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DESIGNS FOR INSERVICE EDUCATION.

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THREE DIFFERENT APPROACHES TO INSERVICE EDUCATION WERE DESCRIBED THAT HAD BEEN DEVELOPED TO PROVIDE INDIVIDUAL TRAINING IN GROUP SESSIONS. EACH APPROACH INCLUDED A CAREFULLY PLANNED SEQUENCE OF LEARNING ACTIVITIES INTENDED TO BE PRESENTED WITHIN THE ORGANIZATIONAL CONTEXT OF THE PERSON'S WORK. SUMMER COURSES AND SUMMER WORKSHOPS WERE NOT INCLUDED IN THIS CONCEPT OF INSERVICE EDUCATION. THE LABORATORY APPROACH TO THE LEADERSHIP TRAINING OF INSTRUCTIONAL STAFF MEMBERS PRESENTED THREE ILLUSTRATIVE EXERCISES THAT DEALT WITH EVALUATING PUPILS' WORK, GROUPING PRACTICES, AND THE USE OF INBASKET ITEMS AS TRAINING MATERIALS FOR PRINCIPALS. A TRAINING APPROACH, THAT WAS PLANNED TO HELP TEACHERS IMPLEMENT INNOVATIONS IN INSTRUCTION INTO THEIR CLASSROOMS, PROVIDES TEACHER TRAINING THROUGH SIMULATION OF DIRECT EXPERIENCES WITH STUDENTS AND BY OBSERVING AND ANALYZING STUDENT CLASSROOM WORK. THIS APPROACH REQUIRES RELEASE TIME FOR OBSERVATION OF DEMONSTRATION CLASSES. A DISCUSSION OF THE THIRD APPROACH, THE TEACHING DEMONSTRATION MODEL, DESCRIBED THE DEVELOPMENT OF THE FORMAL DEMONSTRATION INTO A CAREFULLY PLANNED INSERVICE TECHNIQUE. THE FINAL CHAPTER LISTED THREE MAJOR PROPOSITIONS DESCRIBING THE BEHAVIOR OF AN ORGANIZATION AND PRESENTED A WAY OF THINKING ABOUT THE USE OF INSERVICE PROGRAMS IN ORGANIZATIONS THAT MIGHT GIVE GUIDANCE TO THE DECISIONS OF THOSE WHO PLAN AND DIRECT INSERVICE EDUCATION. (AL)

Designs for Inservice Education

R&D Monograph

Designs for Inservice Education

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Designs for Inservice Education

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Foreword

As SCHOOLS FACE the mounting impetus of change, the need for effective inservice education for teachers, supervisors, and administrators increases. Always a problem, designing in-service programs is now an imperative that calls for fresh approaches.

Several years' experience with inservice programs carried out in school districts in a number of states has resulted in the development of three designs for inservice education which offer an increased range of possibilities for those who plan and conduct inservice programs. This publication is a report of the purposes and procedures of these designs.

Though these designs are not inventions of the authors, the careful development of procedures and materials described in this monograph were believed to be important enough to share with others.

The first of these procedures, *the laboratory approach*, is described by Kenneth E. McIntyre. Based on several years' experience with instructional leadership training, Professor McIntyre presents an approach which has been extraordinarily well-received in inservice programs. The second design is termed *the classroom experience model* by David P. Butts, who presents an inservice design which he has used in a number of science inservice centers. As a structured approach for direct involvement of teachers and administrators, the classroom experience model demonstrates the advantages of a tightly designed inservice approach. The third design is the *teaching demonstration model*. In his chapter, Ben M. Harris describes his development of the time-honored method of the

formal demonstration into a carefully planned inservice technique.

Designs for Inservice Education was chosen as the title of this monograph to emphasize a belief in the crucial importance of planning in the conduct of inservice programs. The organizational context of this planning is examined by Michael P. Thomas, Jr. in the final chapter. Professor Thomas suggests a way of thinking about inservice programs in organizations that might give guidance and rationality to decisions of those who plan and direct inservice education.

