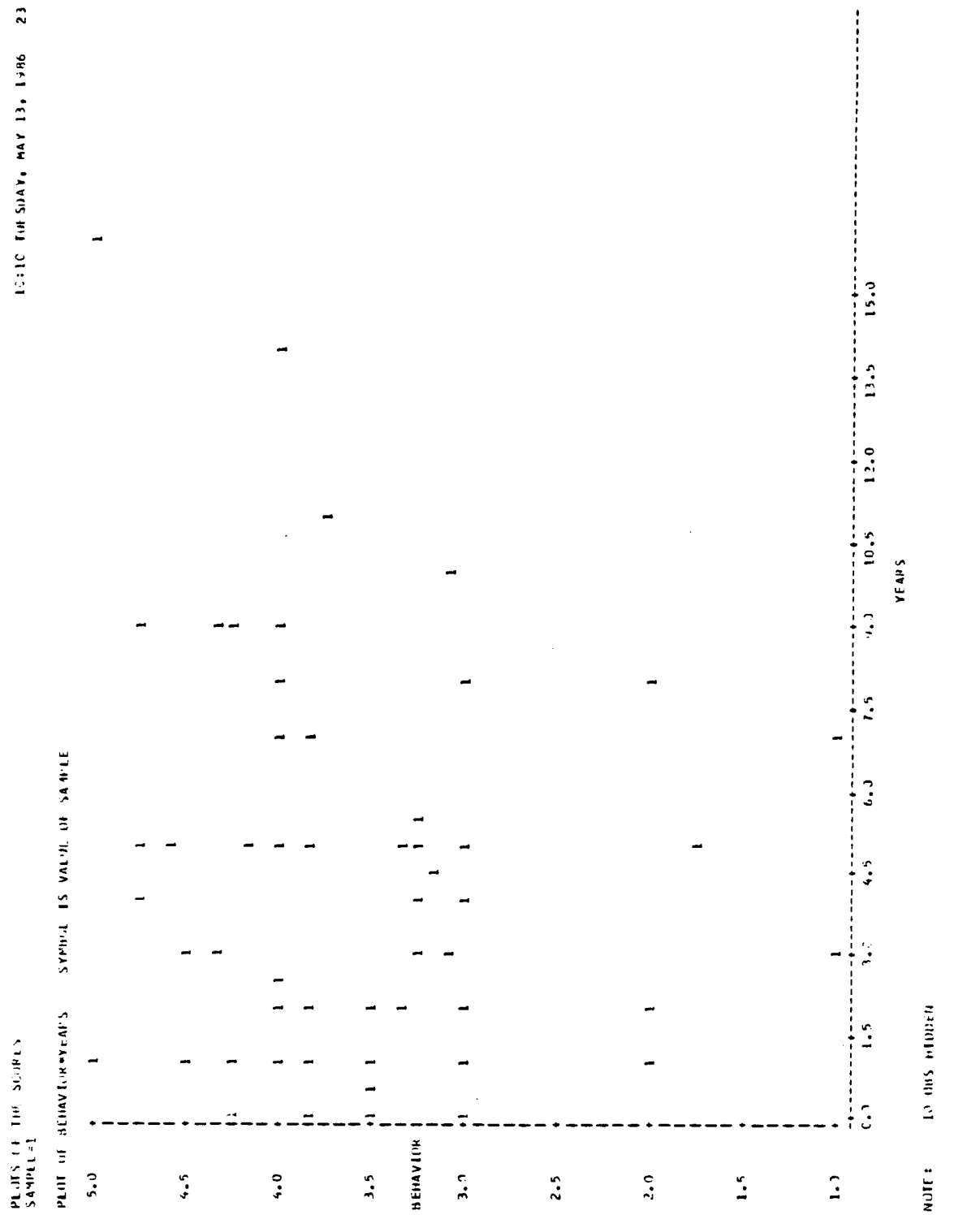
Scatterplot of Interaction Between the Reaction Scenario and Years of Experience for the MBA Group



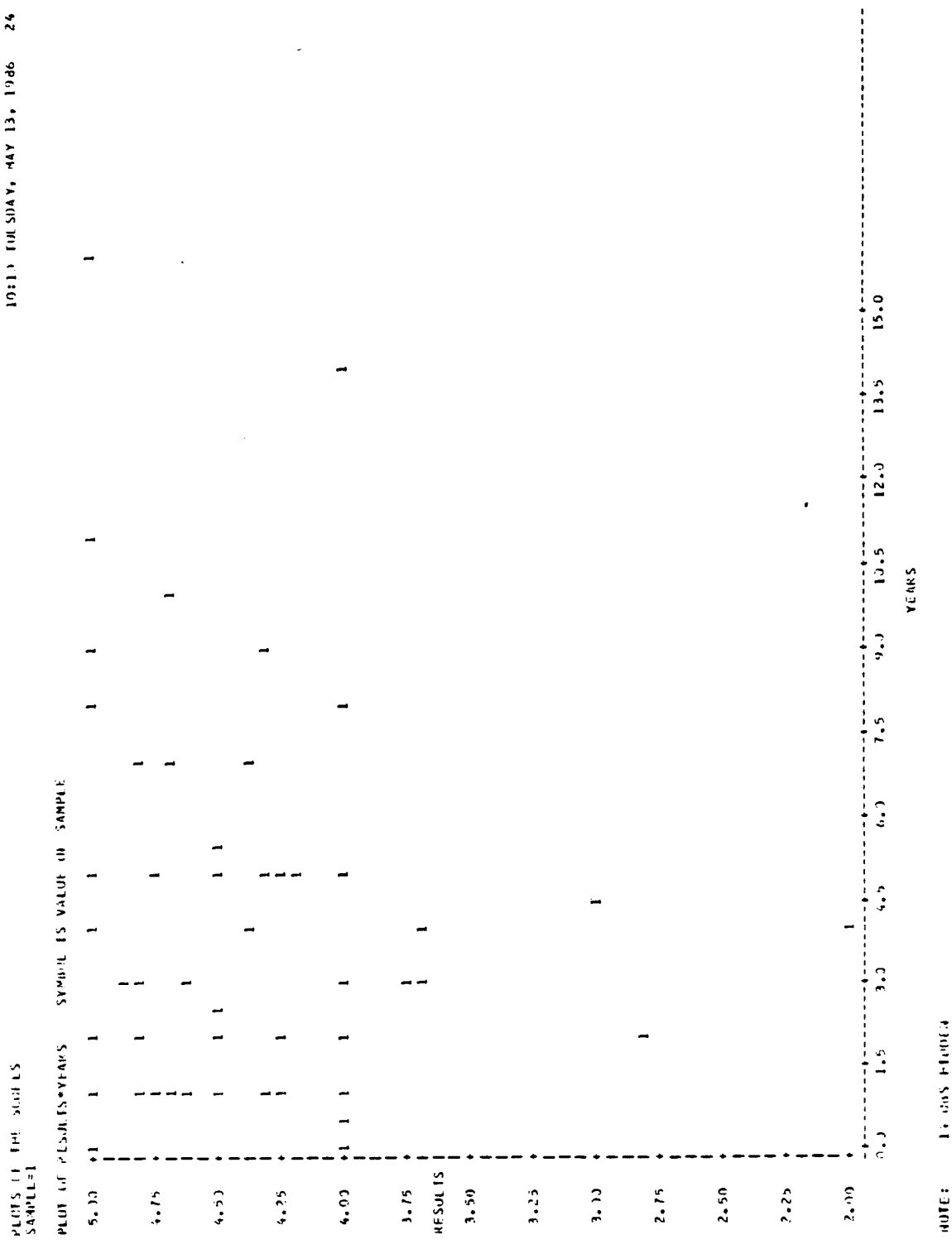
Scatterplot of Interaction Between the Learning Scenario and Years of Experience for the MBA Group



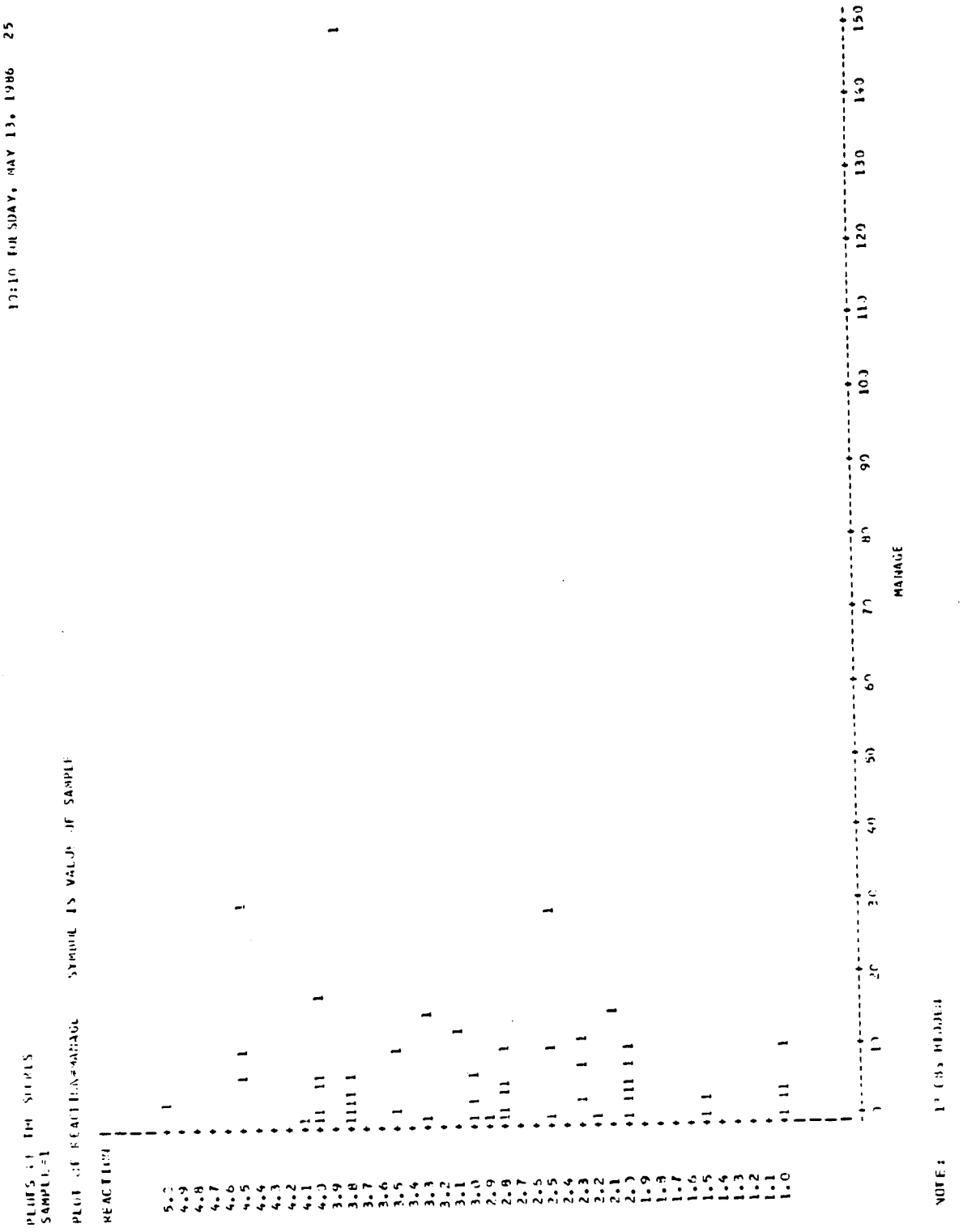
Scatterplot of Interaction Between the Behavior Scenario and Years of Experience for the MBA Group



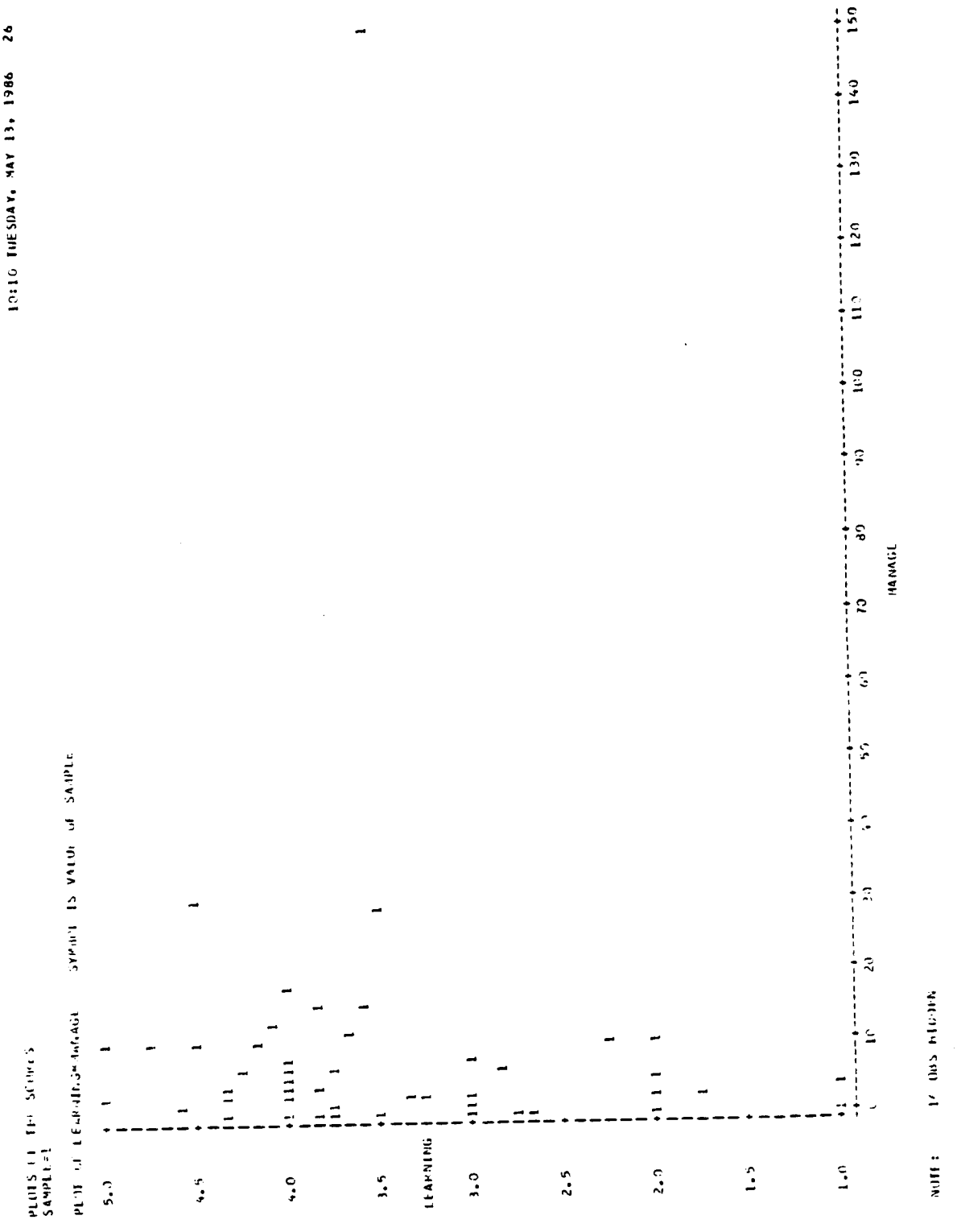
Scatterplot of Interaction Between the Results
Scenario and Years of Experience for the MBA Group



