A SYSTEMS CONCEPT OF TRAINING

a critical look at a leadership training process at RCA

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The training literature frequently refers to a particular model which is commonly used in training. This model is the traditional model composed of the phases *assessment, objective setting, design, implementation,* and *evaluation.* The training model is said to have a professional value. Rarely is the model said to have *functional* value or utility. This may be due to several factors. One factor is that the use of this model has not been subject to critical scrutiny and/or research, possibly because it is frequently conceived as being composed of five discrete phases connected sequentially with each phase standing independently. The findings and results of these phases are generally conceived as final statements. This particular conception of the training model is diagrammed in Figure 1.

This particular way of thinking about training tends to lead to several particular consequences and results: (1) Needs assessment data are *prematurely organized* and stated as training needs which results in (2) objectives stated in very *general and unmeasurable terms* and *not closely related* to the real training needs which leads to (3) programs designed and implemented which are only slightly *related to real training needs* or "real life" circumstances faced by trainees. This, then, has a large effect on trainees' motivation, involvement, and learning. In general, this conception of training leads to *increasingly more general* and *less precise training efforts.*

Another way of conceiving the training model is to view it as an interdependent and interrelated *process* in which the five phases form subprocesses which are highly interrelated and interdependent on all other subprocesses as well as on the total process. This way of thinking about the training model is diagrammed in Figure 2.

The conception of the training model as an interrelated *process* leads to a set of consequences quite different from those of the traditional conception. The consequences which result from using it as a process are in general (1) the results of each subprocess *do not become final statements* but are *continually reworked* and *reconceived,* resulting in (2) *increasingly specific questions, answers,* and *actions* in each subprocess which results in (3) a functional utility in terms of training results.

A LEADERSHIP TRAINING STUDY

This article reports on a leadership training program conducted at RCA in which the training model was used in a precise and integrated process manner. Part of the results of that training program could only be explained as outcomes affected by this specific and concrete use of the training model. If the evidence and data are correct, this would be a very useful research study of the functional value of the integrated training process. As such, the implications for training and development (industrial or otherwise) would be widespread.

Before beginning, it would be helpful if some key assumptions and concepts were stated. First, the traditional training model (assessment, setting objectives, etc.) can more appropriately be conceived as an integrated process. Secondly, each phase of the total process is a subprocess to the entire process. The relationship of the subprocesses to the total process is systemic in nature; i.e., the subprocesses are interdependent, interrelated, stand individually but, when connected, form more than the sum of their parts.

Some evidence exists to support the belief that a key variable affecting how much functional value the training process has on trainee learning, involvement, etc. is the degree of specificity, completeness, and comprehensiveness to

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The Traditional Conception of the Training Model

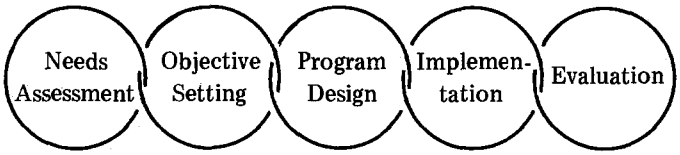

Figure 1.

Conception of the Training Model as an Integrated Process

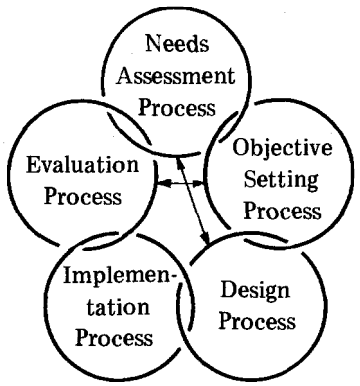

Figure 2.

which the process is carried out. It should be cautioned that causality is not ascribed to this variable, but a correlation was experienced with results which were otherwise unexplainable. There was no control of groups or variables due to the clinical nature of the study.

In this article we will be working at several different levels at different times. The general format of the article will be to identify all subprocesses of the training model. Next, an operational description of how each subprocess was conducted will be presented. This material will be described to demonstrate the key points and evidence which exist. This descriptive material will then be analyzed to show how and in what ways the actual conduct of the phases of the program was handled as a process. The analysis will also deal with the consequences and utility of using the training model in a process manner.

THE ASSESSMENT PROCESS

The project itself was initiated at the invitation of top management of one of RCA's divisions who felt the need for training of some sort for lower levels of management. An assessment was initiated which consisted of depth interviews with all levels of management. In almost all cases, the initial interviews were non-directive and set within the general context of the manager's job and himself and how he saw and felt about each of these. The direction of the interview was to focus and refocus continually on how he perceived the job, how he perceived his boss' behavior and expectations, what he said he did in his job and how he behaved as a supervisor. The shortest of these interviews lasted 40 minutes and in most cases complete notes were taken.