All of the developments described in this monograph represent the work of a number of people at The University of Texas and in school districts in which inservice programs have been conducted. Although they are too numerous to mention individually, we gratefully acknowledge their contributions. The writers of this monograph claim sole credit only for whatever inadequacies exist in the procedures described.

E. W. BESSENT, *Editor*

January, 1967
The University of Texas
Austin, Texas

Inservice Education—A Point of View

CHAPTER I

Inservice Education—A Point of View

E. W. BESSENT

MANY TEACHERS, SUPERVISORS, and principals view inservice education in much the same way some people regard in-laws —something to be endured. Far too often, this bad reuptation has been earned by inservice programs. Dull format, insipid content, stultifying speeches, and hortatory how-to-do-it lectures are the mark of many a weary hour spent by school personnel in sessions devoted to inservice education.

One might argue that it is simple justice that teachers should be required to be on the receiving end of the dreary routine some of them dispense to pupils. This monograph presents a more hopeful point of view, or at least a more humanitarian one. It is that inservice education can be actively involved in the learning process, and that learning experiences can deal with essential concepts in the work of the teacher, supervisor, and administrator.

This monograph is addressed to the practitioner. Its intent is to be of use to the superintendent or curriculum director who is seeking to initiate a viable staff development program in a school district; to the supervisor or principal who takes seriously his responsibilities for instructional leadership; to the teacher who is head of professional development programs for his colleagues; and to the professor who serves as director or resource person to a school district inservice program.

The scholar may look over the shoulder of the above-named persons if he chooses. He should be aware in doing so, however, that he has been invited for cocktails and not for dinner

and so should not complain if the fare seems to lack scholarly substance.

What Inservice Is and What It Is Not

Inservice education is a term that can seem to include everything that happens to a teacher after he signs his first contract to teach. To avoid the consequences of dealing with a term that means nothing because it means everything, let us try to create some boundaries by rather arbitrarily ruling out some things from the present concern.

For the purposes of this writing, inservice education is not the individual learning that comes to a teacher through incidental experience on the job. As valuable as it may be, learning derived from a teacher's individual efforts to come to terms with the complexity of his job are outside the domain of activities planned within the organizational context of the school. The delimiting factor here is group activity rather than individual effort. Since most educational training needs are too pressing and too widespread to yield to one-at-a-time efforts, this monograph is concerned with procedures suitable for individual learning in groups through a carefully planned sequence of learning activities.

Also outside the boundary of our interest is the summer course or workshop for which the teacher goes back to the campus for refresher work. Though it may be a valuable learning experience, summer school, like preservice education, takes place outside the organizational context of the person's work.

Finally, this monograph does not attempt to deal with the broad range of inservice education activities needed for a total staff development program. Our concern is limited to instructional improvement efforts—a concern which we believe to be the central problem of inservice education.

If we have made clear at this point that we are not concerned with learning through incidental experience or self-improvement through campus personnel or for general staff

development activities, perhaps it will be clearer what the central focus of this monograph is.

For our purposes, inservice education includes all those planned staff development programs which are designed to bring about instructional improvement in schools. Inservice education is aimed at individuals through group activities and takes place in the organizational context in which the individuals carry out their tasks.

These activities might take place in such familiar settings as district-wide interest groups, school faculty study groups, grade level meetings, administrative meetings, action research efforts, program development groups, in-district workshops, and departmental study groups. If the activities in these settings are intended to provide teachers, supervisors, or administrators with insights or techniques that will result in improved performance of their instruction-related tasks, they are relevant to the material presented in this monograph.

Need for Inservice Education

Many of the needs for staff development programs for instructional improvement are too well known to require documentation. Preservice preparation, however well designed, can only equip a teacher or administrator with the basic tools of his trade. All the skills of the art that raise the educator beyond the journeyman level depend upon learning in the situational context of his work.

Even if preservice preparation could accomplish the whole task of training expert teachers, changes in instructional methods, materials, and content to be taught render practices obsolescent in a short time.