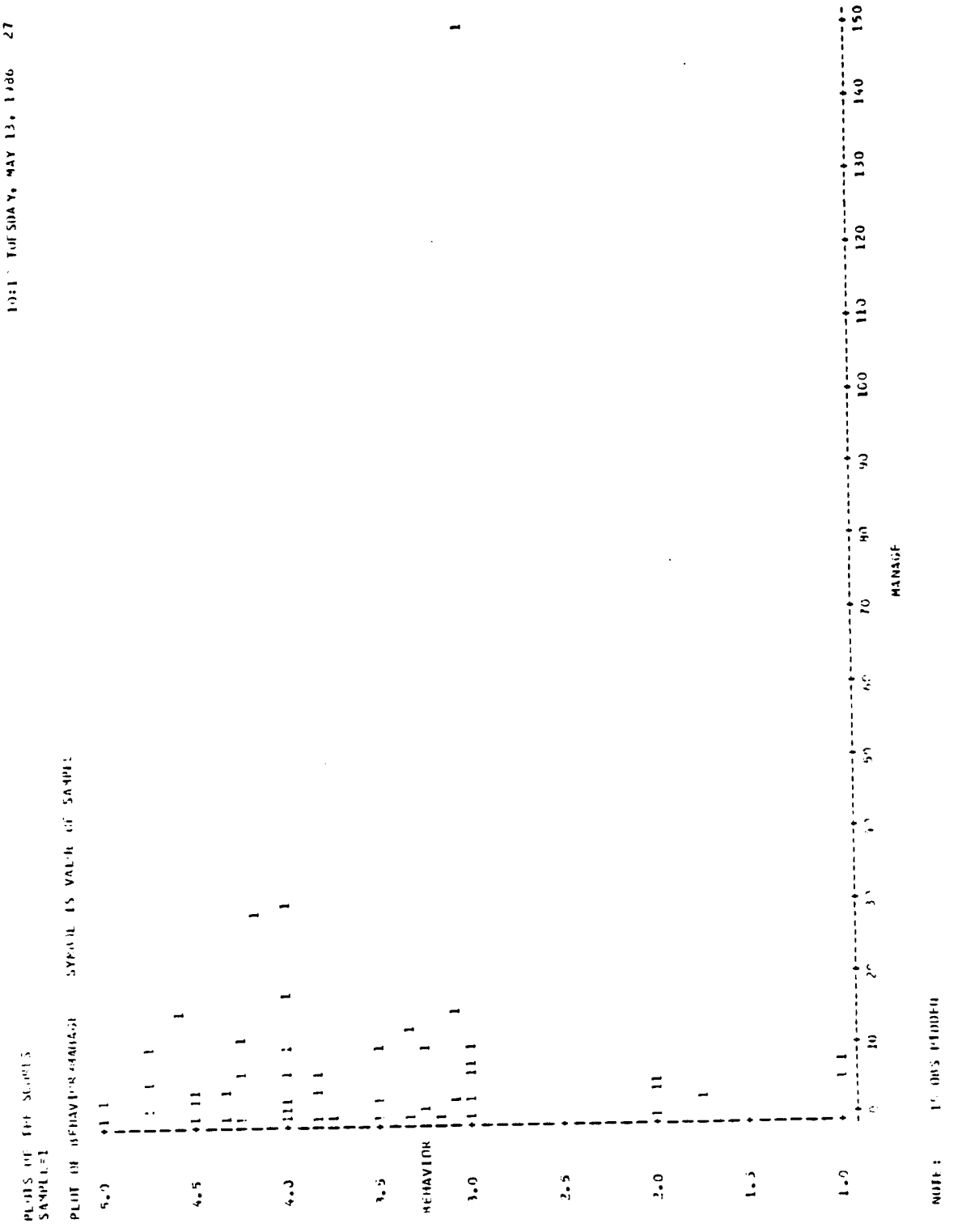
Scatterplot of Interaction Between the Reaction
Scenario and Number of People Managed for the MBA Group



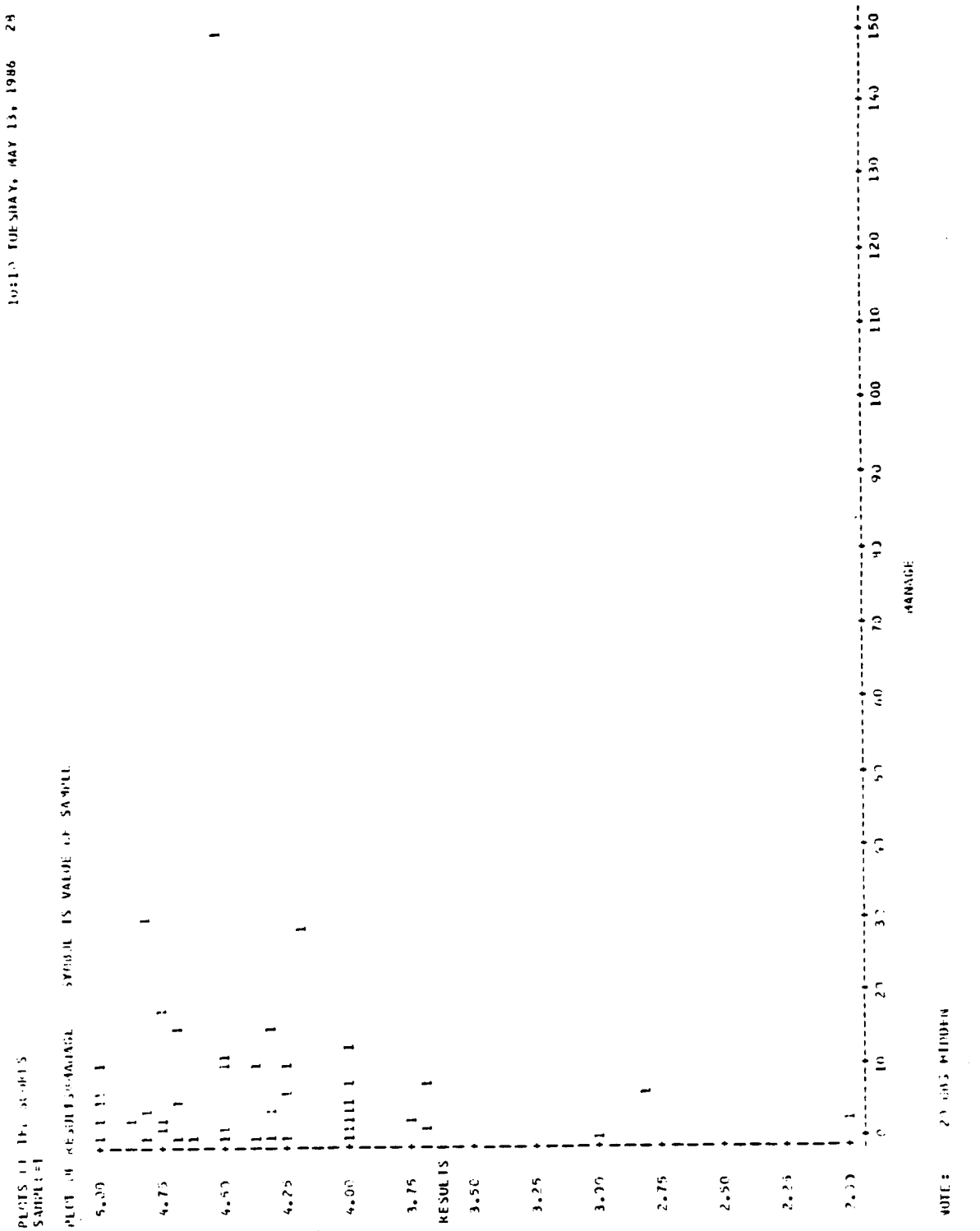
Scatterplot of Interaction Between the Learning Scenario and Number of People Managed for the MBA Group



Scatterplot of Interaction Between the Behavior Scenario and Number of People Managed for the MBA Group

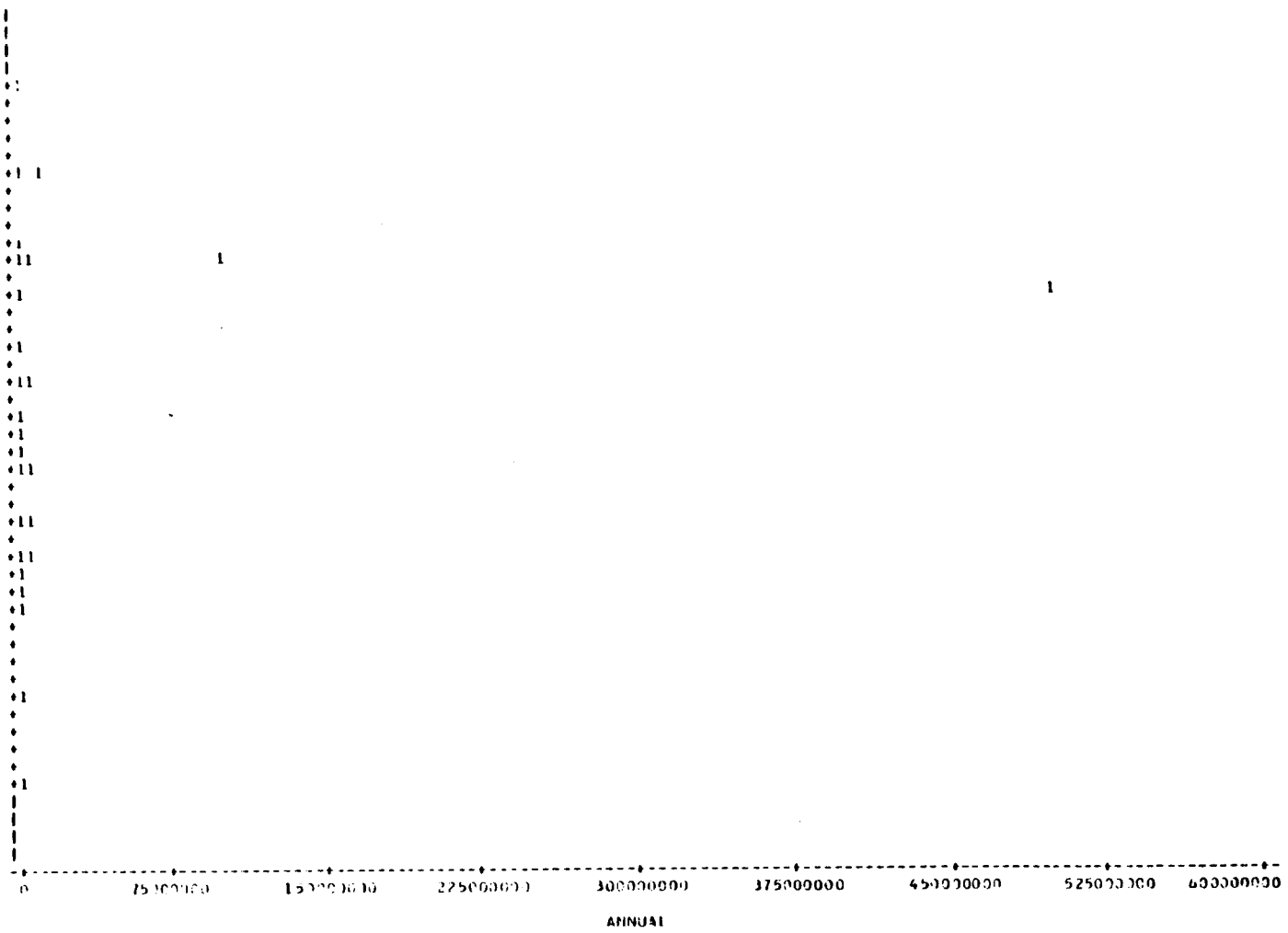


Scatterplot of Interaction Between the Results
Scenario and Number of People Managed for the MBA Group