From the interviews, considerable data were gathered on how lower level managers said they performed their jobs, how they felt about their job, how they perceived their boss's behavior, feelings and expectations and some data regarding "the way things are around here"—i.e., the organization's "culture." From the first-level supervisors' managers, almost the same data were derived about that level plus pertinent data about how he (the second level manager) perceived and appraised the first-level supervisor's job and his performance in that job. Despite the large amount of data gathered, the process of assessing the training needs was only partially completed. Throughout the data gathering, no effort was made to work with or organize the data in any way.

KEY FINDINGS

Following the first run of data gathering, the data were reduced and organized to be meaningful and useful. Several key findings resulted. In general, the findings were that the first-level supervisor saw:

1. Leadership or specific leadership acts as comprising a small part of his job (leadership being seen as 15% of the total job)
2. Leadership and leadership behavior as being peripheral rather than integral to his job and his responsibilities.
3. Control of subordinates as being his prime, if not sole, leadership responsibility.
4. Leadership as a means of maintaining control or stability more than as a means of building work group productivity, competence, etc.

These findings were relatively consistent but several inconsistencies were significant, and the findings did not yield much evidence as to the cause of these phenomena. It was necessary, therefore, to begin a second phase of data gathering to (1) make the first set of findings more specific and (2) account for inconsistencies, as well as (3) gain more evidence as to causal reasons.

A second interview effort was begun especially with those supervisors where inconsistencies had been noted. In addition, observations were made of supervisors' behavior to determine how accurate their verbal reports had been as well as to gather more specific data.

LEADERSHIP PATTERNS

From the further interviews, it was found that supervisors' perceptions of their jobs did differ. These differences tended to form consistent patterns. The patterns are based on attitudes, reported behavior, and observed leadership behavior of these supervisors with subordinates. These patterns of leadership behavior tended to fall into styles. That is, the patterns which emerged formed into three styles of leadership. The styles or categories were called A, B, and C. The data

gathered indicated that almost all managers could be appropriately categorized into one of these three styles.

Style A supervisors saw the leadership parts of their jobs in the following ways:

1. Simple and peripheral to their job.
2. Capable of being performed by means of —
   a. techniques and methods used primarily to control subordinates' behavior.
   b. addressing technological rather than leadership issues.
3. Fixed and constant in nature; that is, they felt as though there was little quality differentiation in the act of leadership and that leadership was to be used primarily for controlling and disciplining subordinates.
4. This category yielded a tendency on supervisors' parts to see maintenance of the status quo (production) as being an important end result for their work groups.

Style B supervisors tended to:

1. Be less concerned with control of subordinates as a means of performing leadership responsibilities.
2. See leadership as a more important and integral part of their jobs.
3. Differentiate symptoms from causes; i.e., they tended to speak of behavior and motivation problems as leadership issues rather than technological issues.
4. Provide more functional leadership than Style A or C managers although adequate knowledge and skill of leadership issues and behavior was still weak.

Supervisors categorized as Style C were typified by managers who saw their job as that of a task specialist. That is, a Style C supervisor was one who saw his job almost solely in terms of technological problems. One example of a Style C supervisor would be an accounting manager who had six clerks and two accountants reporting to him but saw his job as requiring almost no leadership responsibility. Rather, he saw his job solely in terms of handling accounting problems.

TRAINING IMPLICATION

The findings to this point strongly indicated that leadership was the general area in need of development. The inconsistencies found in the first data gathering effort were accounted for by the findings of the second data gathering and data reduction process. That is, further data indicated that the inconsistencies were a result of different styles of leadership used by managers. The styles themselves (A, B, and C) appeared to be internally consistent.

These data had several implications. First of all, it suggested that the lack of highly-developed leadership knowledge and skill could not be solely caused by the organization or its "climate," for there were significant differences between the three styles. The data indicated that the lack of highly-developed leadership knowledge or behavior was probably individually determined. This conclusion was a critical one, for, had the findings indicated that the development needs were caused by the organization's management system or "climate" alone, a training effort for the first-level managers would have been pointless. Under such conditions, transfer of learning from the program to the job would have failed to be significant.* Thus, there were significant indications that the phenomena were caused and controlled at least partially within the individual supervisor. By training him, change was at least possible.

TRAINING NEEDS

Another implication was that the supervisors who might be trained were found to be significantly different in their knowledge, attitudes, and behavior regarding leadership. Would they all need further training? Would it make sense to have them attend the same program? In the same group? Such questions might tempt trainers toward answers at this stage of working the data if the training model were being used in its traditional sequential conception. Under an integrated conception, however, such questions put the cart before the horse. As of yet, the training *needs* had not been formulated. To this point, only diagnostic and assessment data of the characteristics of the managers had been determined. Thus, the next task was to express specifically the training needs of each category of manager. From the diagnostic data the following training needs were formulated:

CATEGORY A's TRAINING NEEDS

1. Explore leadership as an integral aspect of supervision.
2. Explore various types of leadership behavior such as the leader dealing with:
   a. group phenomena.
   b. people's needs, values, and expectations.
3. Explore the need for control.
   a. other aspects and heretofore unconceived consequences of various types of control.
   b. alternative means of control and results and their consequences.