The school system is now recognized as a complex organization, with its effective operation depending upon the coordinated efforts of all its members carrying out their specialized tasks. This operation cannot be carried out by large numbers of people going about their business in isolation. The instructional program of a school is carried out by individuals who,

individually, conduct only small parts of the total instructional task. To do so effectively calls for the kind of planning that requires a continued inservice effort.

As the Red Queen told Alice, "You have to run as fast as you can just to stay where you are." The dynamic enterprise of teaching requires an elan that provides a vital climate of learning for the student. Students fed on inert knowledge by moribund teachers will be predictably dead to learning. Inservice programs that bring new life into teaching can provide fresh stimuli to the professional staff in schools that will prevent this slippage.

Morale of instructional staff is vitiated if there is a general feeling that "We never do anything about the problems that plague us." Even if the inservice efforts do not result in definitive solutions to instructional problems—indeed, the complexity of these problems makes solutions unlikely—the generally shared feeling that the problems are being treated as problems and not as absolutes is a necessary element to staff morale. In a real sense, the inservice program is a symbol of faith in the ability of a staff to improve.

What Not to Do

If those who plan inservice programs could have a little card inscribed, like the Rotarian's Creed, with a list of admonitions, it might contain three commandments:

1. *Thou shalt not commit inservice programs unrelated to the genuine needs of staff participants.*

Inservice programs dictated from the board room or drawn out of the rarified atmosphere of the central office rarely coincide with the most pressing needs of the instructional staff. One of these needs is to be delivered from such manifestations of clairvoyance.

Almost as great a sin as the decreed inservice program is the superficial "survey" of staff needs conducted by chance interviews with a few teachers in the lounge. Determining needs and defining objectives deserve effort commensurate with the length of time and effort to be put into the inservice activity to

follow. A year's program is probably worth a tithe of time for planning. The procedures to be described in this monograph are predicated on a sound determination of need.

Our experience suggests that many people do not have a clear view of what staff development is needed, but feel only a vague concern that things are not right. Problem definition with more precision can grow out of an inservice effort to define areas of concern. This determination might be derived from a careful evaluation of instructional procedures or pupil needs.

2. *Thou shalt not kill interest through inservice activities inappropriate to the purpose of the program.*

One of the writers was once an unwilling subject for a course in group dynamics in which the professor read from his book for the entire class period for the whole semester. Equally as bad is the inservice program, designed to help teachers stimulate interest in their learning, but conducted by a visiting expert lecturing in a hot primary classroom every Friday afternoon after school.

Using staff meetings as the sole vehicle, talking to rather than discussing, depending upon passive rather than active participation, and telling about rather than demonstrating, typify many of the instructional programs we have experienced and (alas!) directed.

One of the purposes of this monograph is to add to the available inservice procedures techniques which, in our experience, are valuable means for active participation in focused activities that provide a much needed addition to other available techniques.

3. *Thou shalt not commit inservice on a shoestring.*

Shoestrings are fine for shoes, but they will not hold together any major effort at staff improvement. It has been our observation that few aspects of the educational enterprise get as little of a school district's resources as inservice education. Many school boards seem to feel that teachers, on their own time, and administrators, with few outside resources, can conduct a significant continued effort at inservice development.

Much of the low reputation of inservice education probably derives from this factor.

Staff members will require release of significant amounts of time—perhaps a day, a week, or a summer—for major developmental efforts. Industry has recognized this need through provision of sizable education programs for employees. The school enterprise typically has no comparable educational adjunct for its staff members.

All the inservice techniques presented in this monograph depend upon provision of special instructional materials, released time, appropriate use of outside consultants, and adequate commitment of supervisory and administrative time to the program.

Some Promising Leads

Neither admonitions nor imperatives will suffice for the design of effective inservice experiences. It is not the intent of this monograph to present an exhaustive, or even comprehensive, framework for the guidance of planners of inservice programs. What we do intend is to present three approaches to inservice education that represent several years of experience in development and trial.

Each of the techniques has its own rationale and its own unique advantages for the inservice planner. What to do will depend on what purposes are to be served by the program. If your objectives are within the rather wide range of applications suggested by the authors, then the what-to-do question should be reasonably clear.