PLOTS OF THE SCORES
SAMPLE=1

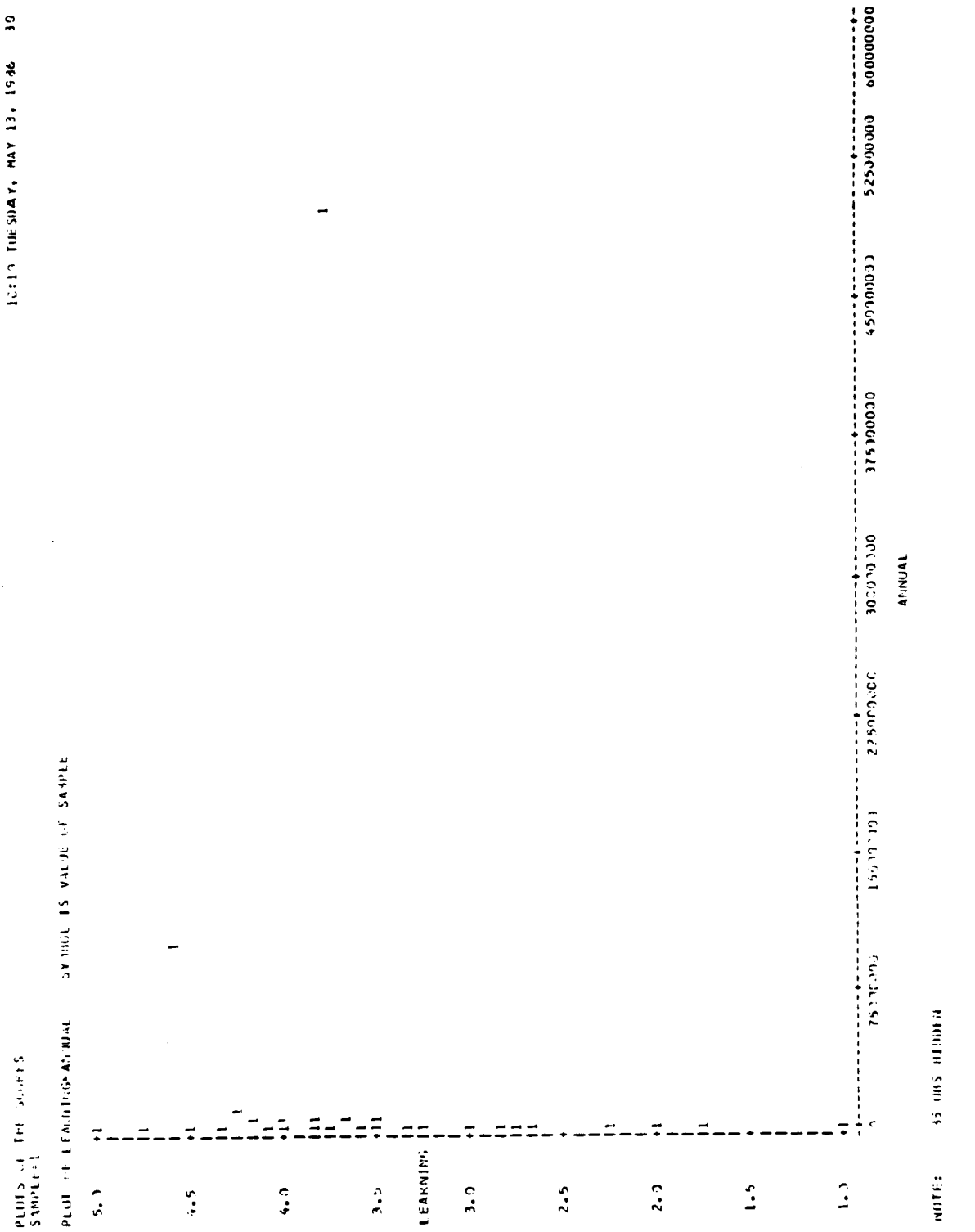
PLOT OF REACTION*ANNUAL SYMBOL IS VALUE OF SAMPLE



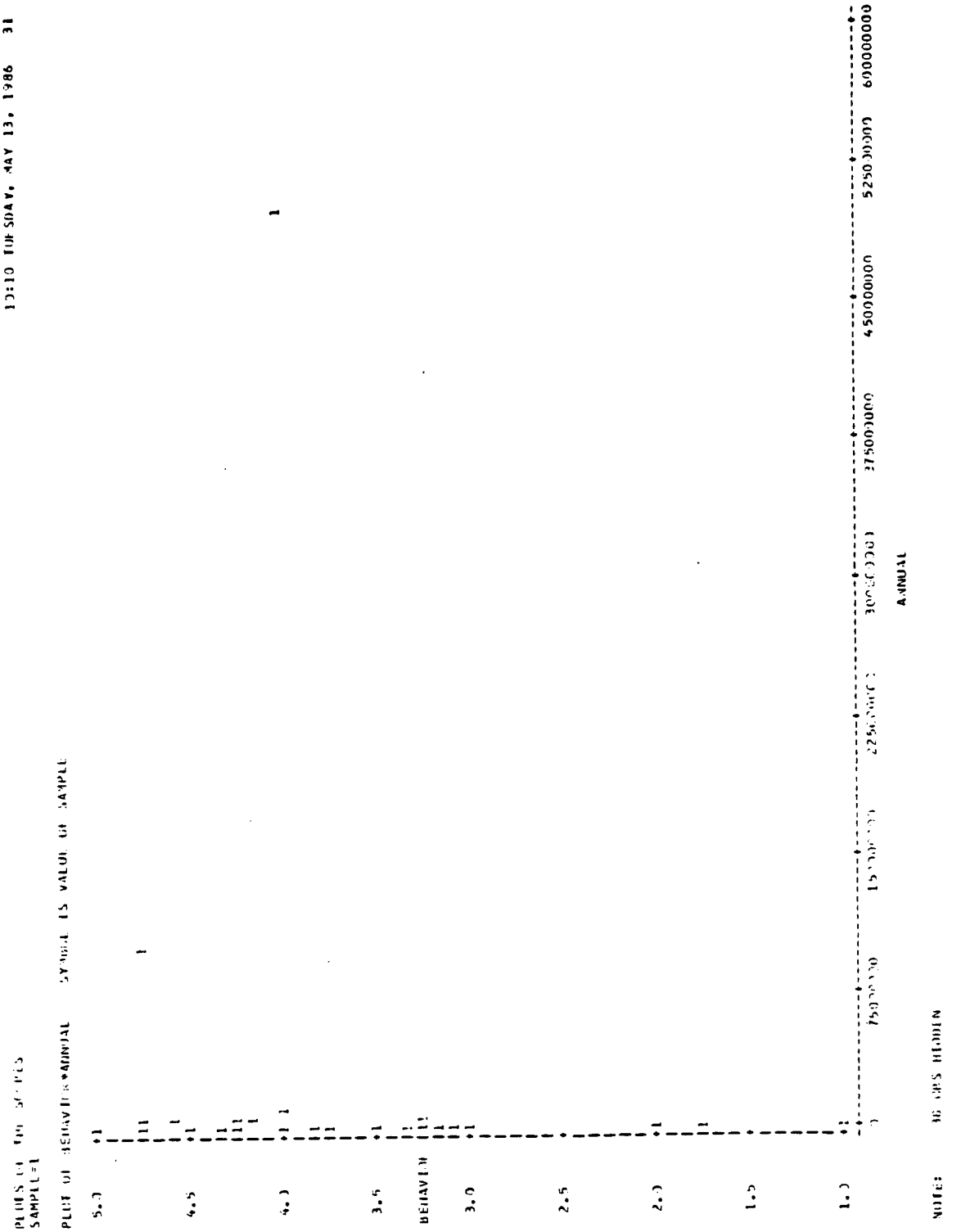
NOTE: 37 OBS HIDDEN

Scatterplot of Interaction Between the Reaction
Scenario and Annual Budget for the MBA Group

Scatterplot of Interaction Between the Learning Scenario and Annual Budget for the MBA Group

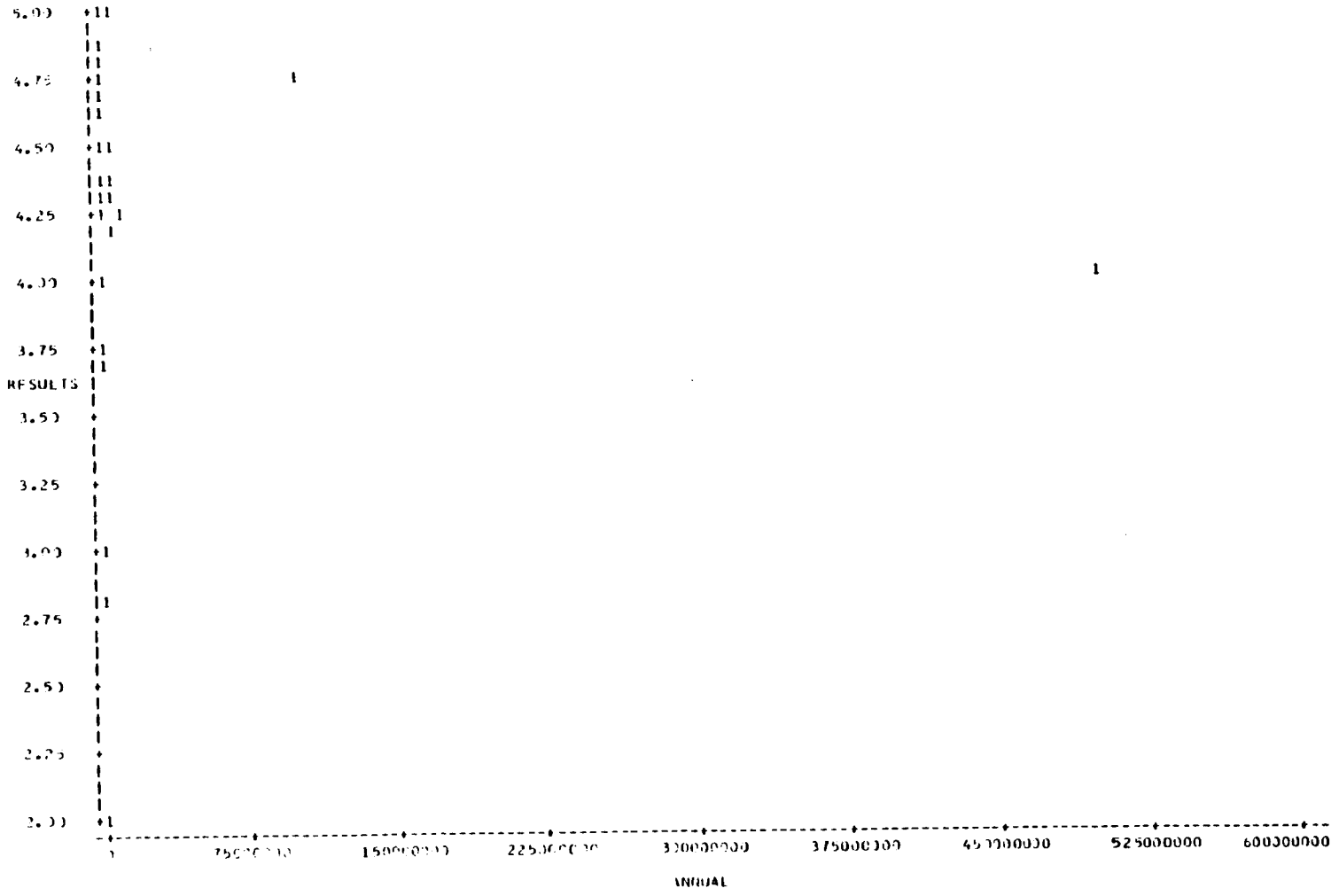


Scatterplot of Interaction Between the Behavior Scenario and Annual Budget for the MBA Group



PLOTS OF THE SCORES
SAMPLE=1

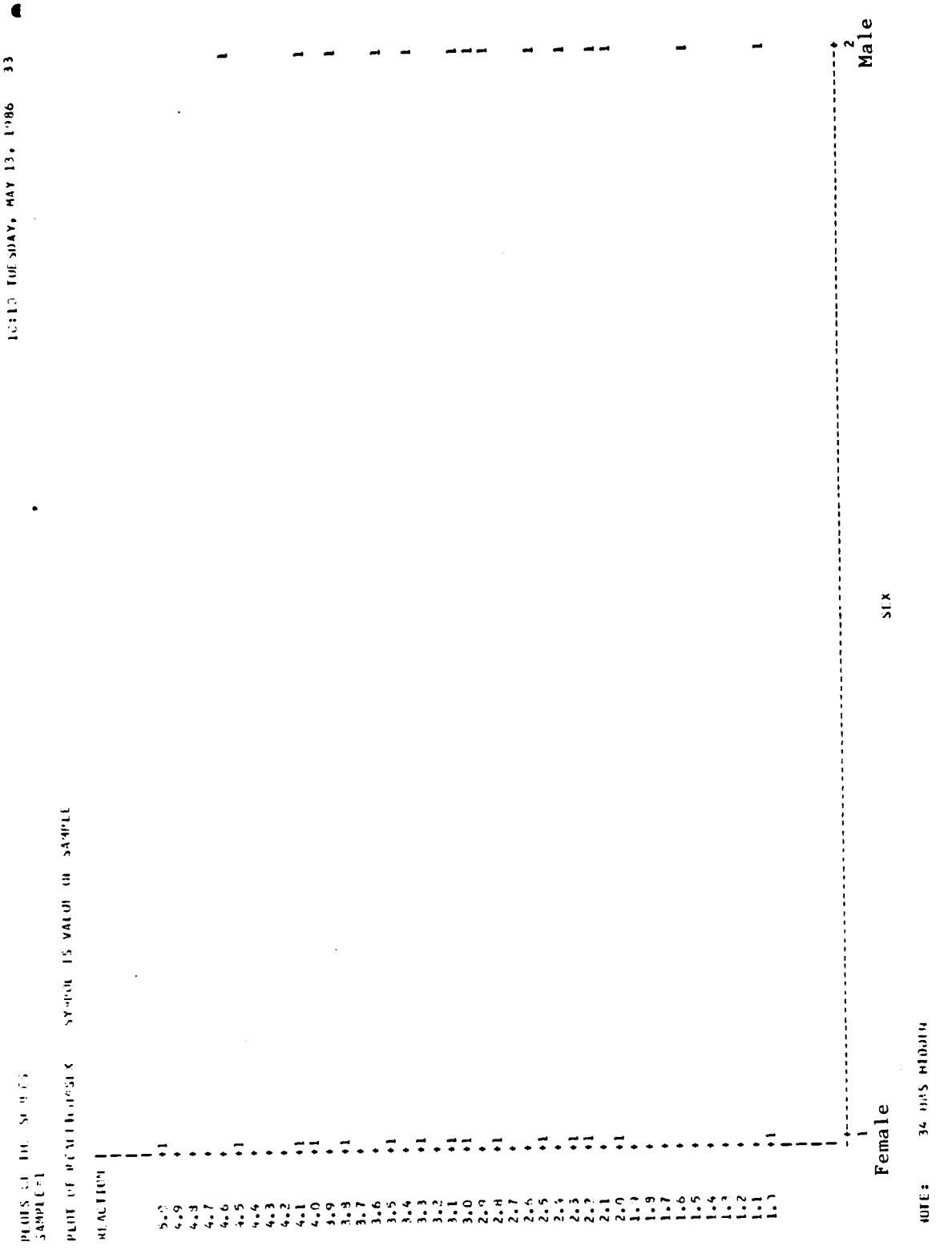
PLOT OF RESULTS*ANNUAL SYMBOL IS VALUE OF SAMPLE



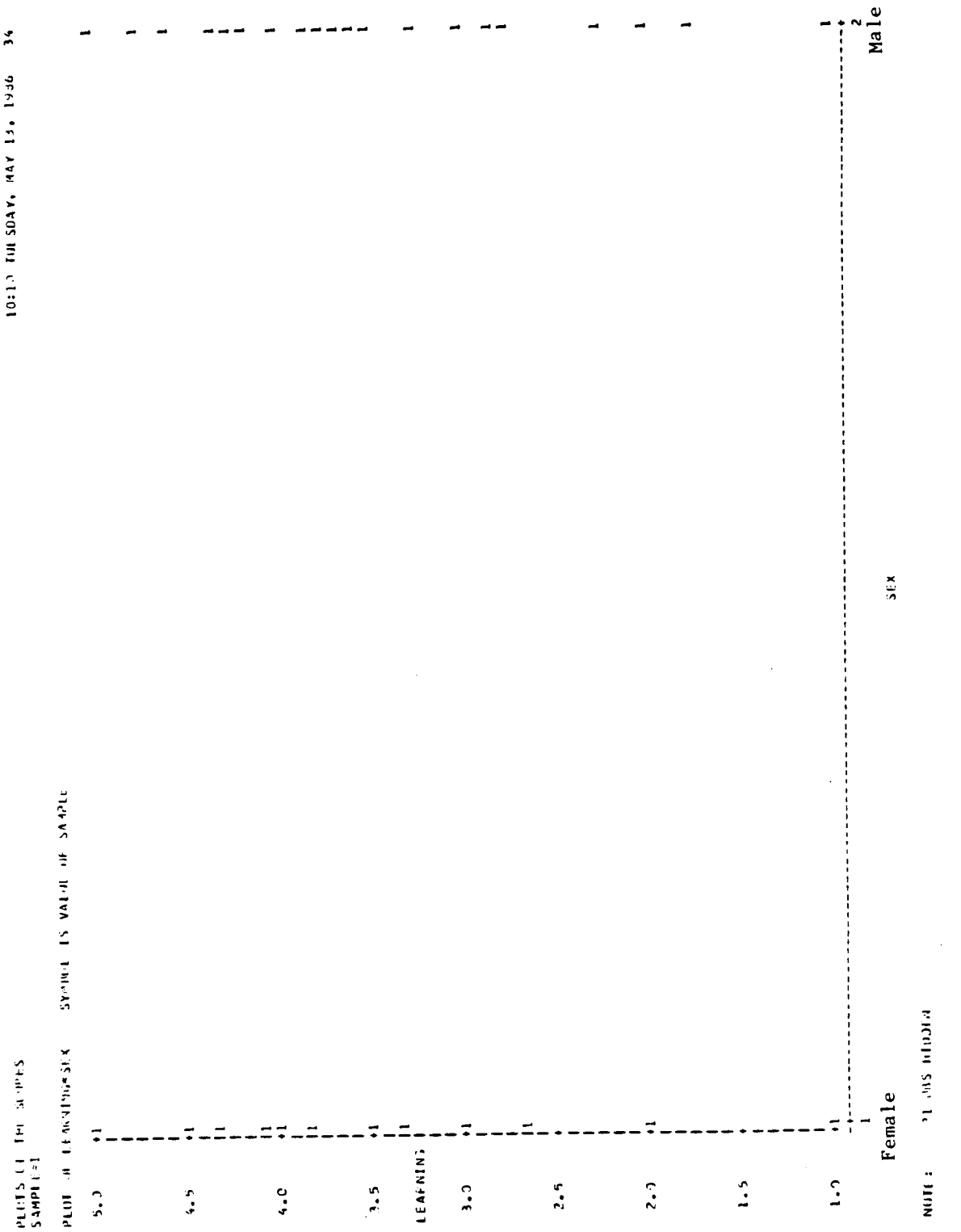
NOTE: 19 OBS HIDDEN

Scatterplot of Interaction Between the Results Scenario and Annual Budget for the MBA Group