*It should be pointed out that additional data did indicate some organization support of a particular style. Appraisal reports for the preceding year for each category of style indicated that, on the average, managers categorized as Style A received higher ratings than did managers categorized as Style B or C who received about even ratings on the average. No statistical analysis was done. Also, interview data indicated some incidence in Style B managers of feeling little support or understanding from their bosses regarding how they (the Style B managers) performed and/or led their subordinates. This indicated a development need at other levels and perhaps some organization development needs.

4. Assess the relationship between leader behavior, control, subordinate's nature, values, and expectations and the results which can be expected.
5. Assess their present level of functioning in relation to alternatives and assess their future paths by testing newly presented alternatives against their past experience.
6. Express and deal with dissonance which may result.

CATEGORY B's TRAINING NEEDS

1. Assess their present level of functioning consciously and explicitly.
2. Express whatever feelings of frustration and dissonance due to lack of organizational support, sanction, and/or reward.
3. Explore other aspects of supervision such as:
   a. other aspects of leadership than presently conceived.
   b. group phenomena and group leadership concepts.
   c. people's needs, values, and expectations as factors affecting the accomplishment of work.
4. Explore other criteria of leader effectiveness and group performance beyond production and discipline such as:
   a. teamwork-cooperation phenomena.
   b. building group competence, resources.
5. Explore and assess the relationship of leader behavior and the functions he performs with the various results which can be expected to occur.
6. Assess these cognitive concepts and theories against their past experience for validation and integration in their thinking.

CATEGORY C's TRAINING NEEDS

1. Exposure to the concept of leadership as an integral aspect of supervision.
2. Explore various aspects and methods of leadership.
3. Search and explore issues of people's needs, values, and expectations relevant to the accomplishment of work.
4. Search and explore other result criteria beyond production and discipline.
5. Assess the relationship between leadership behavior and methods; people's needs, values, and expectations; and the results which can be expected.
6. Assess their present level of functioning and assess their future paths.

ASSESSMENT PROCESS ANALYSIS

This final formulation of the training needs concluded the assessment process. To help keep the central thesis of this article clear, let us look back over the assessment process and restate it in terms of the central notions being presented.

First of all, it was stated earlier that it would be useful for training people to think of the training model as a total, integrated process, systemic in nature and composed of subprocesses rather than phases. The assessment process which was just described appeared to be a complete process composed of subprocesses. The first data gathering might more appropriately be called the *exploratory subprocess*, for the finding of this subprocess did not yield final diagnostic data nor complete training needs. Rather, the findings indicated initial findings and the general direction of inquiry along with some disturbing inconsistencies. Further work was obviously needed.

Thus, the second data generation activity began which could be called the *diagnostic subprocess.* This subprocess resulted in findings which were more specific in nature than those of the exploratory subprocess. It also resulted in validation of the original findings as well. These findings accounted for inconsistencies and gave indications of causality of the phenomena which helped answer the question of whether or not further work with this level of manager would be functional. And yet the training needs had not yet been stated.

The third and final subprocess was the formulation of hypotheses specifying training needs by category. This process might be called the *hypothesizing of training needs.* This way of measuring the needs assessment process gives some insight as to the systemic nature of the process, for each subprocess is interrelated and interdependent on each other subprocess. In addition, each subprocess is very closely connected to and flows from the results of the preceding subphase. Had the process been ended at the diagnostic subprocess, as is frequently done in training efforts, the findings would not have been sufficiently specific or accurate to build precise and meaningful objectives.

The needs assessment activity has been described as being a subprocess of the entire training process. In turn, the needs assessment subprocess has been further described as being composed of further subprocesses which were called the exploratory, diagnostic, and hypothesizing training needs sub-subprocesses. The interdependence and interrelated nature of these sub-subprocesses is diagrammed in Figure 3.

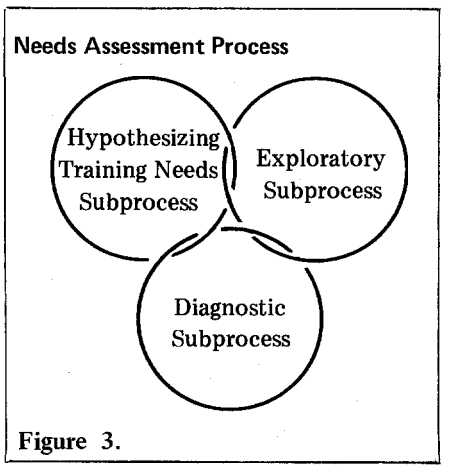

Figure 3.