There are many other important inservice strategies available and these will be appropriate to other purposes. Assuming the avoidance of the rather obvious pitfalls described in the earlier sections, the chapters that follow should give the practitioner a broader range of procedures to choose from in matching program to purposes.

In Chapter II, Kenneth E. McIntyre describes the laboratory approach to the training of instructional staff members. This training method is receiving increasingly wider use in

human relations training groups in business and industry. Professor McIntyre and his colleagues at The University of Texas have developed this important technique for use in training school administrators and supervisors.

The rationale and uses of the laboratory approach are described in Chapter II and three illustrative laboratory exercises are presented in detail. One of these deals with evaluating pupils' work, the second concerns grouping practices, and the last is an example of the use of *inbasket* items as training materials for principals. This technique is a promising new approach to inservice education for leadership personnel and teachers.

Chapter III is a description of the techniques developed by David P. Butts in conducting inservice programs for classroom teachers. This development has resulted in the classroom experience model described by Professor Butts—a procedure which effectively utilizes the outside expert in the natural classroom setting.

The procedures described in Chapter III are based upon demonstration teaching combined with experimentation by participants. An important aspect of the method is the potential for developing resource teachers in the school district who can disseminate their learning to other groups. The techniques are applicable to inservice programs in which new content is to be introduced to the curriculum or where a different orientation to teaching is required of the teacher.

The use of demonstrations as an inservice technique is described by Ben M. Harris in Chapter IV. An extensive research effort to test the effectiveness of the formal demonstration has been conducted by Professor Harris. The results provide the basis for his chapter.

In many cases, a promising teaching technique can be given a formal demonstration presented by the innovating teacher in a setting which permits controlled observation and analysis by other interested teachers. This technique is explored by Professor Harris.

The final chapter examines inservice education in terms of a total organizational response rather than an individual one.

In this view, inservice activities promote organizational learning development through institutionalizing the processes for development.

Professor Thomas discusses both adaptive and maladaptive organizational behavior in terms of organizational learning, the systemic effects of change, organizational category systems, and performance stress. These ideas draw upon Chapters II, III and IV for illustrative material.

Finally, it should be mentioned that the procedures presented in the monograph are built upon extensive sets of materials developed by the authors. Many of the instructional materials mentioned in this monograph may be obtained upon request.

The Laboratory Approach

CHAPTER II

The Laboratory Approach

KENNETH E. MCINTYRE

THE LARORATORY APPROACH to the training of school personnel,[1] developed during the past few years at The University of Texas, employs the notion of *impact* on the learner to an extent not found in most other instructional devices. Much of the efficacy of this approach seems to lie in the development of something akin to suspense, which is relieved in a "well-I'll-be-damned" denouement when the participants learn how their performance "came out." Obviously, this is an instructional strategy that is unusual, although in its simplest forms it has been employed by most teachers.

The initial inspiration for the use of this approach as a conscious, deliberate instructional strategy in preparation programs for school personnel came from social psychology, where focused training exercises had been developed to illustrate concepts pertaining to the effects of feedback, group competition, and deviancy in group operations, to name but a few. When it was seen that students of education responded enthusiastically to the training exercises of the social psychologists, similar exercises were developed dealing directly with concepts and content germane to school teaching, administration, and supervision.

Definition

What is the laboratory approach? Simply stated, it is an

[1] Although the laboratory approach was developed at The University of Texas largely with groups of school administrators and supervisors, it has been used with equal effectiveness with teachers, student teachers, prospective school administrators, and others.

instructional system of procedure in which a *group* of learners is placed in a *situation* usually having some of the elements of reality simulation, in which the learners' *behavior* in dealing with the problem at hand produces *data* that are *organized* and *fed back* to the group to form a basis for *analysis* and *interpretation* by the group. The elements in this basic design will be elaborated in subsequent sections of this paper.