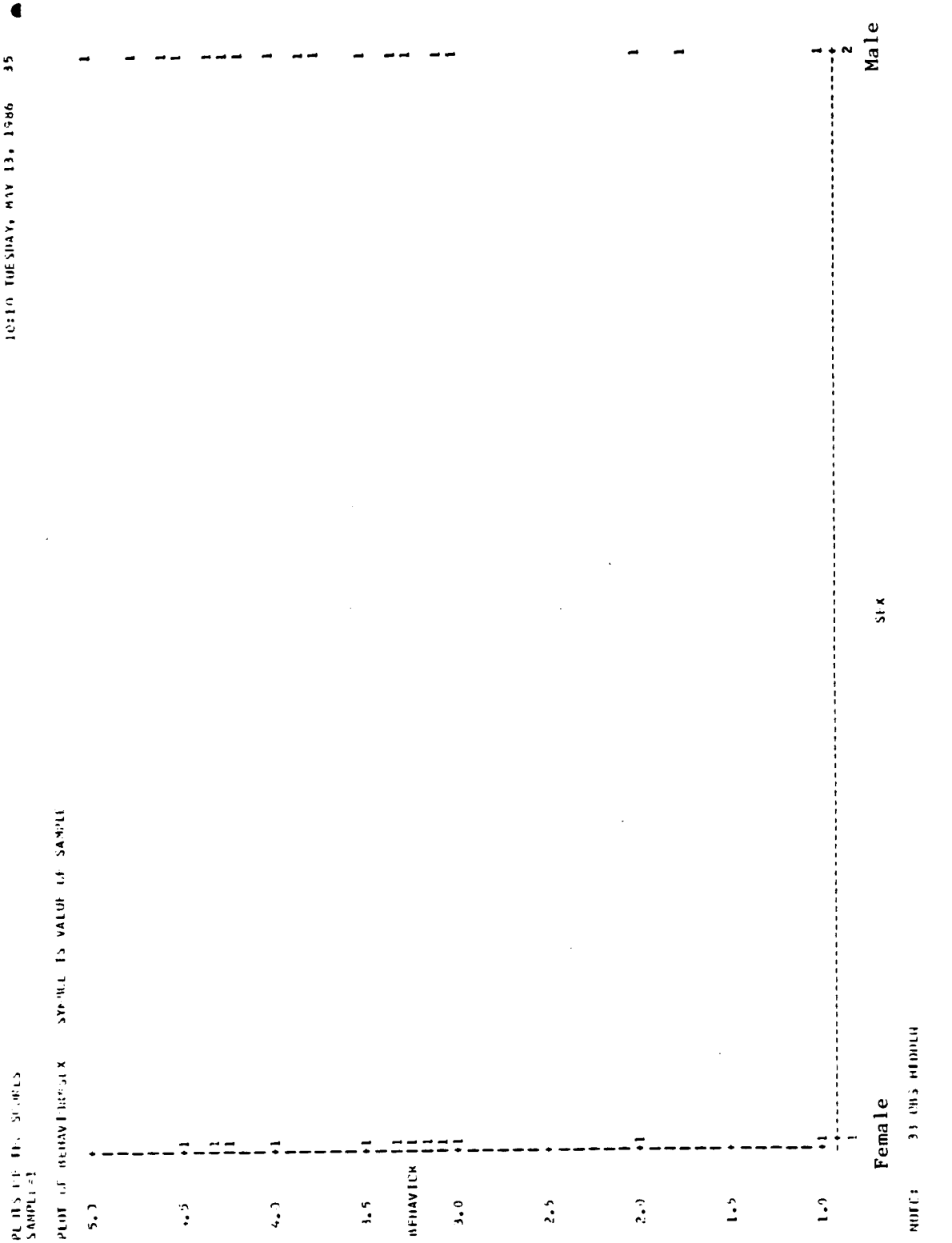
Scatterplot of Interaction Between the Reaction Scenario and Sex for the MBA Group



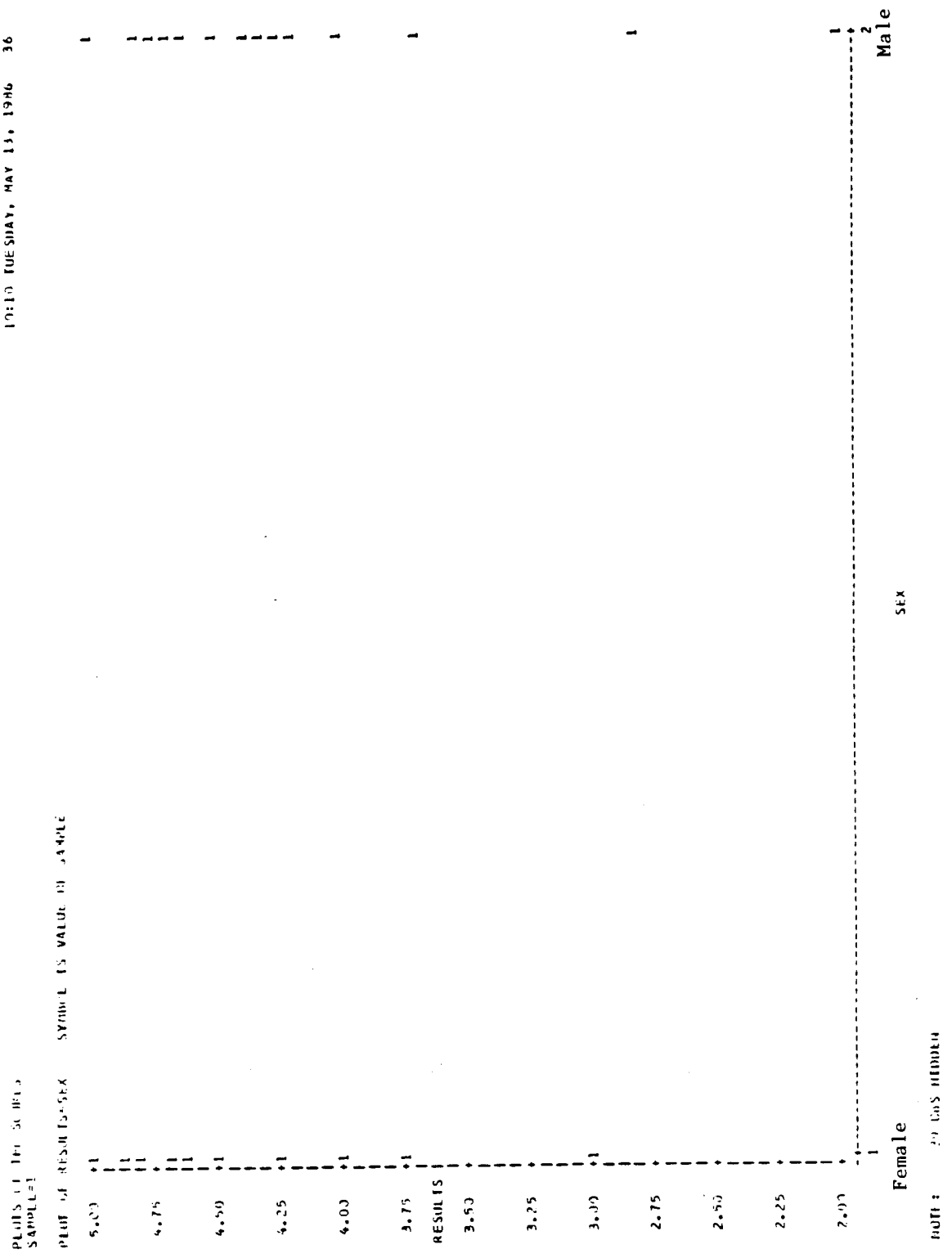
Scatterplot of Interaction Between the Learning Scenario and Sex for the MBA Group



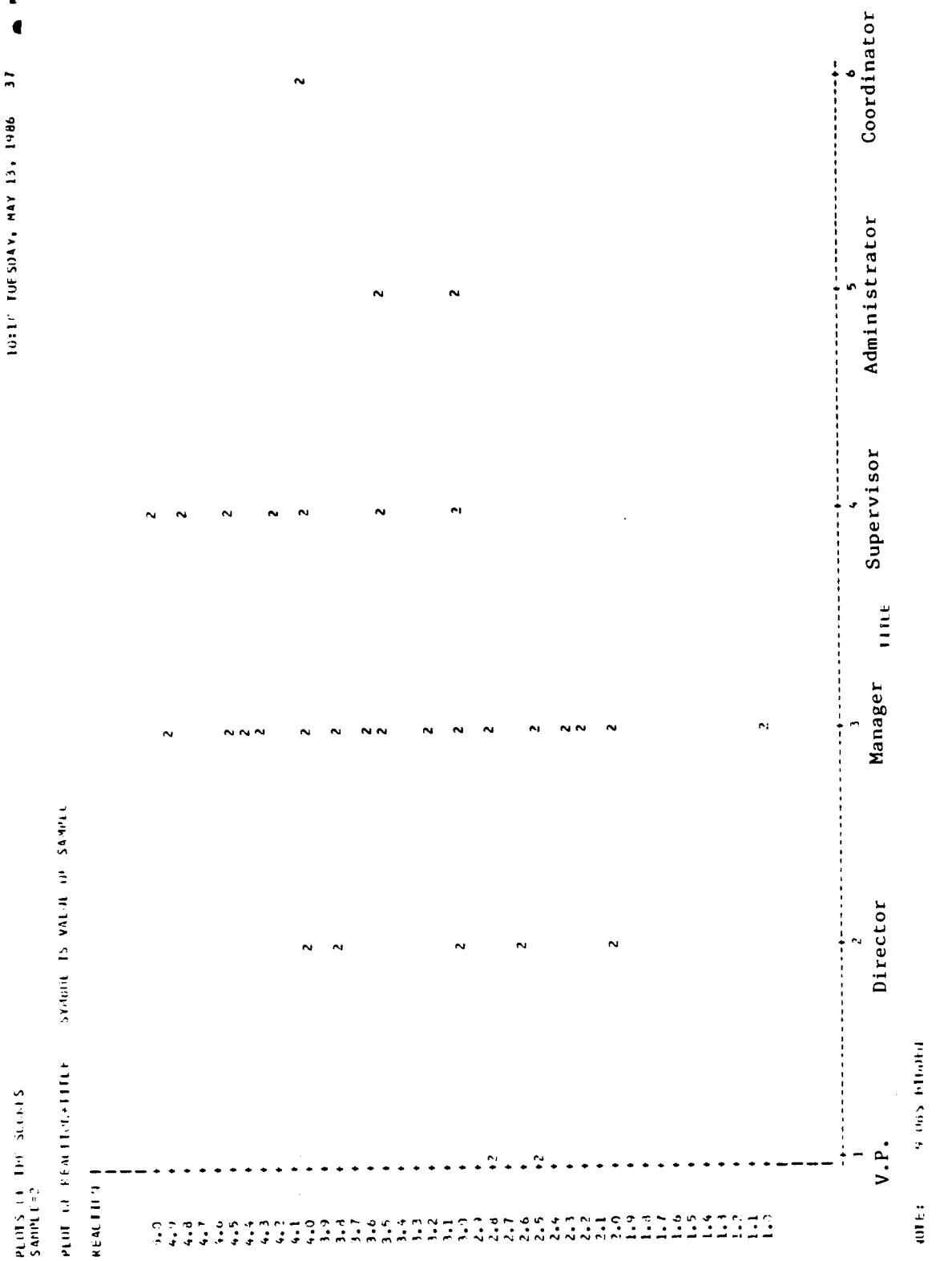
Scatterplot of Interaction Between the Behavior Scenario and Sex for the MBA Group



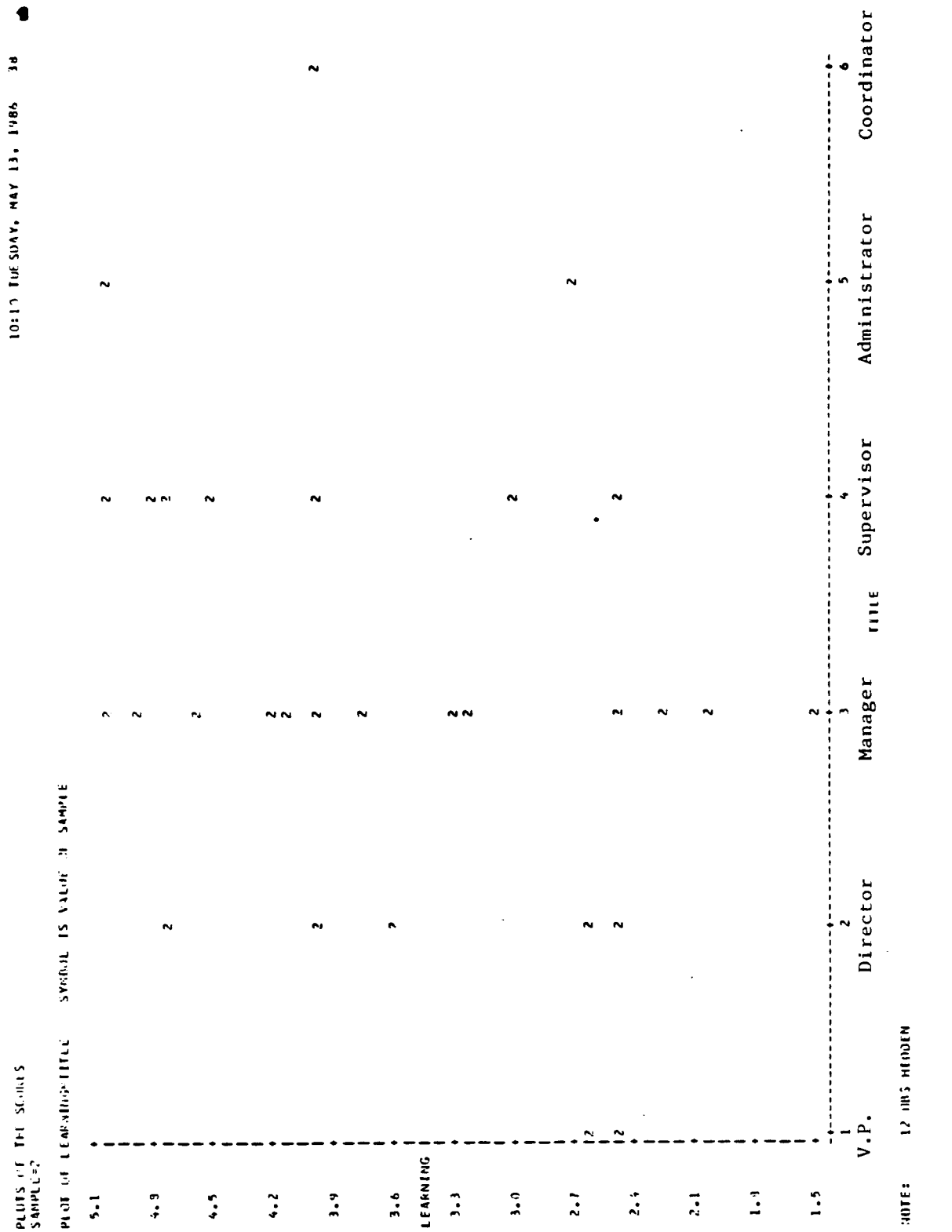
Scatterplot of Interaction Between the Results Scenario and Sex for the MBA Group



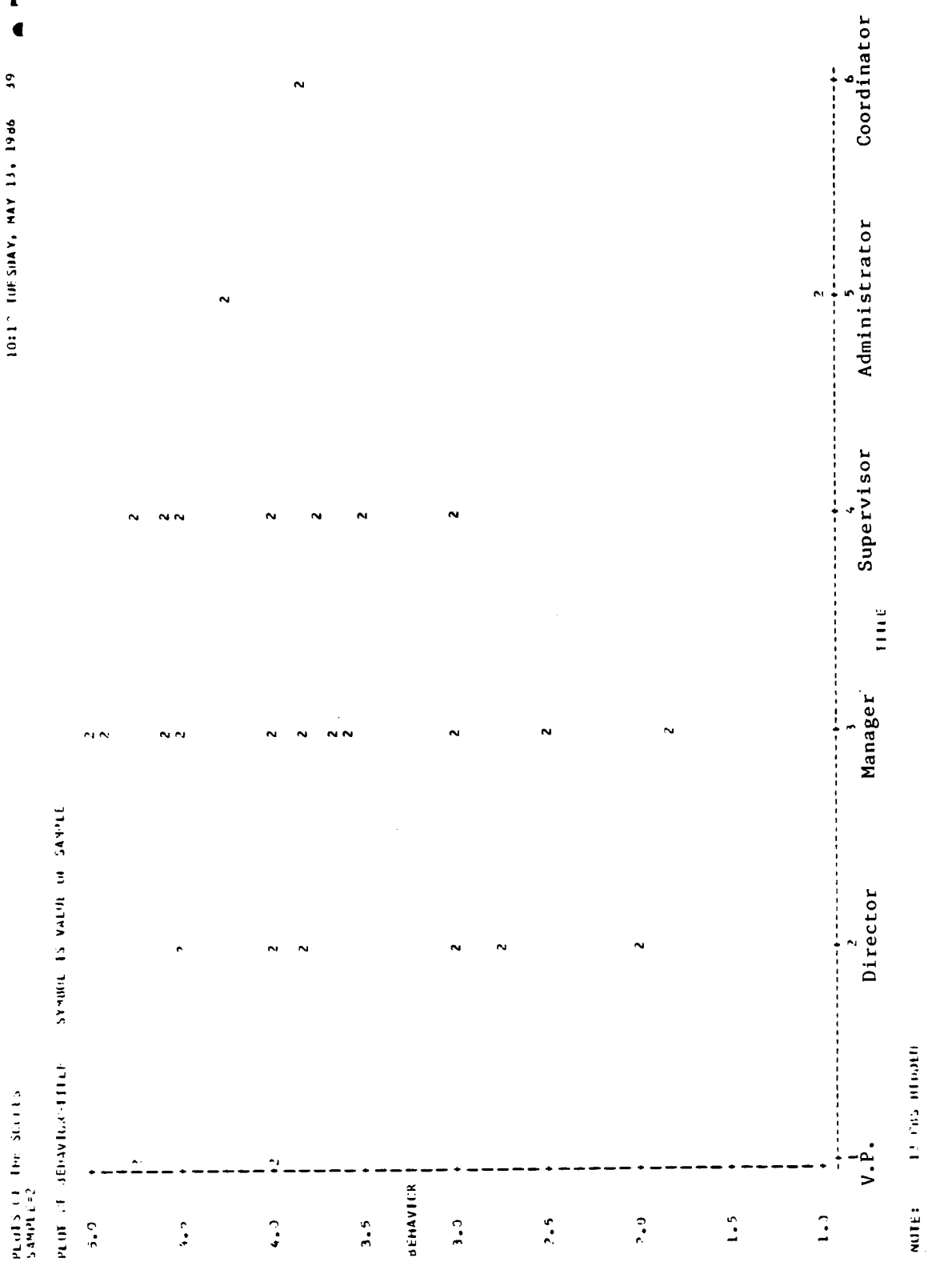
Scatterplot of Interaction Between the Reaction Scenario and Title for the Manager Group