OBJECTIVE SETTING PROCESS

The final needs statements stated earlier were pointless unless carried towards further action. The needs statements only indicated what was needed and did not define what would be striven for. The interest here is to demonstrate the relationship between the objective setting subprocess and the needs assessment subprocess and how close that relationship can and should be.

In this process, several crucial questions were raised. First of all, are the needs of each style category comparable with the needs of the other categories? And secondly, if the needs of each category are comparable with each other category, would it be meaningful to compose one generalized set of objectives?

To answer these questions, it was necessary to return to the findings of all three subprocesses of the needs assessment and look at these findings from a different perspective. The findings needed to be reviewed to answer several questions, such as the following: What common needs were there among categories A, B, and C? What common characteristics did each category of supervision have? What disparate characteristics did each category have and could these disparities be in fact commonalities manifested at different levels? What, if anything, could be generalized to all supervisors from the findings?

The answer to these questions began to affect the objective setting process, for only in the answer to these questions raised about the findings of the needs assessment could meaningful objectives be found. In reviewing and reconceiving the exploratory and diagnostic findings, commonalities began to be evidenced. For example, it became evident that all supervisors, except perhaps those classified as Category C supervisors, were indeed providing leadership for their work groups. The quality and quantity of leadership varied by category, but the indications were that leadership was being provided.

In addition, the diagnostic findings indicated that each supervisor was practicing *a* particular style of leadership and that each of the supervisors (1) was not aware that he was practicing a particular style and (2) was not aware that there were several styles (with specific characteristics and predictable consequences) from which he could choose to practice. These findings indicated that the managers were behaving in their environment under conditions of limited awareness of alternative behavior and limited choice. The differences or disparity of characteristics between different categories were differences in level more than differences in basic characteristics.

CATEGORY DIFFERENCES

Conceived in this way, the differences between categories of managers could be seen primarily as differences in the awareness of and knowledge about various leadership modes or styles on the part of these managers. Thus, several key factors of the objectives finally fell together. The findings indicated that almost all supervisors needed increased knowledge and awareness of alternatives of choice.

The prime purpose of the program, then, would be to increase cognitive knowledge rather than to change behavior or attitude. The general knowledge area would be leadership styles, their characteristics and consequences. The objectives were that as a result of the program the trainees would (1) know the characteristics of several styles of leadership and their resulting consequences, (2) have knowledge of factors affecting subordinate motivation and productivity, and (3) see leadership as an integral part of the total job of managing. (This is, of course, an attitude change objective rather than a knowledge change objective.)

OBJECTIVE SETTING ANALYSIS

In looking back over this description of how the objectives were set to see how they fit into the central thesis, as can easily be seen, the major activity in this process was that of continually reconceiving the data and findings of the needs assessment. The findings of the needs assessment were not taken or used as final statements to determine objectives, but, rather, were used in a dynamic, interrelated way with the setting of objectives. The needs statements were continually reworked and reconceived until they made or had "new" meaning in terms of what objectives would be most meaningful.

This way of processing the data and findings helped to determine the domain (knowledge change) and content of that domain (leadership style characteristics and consequences). The key aspect of working through the process of determining objectives was that the findings of the needs assessment were highly interrelated with and used in a process manner to the determination of objectives. The key is the interrelation of the two processes, for, had the setting of objectives been done in the more traditional manner, which is to begin working sequentially from the assessment findings and conceiving the findings as final statements rather than by dealing with the objectives and the assessment results coordinately or in an interrelated manner, it would not have been possible to arrive at objectives so meaningfully related to the actual training needs.

DESIGN PROCESS

The design process, as it was carried out in this training effort, was composed of three subphases which might be called development of a general training concept, feedback and proposal presentation, and operational design and detail. Only the first and last subphases will be discussed. The feedback and proposal presentation has been excluded, not because of its

lack of importance, but, rather, because of the fact that it is somewhat unique and has been the subject of independent study. The two subphases *(Conceptual* and *Operational* Design) differ not only by level (general or abstract vs. specific or operational) but also in general nature.

The first subphase (most appropriately called the development of a general concept) is an activity in which the needs and the objectives are begun to be operationalized in a general way. That is, questions along very general dimensions need to be answered such as what general trends or patterns should develop? Along what dimensions should these trends develop, such as trainee participation, trainee involvement, dealing with increasing personal or non-personal issues, etc.? In this subprocess, both the needs and objectives should be worked with as well as outside tools such as learning and development theory and research. These needed to be closely interrelated, for, had the needs and objectives dealt with how to live with a computer or how to discipline subordinates, learning research and theory as well as experience would tell us that a lecture and slide program would have been most effective. But as was the case in this effort, dealing with very central personal issues such as one's behavior and self-concept requires a much more extensive and intensive conceptual design effort.