Laboratory exercises range in complexity from the simple, ten-minute "quickie" to the extremely involved three-hour session. The teacher or group leader who wants to develop some concepts about the normal probability curve, as well as the reliability of group judgment in matters with which the group is somewhat familiar, might simply begin by asking each individual in the group to estimate the teacher's weight. The tabulated estimates, in a group of moderate size, will reveal both tendencies (toward a normal curve and toward the correctness of the average estimate), and will provide a basis for further discussion by the group. This is a very simple example of the laboratory approach.

Most of the exercises cited or contemplated in this paper are more complex and require more time and preparation than the one given in the preceding paragraph. The following examples will illustrate exercises of greater complexity.

Illustrative Examples

A school principal, supervisor, or professor of education might want to use a laboratory exercise to impress a group of teachers or prospective teachers with (1) the prevalence of teachers' errors in scoring pupils' papers, and (2) the importance of normative data in evaluating pupils' performances. He could use the relatively simple exercises presented here. He would first distribute copies of a student's performance on a spelling test (Form 2, p. 22), together with copies of the key (Form 1, p. 21), and he would instruct each participant to score the paper. He would then collect the scores and tabulate them, while having the participants individually give the pupil a percentage mark and a letter grade based on

only the revealed score—37 correct out of 54 possible (Form 3, p. 22). Once committed, the participants would then receive further information concerning the scores on the pupil's entire class, after which they would be asked to assign a letter grade (Form 4, p. 23). This process would be repeated once more, with the new information concerning 250 pupils in several sections (Form 5, p. 23). In all groups, the leader can count on data production that will reveal a surprisingly high incidence of error in scoring the papers, in addition to an impressive shift of the pupil's grades from "D" or "F" up to "A" in response to additional increments of new data with which to compare the pupil's performance. At this point participants are receptive to comments and questions concerning the difference between measurement and evaluation, the importance of hesitancy in pronouncing god-like judgments based on any given mark, and the "meaning" of marking symbols in general.

A somewhat more complex example, appropriate for persons in a wide range of school positions, is an exercise designed to reveal the problems created by trait variability as it relates to ability grouping. Because of the volume of materials needed for this exercise, only a brief verbal description will be given. Participants are placed in teams of two or more, and each team is given a deck of cards containing stanine scores on enough pupils to form three or more sections. The scores are real, not fictional; in fact, cards could be developed from any local population of pupils on which several measures are available. The exercise requires each team to arrange the cards in three[2] ability groups based on any of the measures represented on the cards, and then to find the "spread" on each of the sections on any of the other measures (see Instructions, Form 6, p. 23, and Work Sheet, Form 7, p. 25). The usual reaction is one of great surprise when the participants learn how ineffective one basis for grouping is in reducing the variability in each section on other measures.

[2] The exercise works as well with four ability groups as with three, but the materials presented here were designed for a three-group division.

One further example is given here to illustrate how the laboratory approach can be combined with other instructional methods. The inbasket technique is a well known simulation device requiring no elaboration. Certain modifications in the inbasket items, however, can produce laboratory-type data. For example, the two versions of the following inbasket items are distributed at random to participants in a simulated school principalship situation without their knowledge that there is any difference. (Version 1, Form 8, p. 26, and Version 2, Form 9, p. 26).

In order to have a quantitative measure with which to work, the participants are asked to express the extent to which they agree or disagree with the statement, "I would admit the child without a statement of vaccination," on a 7-point scale from "complete agreement" to "complete disagreement." Similar reactions are requested for the other inbasket items in the set. The data are tabulated and reported back to the group during the discussion period. In the case of the item cited above, the average response for the half of the group dealing with the "judge" is compared with the average response for the half dealing with a "laborer." Does the judge receive more consideration than the laborer? Or less? Why?

Several other variations dealing with inbasket materials have been worked out, including the planting of materials portraying two different types of superintendent—one quite flexible and the other quite rule-bound—to determine whether the half of the group exposed to either type of superintendent is influenced by that fact in the decisions made. Perhaps it is surprising to most participants to learn that the type-of-superintendent factor seems to make very little difference in most cases, as revealed in average responses on the 7-point scale mentioned above. An interesting question: Why doesn't it make much difference?