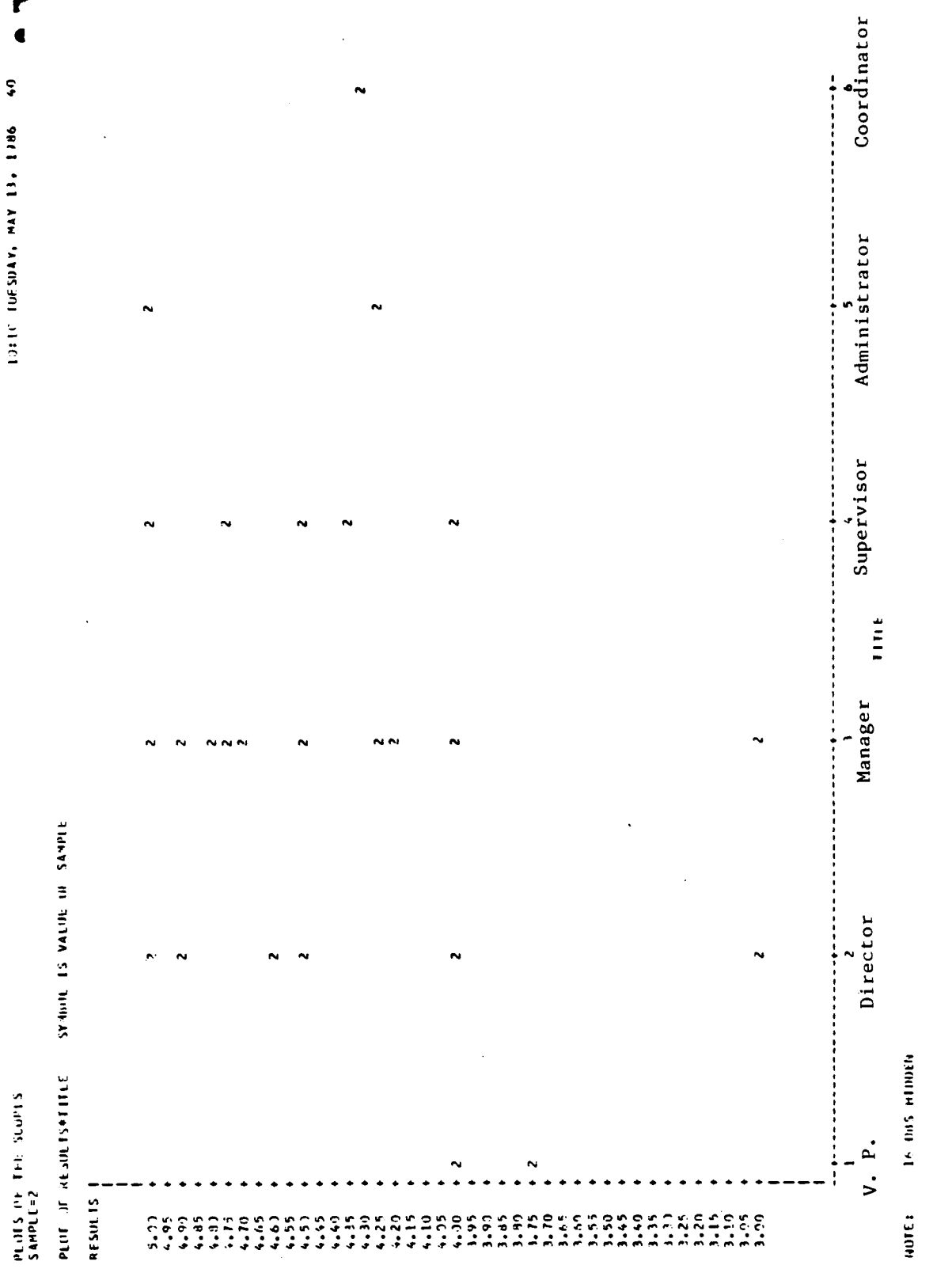
Scatterplot of Interaction Between the Learning Scenario and Title for the Manager Group



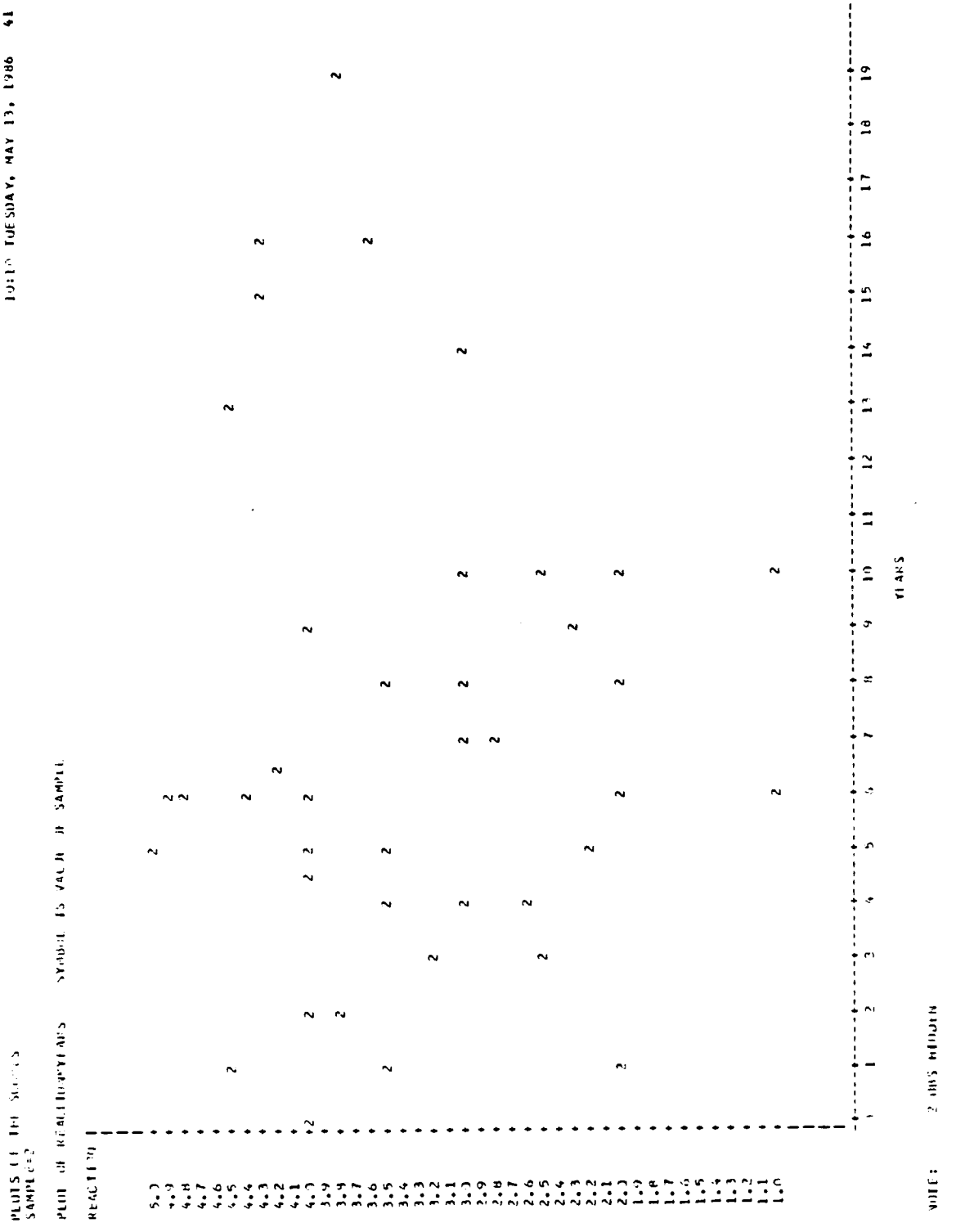
Scatterplot of Interaction Between the Behavior Scenario and Title for the Manager Group



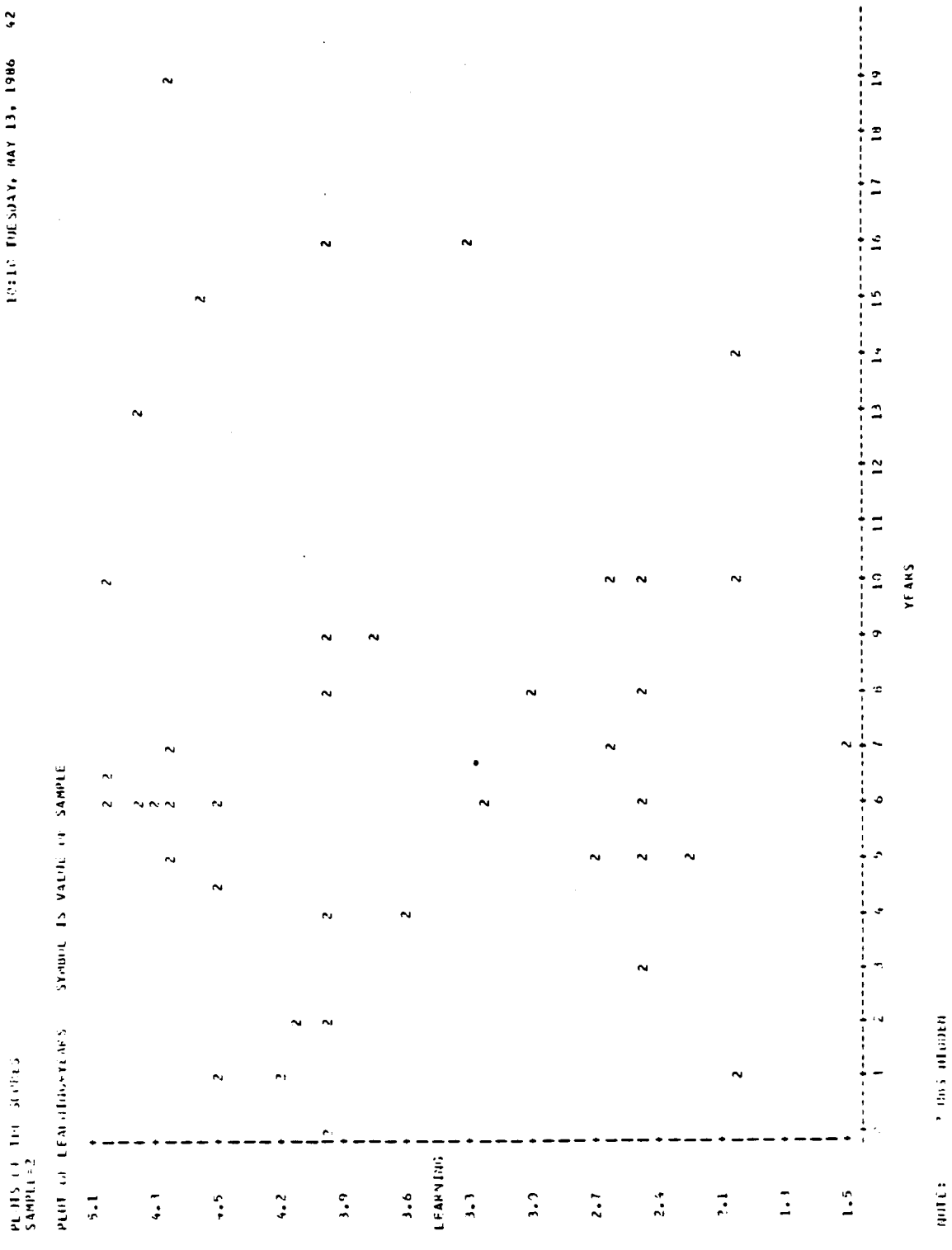
Scatterplot of Interaction Between the Results Scenario and Title for the Manager Group



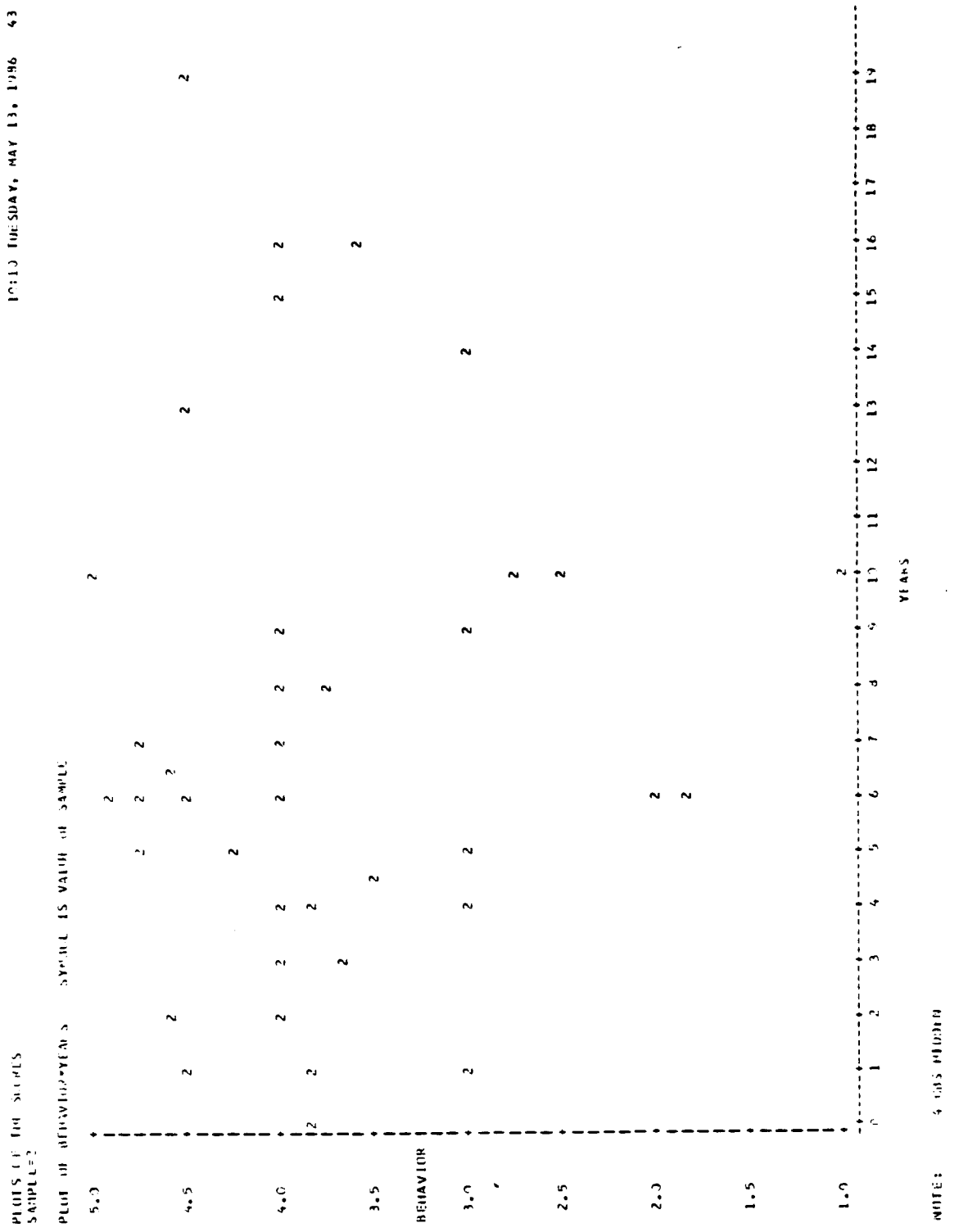
Scatterplot of Interaction Between the Reaction Scenario and Years of Experience for the Manager Group