CONCERN FOR CLIMATE

The findings of the exploratory and diagnostic subprocesses of the needs assessment indicated that these managers typically did not deal consciously and explicitly with such issues as their behavior or leadership styles. This, then, meant that the design of the program must take into account the particular training environment or "climate" needed to facilitate dealing with these new and difficult issues. The findings of the needs assessment also indicated that the managers had experience in leading other people (as well as being led) but had little exposure to the research or theory regarding leadership. Theory and research findings in training and development[1,2,3] indicate that high levels of trainee participation and involvement would be the most (if not only) effective mode of operation for dealing with such complex and difficult personal and interpersonal issues.

Thus, a general program model could be expressed. The program needed to be designed and conducted in such a way that the dimension of trainee participation would continuously increase. Secondly, since the needs statement indicated that the trainees would need to deal with relatively personal issues, the amount of trainee involvement and the extent to which he felt responsibility for his own learning would be generally increasing as the program progressed. This meant also that the content of the course would go from relatively non-personal to increasingly personal for each trainee. In addition, the cognitive concepts which would be dealt with and related to the personal issues faced by the trainees would need to become increasingly complex. The program model, then, was that trainee participation, involvement, and the extent to which he felt responsibility for learning would increase as the program progressed. In addition, the content of the course would go from simple to complex and would begin by being non-personal from the trainee's point of view and become increasingly personal.

OPERATIONAL DESIGN

The final subprocess of the design process was the operational design and detailing necessary to address the training needs, meet the objectives, and fulfill the general design concepts which were needed as well as to set appropriate beginning and ending points. The first step needed to be the design of the beginning program activities. The diagnostic findings indicated that all the trainees, regardless of categories, frequently saw human and leadership issues and problems as being technological problems and addressed them as such. This, then, marked an appropriate point of departure.

In the first session, several issues needed to be dealt with. First of all, a point of departure was needed. Secondly, the "ground rules" of trainee participation and trainee responsibility for his own learning needed to be made clear. Thirdly, the first session, like all sessions, needed to be tied into "on-the-job" situations as closely as possible. And, finally, a general overview and explanation of why the program was being conducted and what would be dealt with needed to be included.

As a result of these considerations, it was decided that prior to the session the trainees would be asked to formulate a complete and comprehensive list of all the duties that they performed on their jobs. The session would begin with the trainees formulating a composite list as a group. Then, the trainer would present a model of the supervisor's job composed of three parts (technological, administrative, and leadership). This model would be described and explained and then the trainees would classify their duties into the three categories. This would meet several of the criteria stated earlier.

By attempting to make explicit and to clarify the manager's role, a meaningful point of departure would be set as well as introducing trainee participation as a mode of operating. In addition, clarifying their role was very closely tied to "job" situations. And, finally, this activity laid the necessary definitives and groundwork for explaining what would be dealt with in the program (leadership) and why. A specific explanation of why the program was being conducted, what areas would be dealt with, and what the trainer's expectations were in regard to the trainees' behavior and perform-

ance would be included. A brief lecturette on some expanded notions of leadership and preparation for a homework assignment would conclude the first session.

SECOND SESSION

To design the second session, it was again necessary to return to the exploratory and diagnostic findings. The finding that human and leadership problems were frequently seen and addressed as technological problems by the trainees would be a meaningful focus for the second session as well as the first. This issue seemed to be the approximate content of the second session.

It was decided that a case would be an effective means for the participants to begin to acquire knowledge and skill in understanding and handling just such an issue.[4] A search of the literature uncovered the "Hovey & Beard Company" case.[4] This case reports a problem faced by a foreman. The case is presented in four sequential parts. In the first part, the problem faced by the foreman appears to be a technological one. The second part adds more data with some leadership issues brought to bear on the problem. Action is taken to address the leadership issues at the end of Part 2. Part 3 reports the results of the action taken. Part 4 reports on the results of revising the action taken in Part 2.

This particular case was decided upon because of the dramatic nature with which it illustrates how human and leadership problems can appear on the surface to be solely technological in nature. The case also introduces several other leadership issues. One of these issues is the results which occur when workers have control over some of the decision making about how their job will be done. Another key piece of data illustrated in this case is the low effect that wages and incentive programs can have compared to non-monetary factors. The case not only would establish with the trainees the process of working with case situations but also would address two training needs and objectives. Those were to see leadership problems as such and to learn of factors affecting subordinate motivation and productivity.

THIRD THROUGH FIFTH SESSIONS

The third session was designed to begin dealing with particular styles of leader behavior, their characteristics and consequences. To do this, the "Century Company" case[4] was to be used. This case demonstrates two particular styles which could be called "autocratic" and "laissez-faire." In a very complete and detailed manner, the case studies the two leaders' behavior, the effect on subordinates' sentiments, motivation, and the emergent social system as well as work group productivity.

The next session was designed to deal with a third style of leader behavior which might be called "situational." The "American Radiatronics Company" case[4] was decided upon. This case demonstrates just such a leader's behavior and its effect on the work group's development, workers' motivation, sentiments, and productivity, again in very close and fine detail. These two cases, then, would meet the needs of the trainees to know the characteristics and consequences of particular modes or styles of leadership behavior.

The diagnostic study had found that many managers felt that leadership acts should be used to control their subordinates' behavior. To address this situation, it was felt that practice in working under such a condition — i.e., one in which the trainees did and did not have control of the planning and decision-making about how they would work — might be valuable. It was decided to use Bernard Bass's "Exercise Organization."[5] This exercise gives participants an opportunity to operate two different plans on the same task — one plan which they had devised and a plan which another group had devised. Attitudinal and productivity data can be gathered for each operation and discussed following the session.

SIXTH SESSION

In the sixth and next-to-last session, it was felt that the trainees should have an opportunity to assess their own leadership styles so as to have some central and independent awareness of how they actually behaved with subordinates. This would be a key and critical factor if the trainees were to become fully aware of the possibilities of choice — i.e., where they were in relation to where they might want to go. It was decided to use the Leadership Opinion Questionnaire.[6] The questionnaire would be handled in the following ways to assure that the trainees had as meaningful data as possible.

First of all, the trainees would take the test twice, answering the questions from two frames of reference. The first frame or set would be "How would the ideal leader answer as you see it?" The second frame or set would be "to answer the questions as they best describe you and your feelings." Following this, the two dimensions measured on the test (consideration and structure) would be defined and explained. The next step would be to have the trainees estimate on a grid made up of these dimensions where they felt the ideal leader would fit and where they, themselves, would fit. On the two dimensions, these estimates would tell them where they thought they were on the two dimensions and where they would like to be in terms of them.

Following this, the scoring key would be explained and they would score and chart their actual test results compared to their estimates. This, then, would give them a measure of where they really were versus where they had guessed they would be versus where they would like to be in

terms of two dimensions of leader attitudes.

FINAL SESSION

The final session was one in which debriefing and counselling would be necessary following the previous experiences, particularly the LOQ results. To assist in translating program learning to on-the-job behavior changes, it was decided that an assignment would be given to the trainees. The assignment would ask what, if any, ideas had been dealt with in the program with which the trainee would like to experiment on the job as well as what means of implementing and what difficulties the trainees would experience in attempting to do things differently. This tool would also be part of the evaluation.

DESIGN PROCESS ANALYSIS

In terms of the central thesis of this article, the design activity can be seen as a process of extending the objectives closer to action. The process of designing the program began with extending and expanding the objectives into a general training concept composed of several key dimensions and parameters. These dimensions and parameters defined general conditions and trends which would need to develop if the objectives were to be met. This general concept then needed to be expanded into a complete and detailed program. By working within the parameters of the general training concept as well as turning to the findings of the needs assessment process and to the objectives, the operational design and detailing process was worked through. The interrelatedness of the subprocesses of the design activity are shown in Figure 4.

The content of most sessions was determined directly from the findings of the needs assessment and the objectives. Here again the interrelationship and the interdependence of the design process with the previous processes can easily be seen. It is in

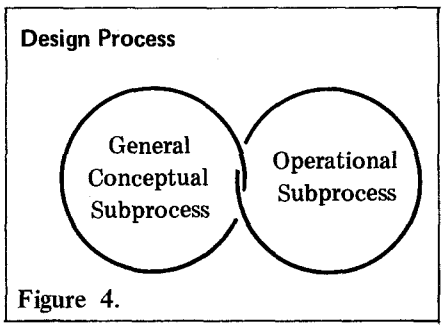

Figure 4.

this subprocess that the results of using the training model as a process begin to be obvious. The specificity of the findings in the previous processes allows for content material to be drawn on which will handle specific training needs with great precision.

IMPLEMENTATION PROCESS

Due to the fact that much has been written about the conduct of programs, it is not necessary to dwell on this aspect of the total program other than to mention that 16 hours of training time were used, spread over one month. In addition, the primary concern in this article is to demonstrate and provide evidence to support the notion of the functional value or utility of viewing the training model as an integrated process, for, if the results of the needs assessment, objectives setting, and design processes are valid and not "abnormal" levels of trainer skill and if trainee competence could be assumed, the conduct of the program should result in the objectives being met.