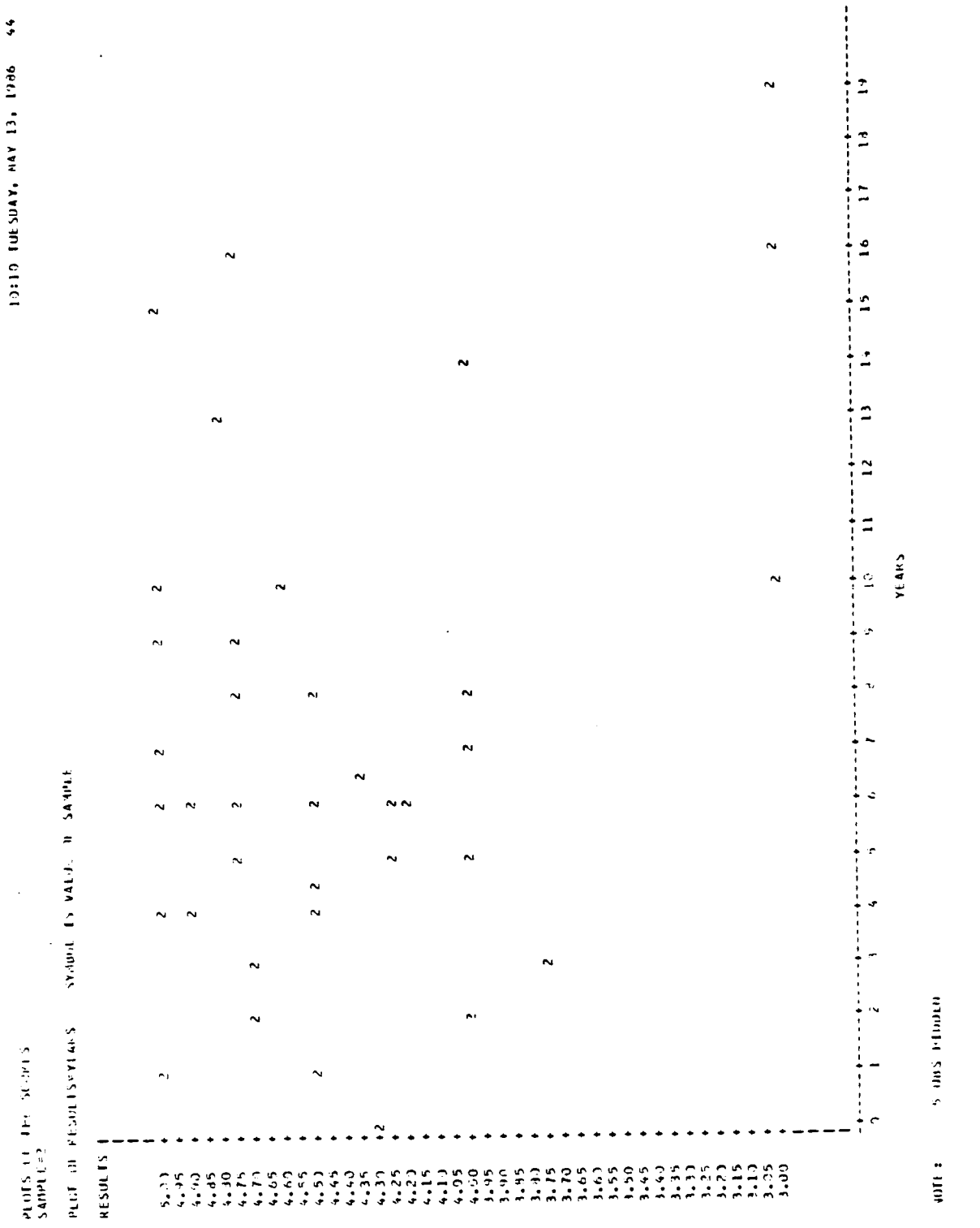
Scatterplot of Interaction Between the Learning Scenario and Years of Experience for the Manager Group



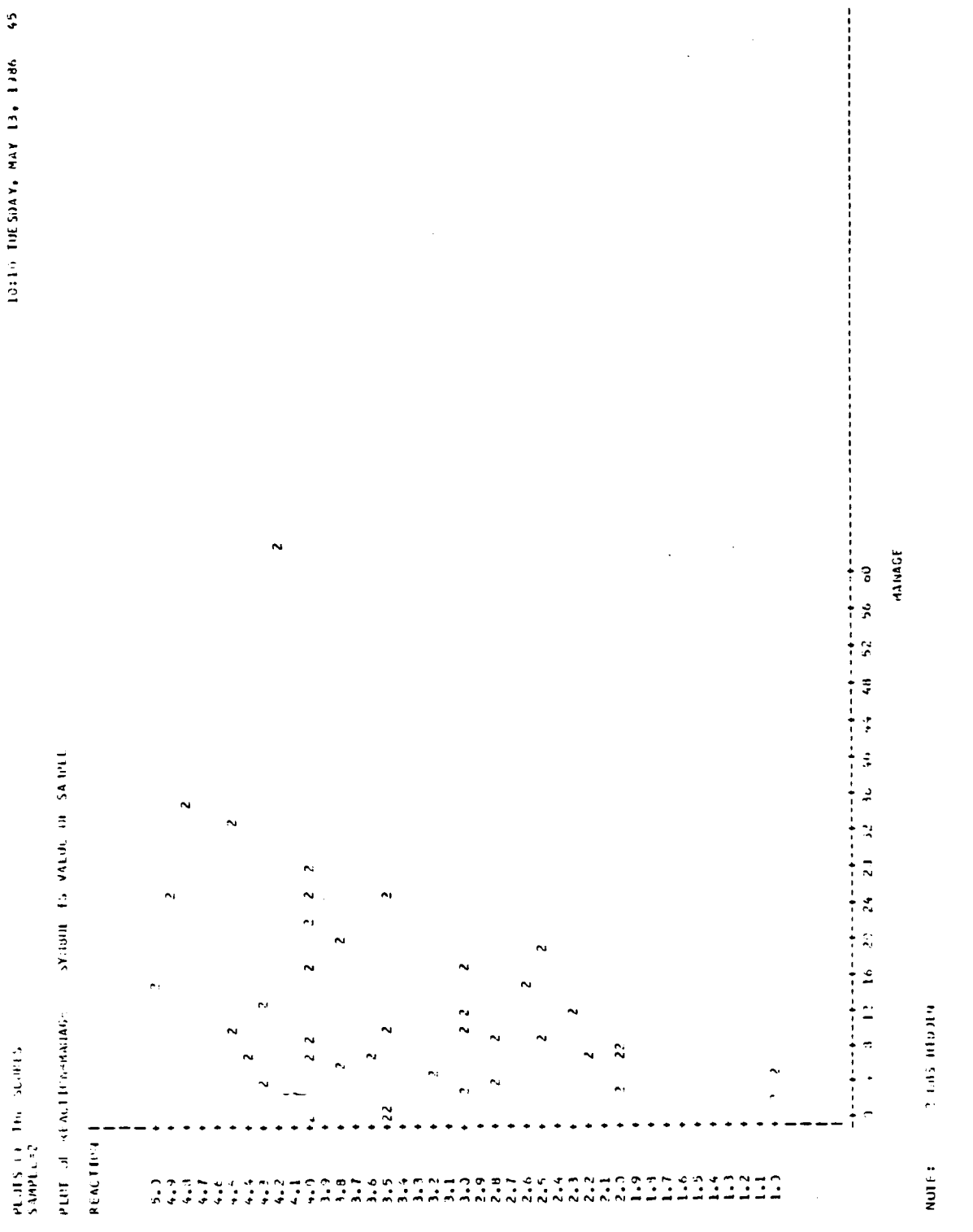
Scatterplot of Interaction Between the Behavior Scenario and Years of Experience for the Manager Group



Scatterplot of Interaction Between the Results Scenario and Years of Experience for the Manager Group



Scatterplot of Interaction Between the Reaction Scenario and Number of People Managed for the Manager Group



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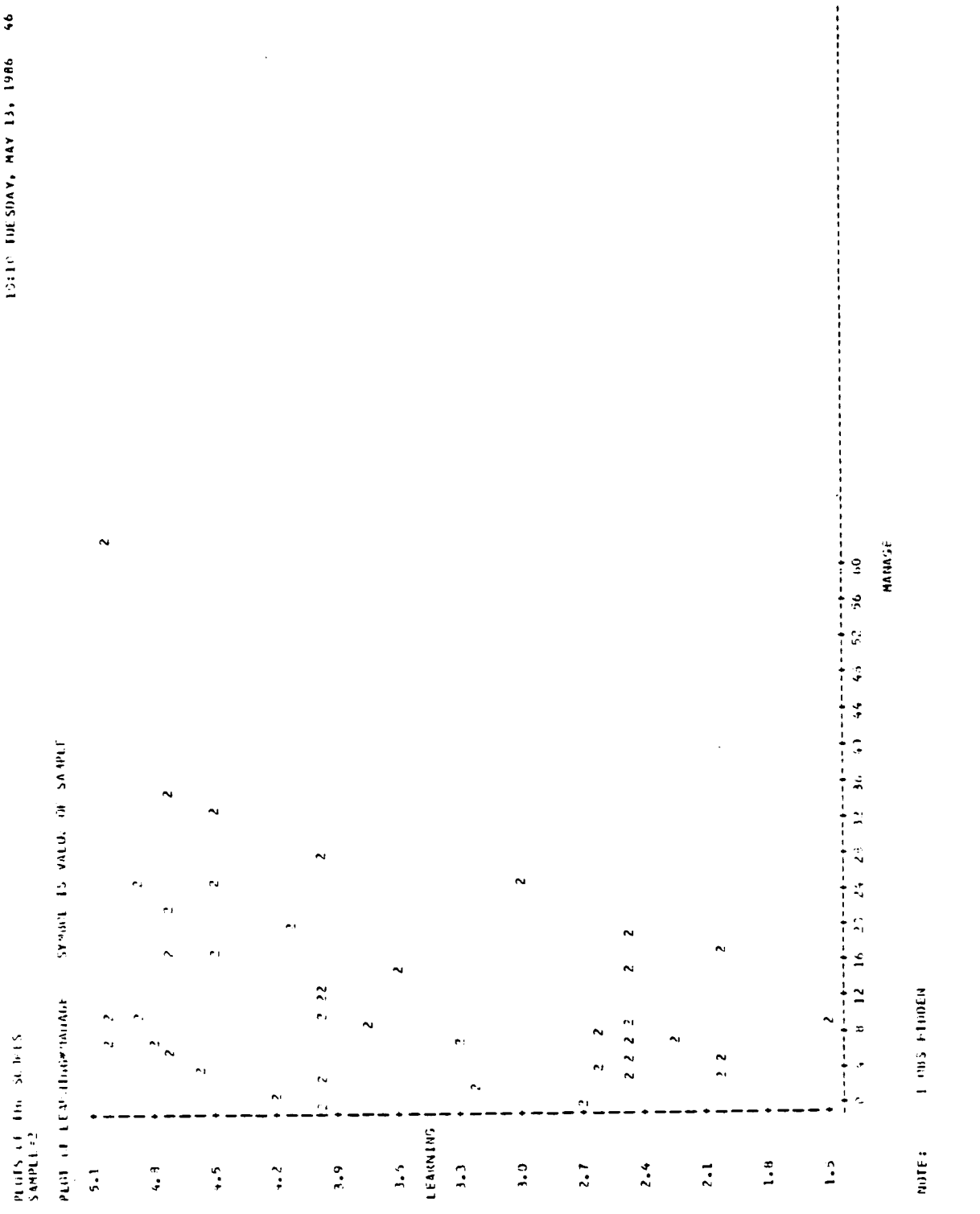
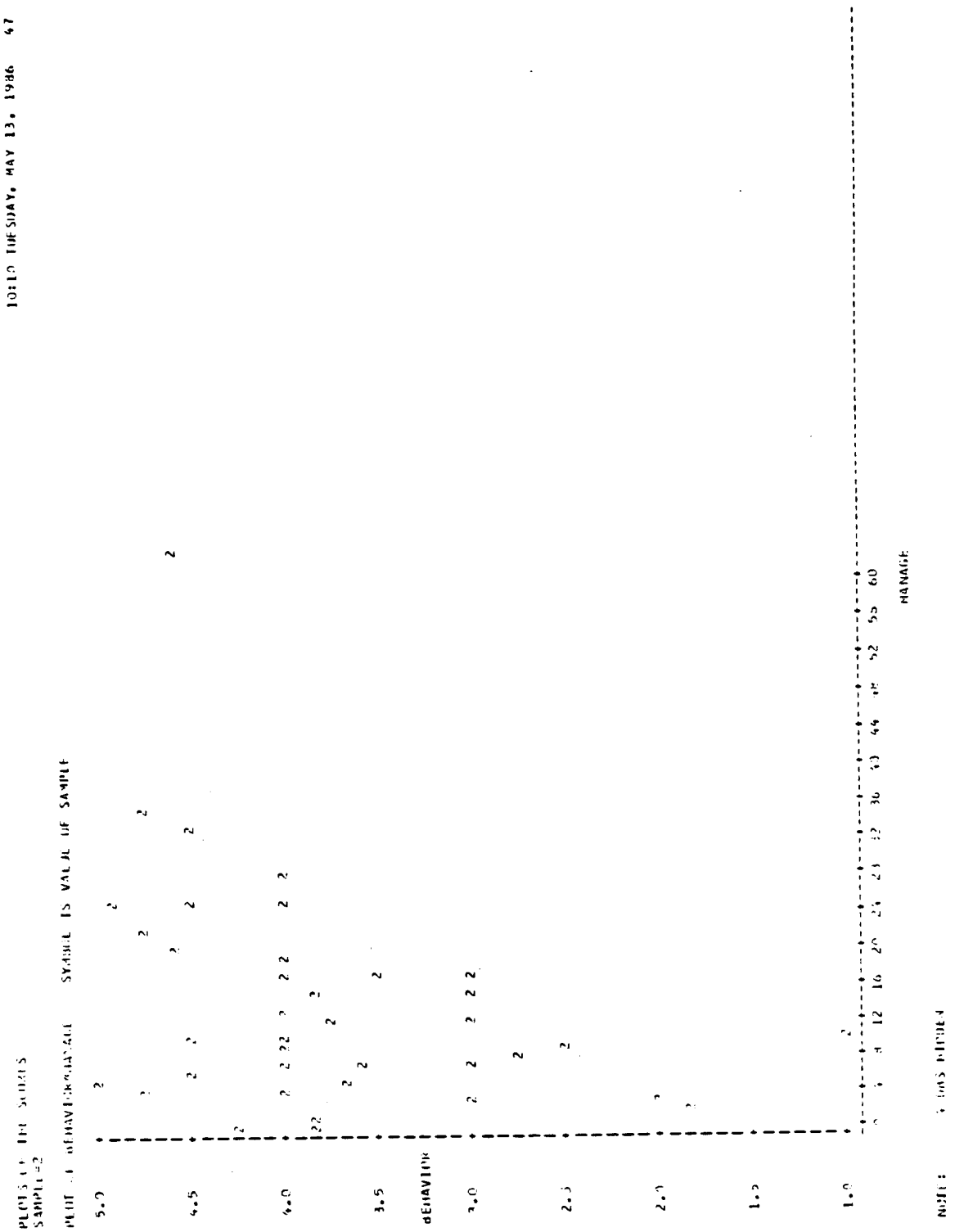
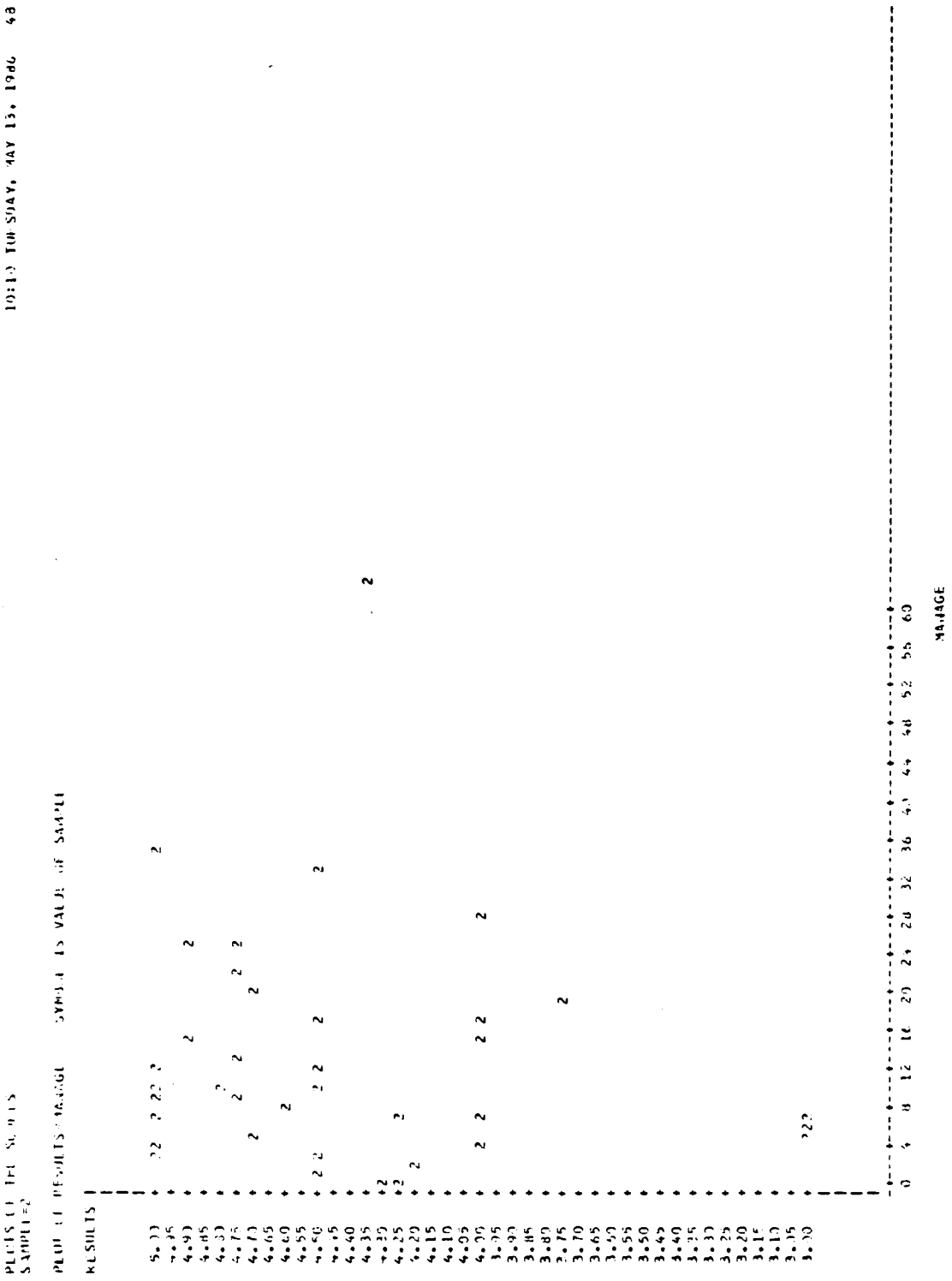