EVALUATION PROCESS

Prior to the program, several evaluational tools were designed to measure whether or not or to what extent the objectives were met. The objectives of the program once again were that as a result of the program the trainees would (1) know the characteristics of several styles of leadership and their resulting consequences, (2) have knowledge of factors affecting subordinate motivation and productivity and (3) see leadership as an integral part of the total job of managing. The first two objectives were of increasing knowledge while the third was an attitude change objective. The program purposely did not attempt to change or alter the trainees' behavior, styles or ways of functioning.

There were several reasons for not setting a behavior change objective. First of all, it was felt that if training was to attempt to *change* leadership styles, the fundamental decisions as to the direction and nature of change should be made by the division's top management and that this should be based on a more extensive assessment and data feedback effort than time had allowed. Secondly, as was mentioned earlier, the diagnostic findings and the needs statement indicated that fundamental changes in cognitive knowledge were needed and were possible to attain whereas behavior changes may not have been possible. And, finally, limited program time conditions precluded the opportunity to attempt behavior change efforts on the trainees' part.

TESTING FOR OBJECTIVES

To measure the degree to which the objectives were met, a test was devised for the trainees to complete. The test itself was composed of 25 questions, 23 of which were designed to measure the amount of factual knowledge retained. In addition, two opinion questions were included in the test, one of which was to determine the attitude change objective. The 23 knowledge questions were of the short essay type. The test had many general questions regarding characteristics and consequences of three leadership styles as well as factors affecting subordinate motivation and productivity and required relatively specific answers. The test was designed to make it inordinately difficult to receive a score above 50 per cent correct. The essay type questions and the inordinate difficulty were designed into the test in order that the amount of knowledge acquired could be differentiated by level.

Bloom's *Taxonomy of Educational Objectives*[7] provided a hierarchy which was used to differentiate levels of learning. In addition, the test's difficulty would allow room for demonstration of large variations in under- and over-performances. Although the objectives had been set at a level of acquired knowledge of specific facts,[7] there was also interest in how deep the learning had been.

The tests were returned by 70 per cent of the trainees. The average overall score of the tests returned was 70 per cent. Individual scores ranged from 43 per cent to 95 per cent. Only three individuals scored below 50 per cent while six individuals had scores of 85 per cent or better. No scoring above 80 per cent had been anticipated. An analysis of those tests with scores of 85 per cent or better indicated that not only had the trainee acquired and retained a large amount of the information dealt with in the program, but also indicated deep levels of comprehension of the issues dealt with. In addition, tests with scores of 85 per cent or better indicated analysis and synthesis of relationships not dealt with explicitly in the program. In terms of measuring the test scores against the objectives, it can be generalized that the program's objectives were met and exceeded. Of the tests returned, 40 per cent had scores of 85 per cent or better, indicating results well beyond the level set in the objectives.

ATTITUDE CHANGE

The opinion question on the test measured the importance of the leadership component (as compared with the technological and administrative components) of their total job as the trainees saw it. Prior to the program, opinions were solicited in interviews conducted with the trainees. At that time, they saw leadership as comprising 15 per cent of their total job. Following the program, the 70 per cent of the trainees returning tests indicated that they saw leadership as

comprising 39 per cent of their total job. It is interesting to note that after the program, the trainees, as a group, felt that leadership was the most important aspect of their total job. Individually, 64 per cent of the trainees indicated that leadership was the most important part of their total job; 82 per cent of the trainees indicated that leadership comprised at least one-third of their total job.

This data gives some indication of a possibly significant attitude shift. It should be mentioned that the data cannot be stated firmly as an authentic, significant attitude change for several reasons. First of all, the before and after data were not gathered by the same tool. In addition, no control groups were used to assure control against multiple contamination of the variables. And, finally, the after measure may have been contaminated or distorted due to the possible stimuli condition of its being contiguous with the course itself. Nonetheless, it is felt the data is worthy of being reported.

The table below indicates the average perceived importance of the three components of a supervisor's jobs by the first level supervisors measured before and after the program.

	Leadership	Technology	Administration
Before the Program	15%	50%	35%
After the Program	39%	31%	30%

From the test results it was determined that all three objectives had been met.

CARRY-OVER TO JOB

There was also curiosity about the transfer of learning from the classroom to the job. Although it is quite early (perhaps too early) to expect on-the-job changes, and recognizing that job behavior change was not a program objective, there was curiosity nonetheless about two things: (1) what the trainees might want to do differently on their jobs and (2) what changes their supervisors might have observed. To measure these we handed out two additional questionnaires. One of these was given to the trainees. They were asked what, if any, ideas had they dealt with in the program that they would like to experiment with on their job. They were also asked what difficulties they foresaw in implementing these changes. Sixty-five per cent of these questionnaires were returned.

The responses were judged on the following criteria: (1) the height of the motivation to experiment with new ideas or set of ideas on the job, (2) the depth of the understanding of the ideas with which they wished to experiment and (3) the degree of interest or effort shown as to how these ideas might be implemented. After evaluating the comments, the questionnaires were sorted into three categories called substantial, moderate, and low motivation to do things differently on the job. The results are shown below.

Level of Motivation to Do Things Differently on the Job	
Substantial	20% of trainees
Moderate	33% of trainees
Low	47% of trainees

No predictions can be made about what, if any, changes will actually be made, for this depends on too many other factors. Nonetheless, the trainees have indicated an interest and motivation to experiment with some changes in the way they lead their subordinates.

SUPERVISORS' EVALUATION

The final part of our evaluation data was derived from the trainees' supervisors. The supervisors were given a questionnaire which asked them to help us evaluate the program by observing whatever changes they saw in their subordinate(s) who attended the program. They were asked to list whatever changes they saw which they felt could reasonably have resulted from the program.

The changes were classified into three different categories: (1) changes in knowledge, ways of thinking, or attitudes, (2) changes in behavior when the trainee related with his boss or with other supervisors, and (3) changes in the way the trainee led or dealt with his subordinates. The supervisors' observations were then classified into three categories: (1) substantial, (2) some, or (3) no change in the trainee. Eighty-three per cent of the questionnaires were returned. The results are shown below.

The results show moderate changes observed to this point. Neither this

NUMBER OF TRAINEES OBSERVED TO CHANGE AS A RESULT OF THE PROGRAM AS OBSERVED BY TRAINEES' SUPERVISORS

	Substantial Change	Some Change	No Change
Knowledge and Attitudes	1	5	13
Behavior with Boss or Other Supervisors	1	2	16
Behavior with or the Way He Leads His Subordinates	1	5	10

questionnaire nor the questionnaire given to the trainees (measuring motivation to change) can be considered as a highly accurate means of assessing changes but, rather, as some indication of on-the-job changes in behavior of the trainees.

EVALUATION ANALYSIS

The results of the program are difficult to express succinctly in terms of the functional ability of implementing the integrated training process model. Nonetheless, they do need some comment. In the best judgment of the author and other trainers associated with this program, significant learning was evident based upon extensive data. The amount and depth of learning was beyond expectations of what could be accomplished in 16 hours of trainee participation based on past experience. The results of the test scoring began to raise the question of why the wide positive deviation from expectations. Various variables and sets of variables were looked at and finally discounted. The only variable which could meaningfully account for the data was the way in which the entire training process was conceived and conducted — that is, as a system conception.

CONCLUSION

As we have attempted to show, the conduct of the entire training process was dealt with in a systemic manner. The needs assessment and objective setting subprocesses were particularly significant in the effect they had on other parts of the program. The results of each of these subprocesses were extensively used in all of the following activities. These findings set the initial parameters of what the program covered and what it should and could accomplish.

As questions of design, implementation, and evaluation arose, the results of the needs assessment and objective setting processes were continually referenced. By means of working through and reconceiving the data and findings of these processes, the questions raised in later processes became clearer and more capable of being answered. The initial use of these findings set general parameters, but further and further use was invaluable in "honing in" on and allowing both questions and answers to be handled in an increasingly specific manner. Thus, the findings and results of the needs assessment and objectives setting activities did not become final statements or final answers. The findings were continually reexamined and reconceived to fit the context and needs of designing, conducting, and evaluating the program itself. An integrated conception of the training process results in the ability to become increasingly specific, precise, and concrete, to answer questions raised, and to restate questions and decision issues in more specific, concrete, and meaningful ways. This is the very essence of the functional value of conceiving and dealing with training as an integrated process.

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PRINTING PRESSMEN REGISTER UPDATED APPRENTICESHIP PROGRAM

The International Printing Pressmen and Assistants' Union of North America has formally registered its revised Apprenticeship and Training Program with the U. S. Department of Labor.

The revised standards will affect almost 7,000 apprentices, among them 3,000 newspaper and rotogravure pressmen, 1,400 offset pressmen, 750 offset cameramen and platemakers, and 1,200 platen and cylinder pressmen.

The newly-approved standards makes current all of the skill and training processes required by technological innovation in the printing industry.

Linked with the apprenticeship standards is the Printing Pressmen's unique educational program, elaborate correspondence courses which must be completed as the apprentice progresses step by step through his four-year term.

Registration of the revised and updated standards was negotiated with the cooperation and technical assistance of the Bureau of Apprenticeship and Training.

An affiliate of the AFL-CIO, the Printing Pressmen and Assistants' Union counts 114,000 members spread among 750 local unions throughout the country.