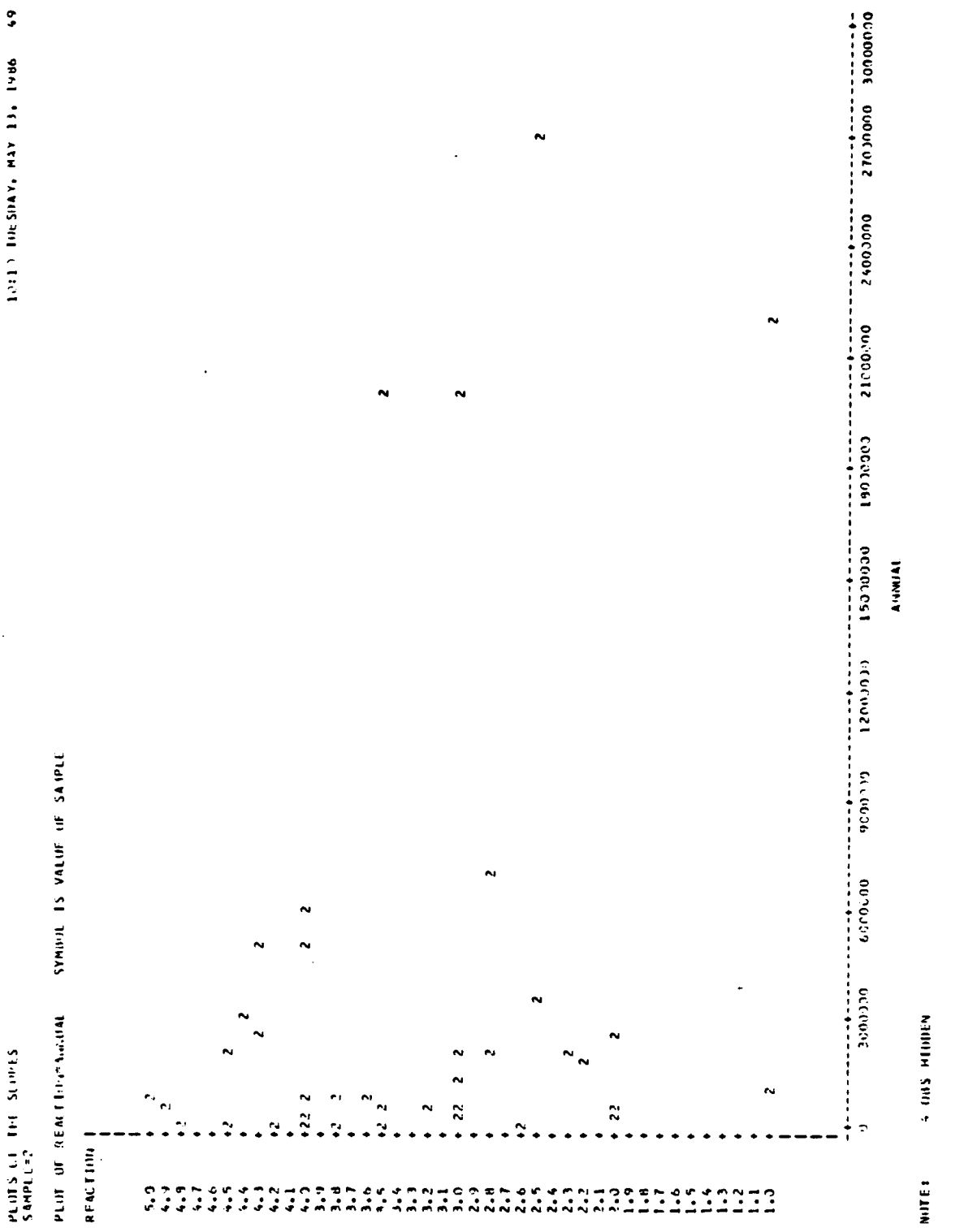
Scatterplot of Interaction Between the Behavior Scenario and Number of People Managed for the Manager Group



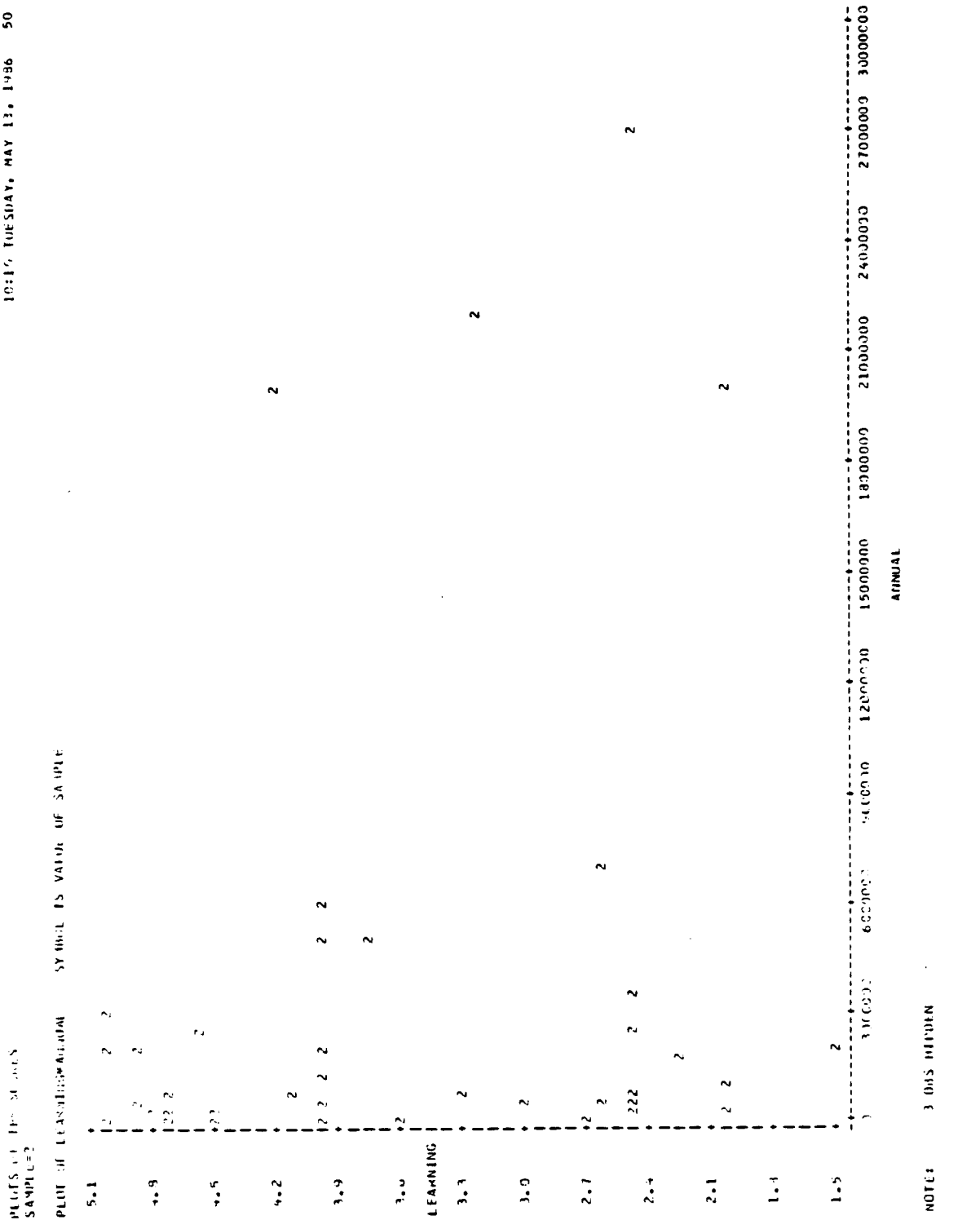
Scatterplot of Interaction Between the Results Scenario and Number of People Managed for the Manager Group



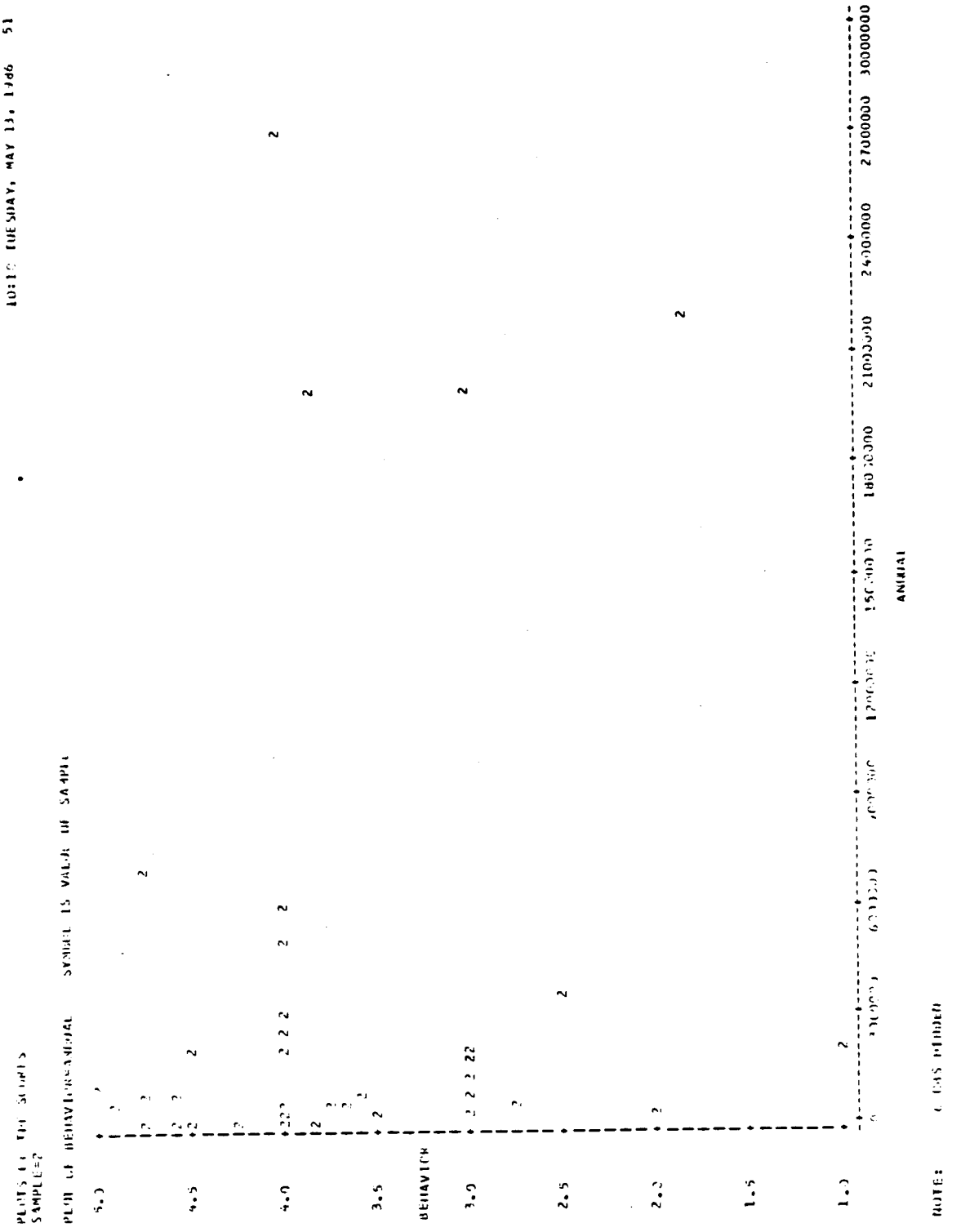
Scatterplot of Interaction Between the Reaction Scenario and Annual Budget for the Manager Group



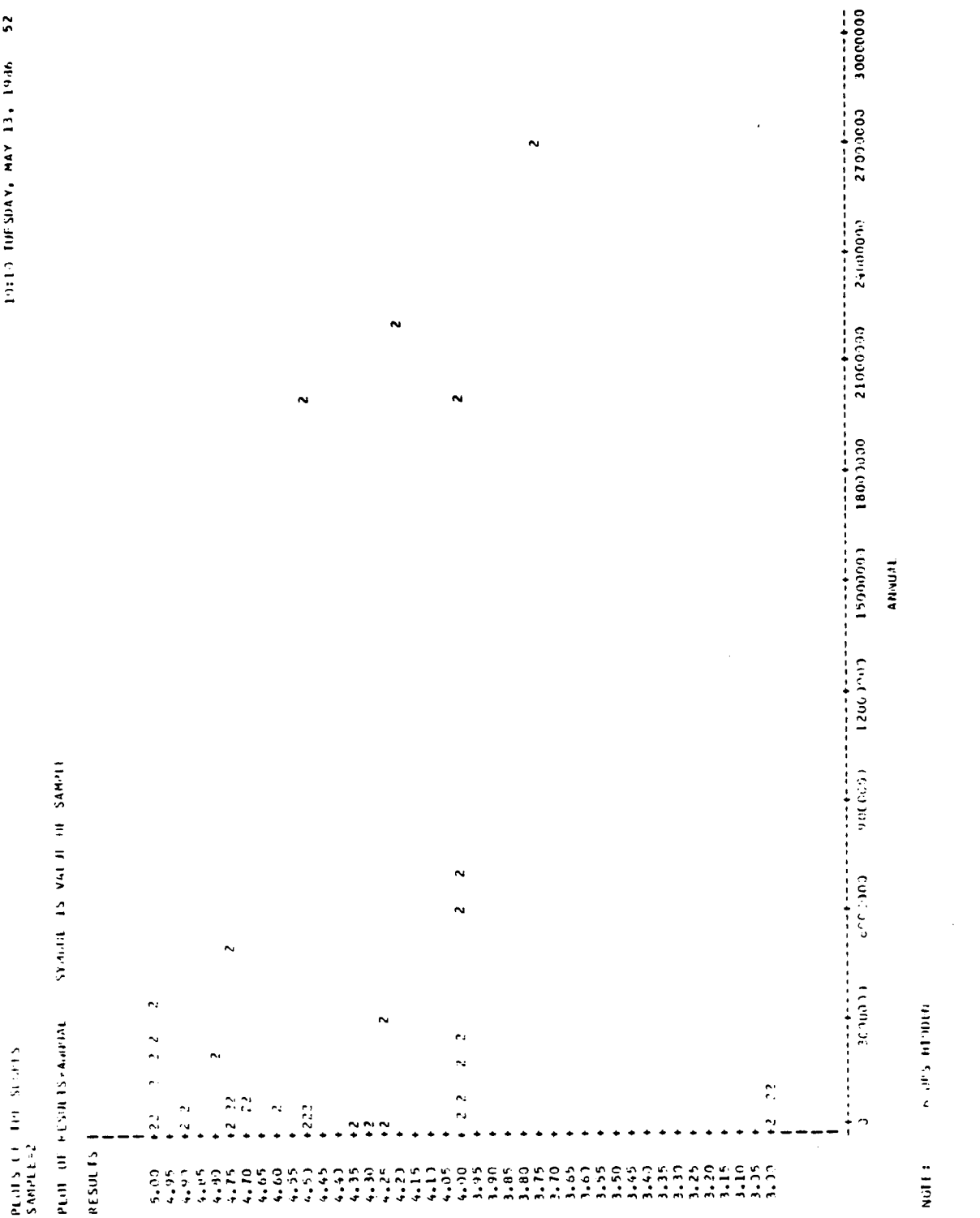
Scatterplot of Interaction Between the Learning Scenario and Annual Budget for the Manager Group



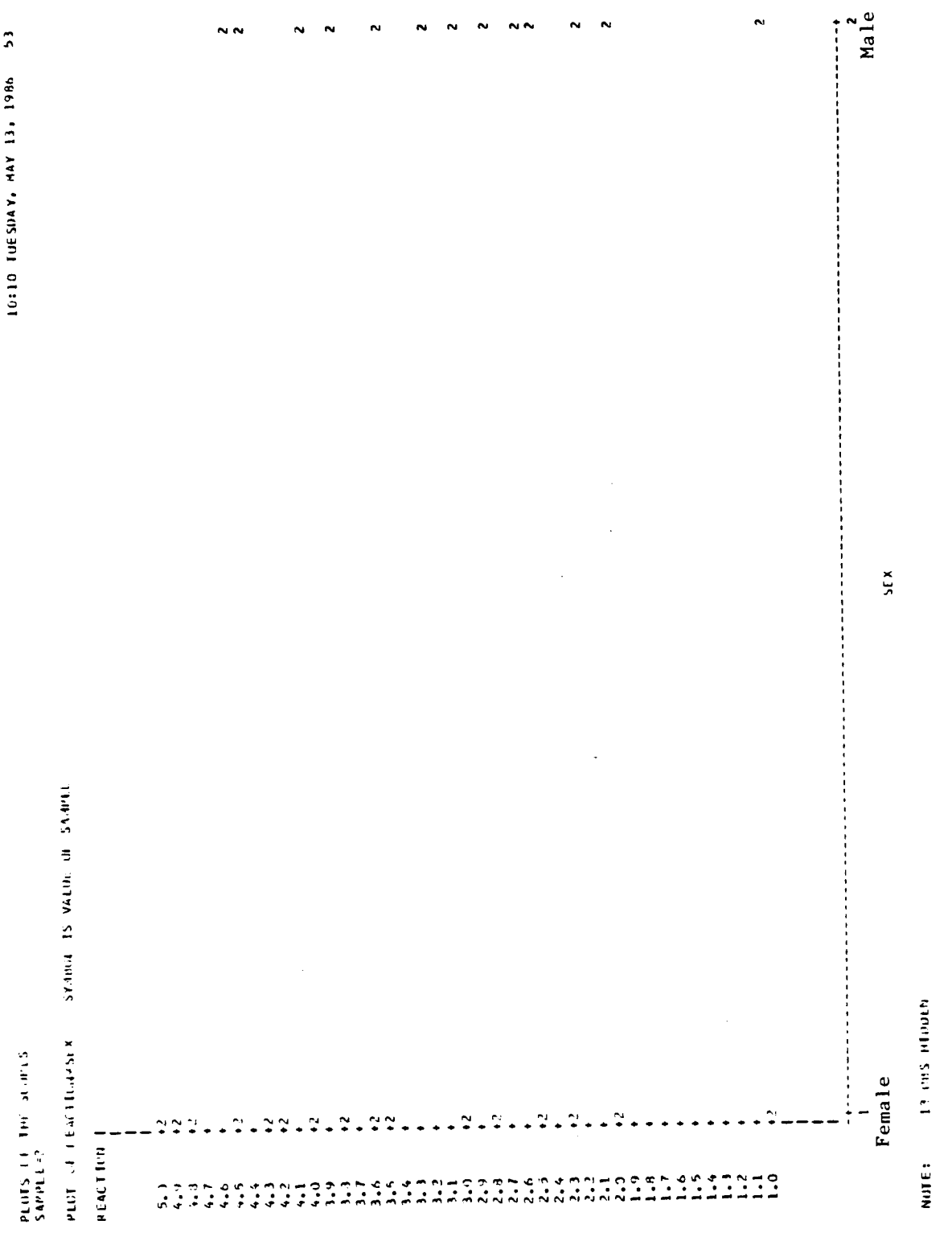
Scatterplot of Interaction Between the Behavior Scenario and Annual Budget for the Manager Group



Scatterplot of Interaction Between the Results
Scenario and Annual Budget for the Manager Group

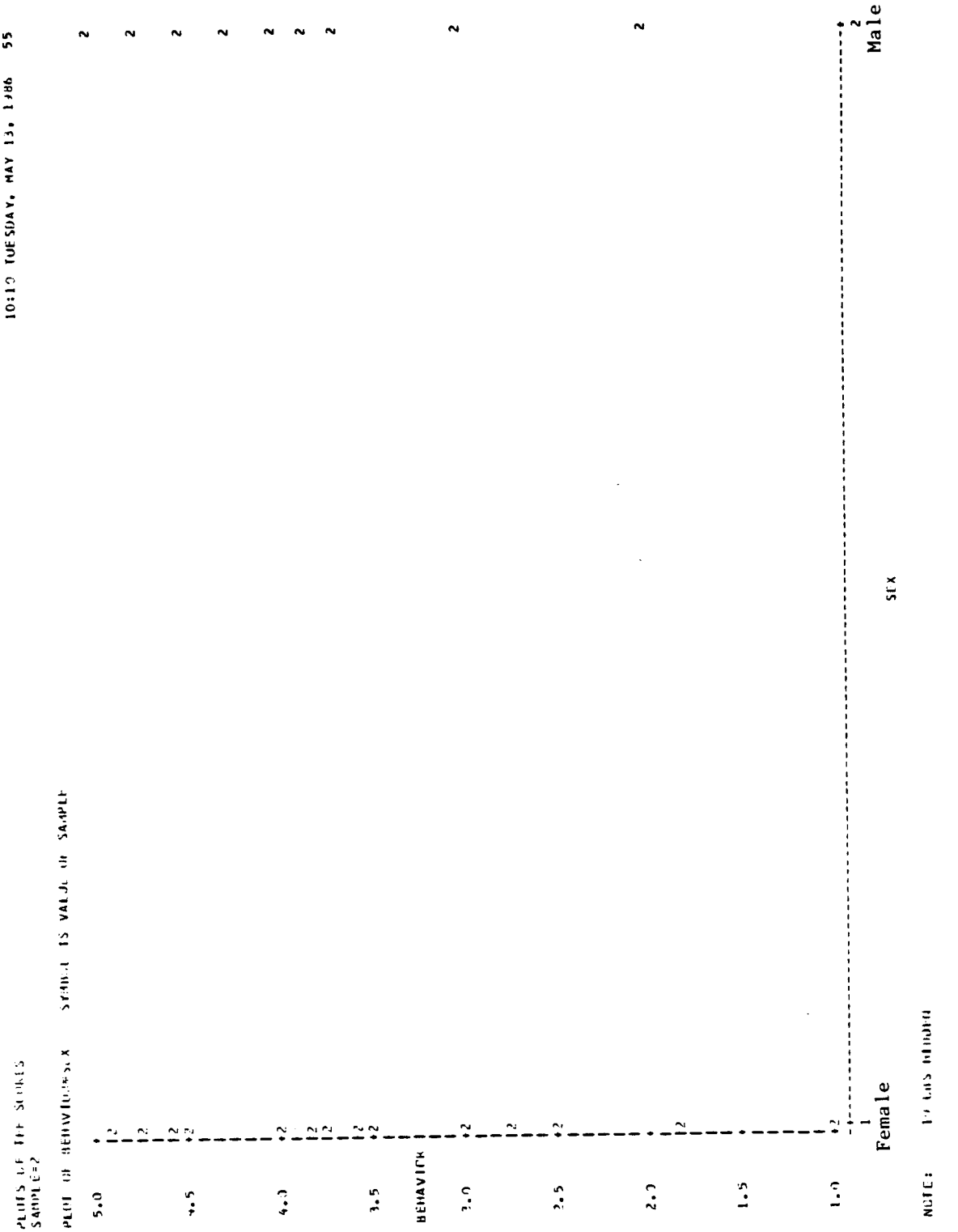


Scatterplot of Interaction Between the Reaction Scenario and Sex for the Manager Group



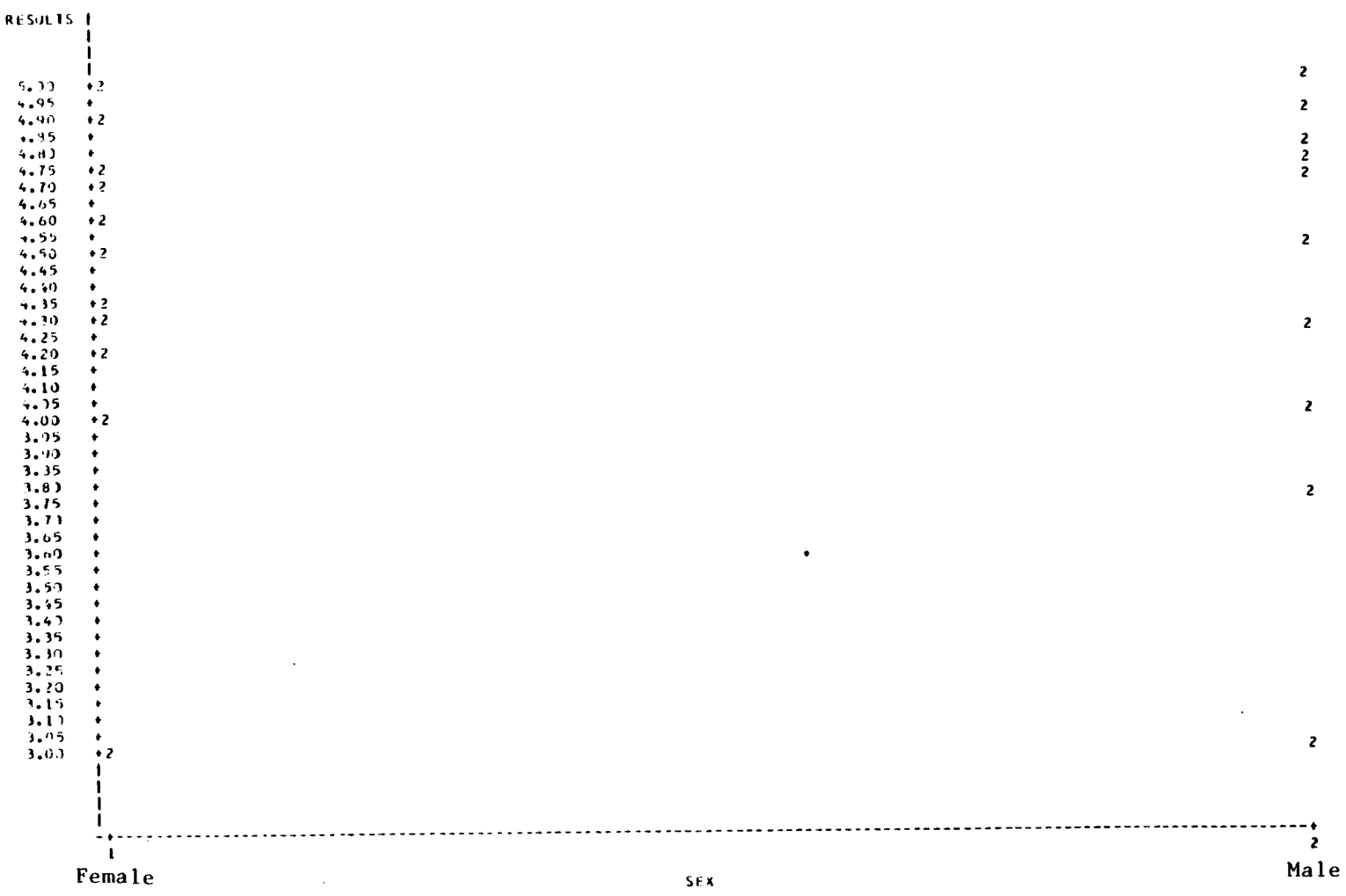
Scatterplot of Interaction Between the Learning Scenario and Sex for the Manager Group

Scatterplot of Interaction Between the Behavior Scenario and Sex for the Manager Group



PLOTS OF THE SCORES
SAMPLE=2

PLOT OF RESULTS*SEX SYMBOL IS VALUE OF SAMPLE



NOTE: 21 OBS HIDDEN
NOTE: THE PROCEDURE PLOT USED 2.0 SECONDS AND 823K AND PLOTTED PAGES 17 TO 57.

Scatterplot of Interaction Between the Results
Scenario and Sex for the Manager Group