Rationale

Now that we have seen some examples of laboratory exercises, let us look at the laboratory approach more specifically

as a strategy for accomplishing certain learning ends. These things we know about learning, generally speaking: people learn better

a) when they are actively involved in the learning process—when they *do* something rather than having something done to them;
b) when there is immediate feedback of the consequences of their behavior;
c) when the learning activity is perceived to possess face validity; that is, to be relevant to their important concerns;
d) when they are interested in, and enthusiastic about, the learning activity;
e) when their reactions to the learning activity are reinforced by the reactions of others; and
f) when the learning activity is carefully designed to accomplish clearly conceived purposes.

Although there are other characteristics of a wholesome learning situation in addition to those mentioned above, we find that at least with respect to these characteristics, the laboratory approach measures up rather well. Group members are active participants, rather than passive absorbers of information. They *do* something to produce data, which become the focus of analysis and discussion. Each exercise, in effect, is a replication of a small piece of research, with the participants serving as subjects. This adds an element of involvement that is hard to escape; in one of the examples cited above, when only about one-third of a typical group scores the spelling paper correctly, even with a key, there is no retreat to "it-doesn't-apply-to-me" phantasy.

Immediate feedback is an important element in the laboratory approach. The learners are informed of how it all turned out a few minutes after they do whatever they are called upon to do. The fact that the participant's own responses helped to produce the data upon which an empirical generalization is built should suffuse the experience with an aura of authenticity and poignancy that would be difficult for the teacher to achieve through more conventional methods.

Whether any given laboratory exercise is perceived by a participant as being "real" and important to him depends on

the individual and the exercise. In most cases, however, exercises are built around problems that are important to most practitioners, and they employ reality simulation as the device for getting participants involved.

Compared with other instructional methods and devices, laboratory exercises seem to rate quite well with respect to the interest and enthusiasm that they develop in the learners. Several studies indicate that the participants tend to be fascinated with the laboratory approach—even beguiled by it, which could present a problem in goal displacement.

Since the laboratory approach is a group teaching device, and since it involves active participation of learners both in the production of data and the discussion of implications, it would seem to satisfy the criterion of reinforcement via the reactions of other participants.

Laboratory exercises must be carefully planned to achieve certain specific objectives. Most exercises must survive a considerable period of planning, designing, developing materials, trying out, revising, and trying out again. There is no seat-of-the-pants planning of laboratory exercises of the type to which this paper has been referring or alluding.

Efforts at Evaluation

Research on the effectiveness of the laboratory approach in accomplishing its objectives[3] has concentrated on: (1) participants' perceptions of the value of the training compared with other approaches; (2) growth in cognitive skills, as measured by pre- and post-test measures of concepts; (3) changes in behavior of participants, as perceived by associates; and (4) changes in time allocated to various tasks, as represented in daily logs kept at the beginning and end of the program.

With regard to participants' perceptions of the value of laboratory training exercises, the evidence is quite clear—with very few exceptions, they rate this type of training

[3] The research reported here has concentrated on the effectiveness of the laboratory approach with groups of prospective or practicing school administrators, largely focusing on the school principalship.

higher than other approaches they have experienced. For example, during the 1964 and 1965 summer sessions two block-of-time groups of prospective administrators and supervisors engaged in approximately 80 activities, including 10 laboratory training exercises and several other activities running the gamut of teaching methods. Both summers, post-session rankings of the 80 activities placed 9 of the 10 laboratory exercises among the top 15. All other evidence has been similarly reassuring.

Growth in cognitive skills has been more difficult to measure. A test of concepts has been applied before and after in-service programs consisting of approximately fourteen laboratory sessions. Increases in scores, from the pre-test to the post-test, have been significant, but this would probably be expected under the circumstances.

Moderate, but not major, changes in the way school principals spend their time have been found to be associated with participation in inservice programs based on the laboratory approach.

Changes in school principals' behavior, as perceived by the teachers in their buildings, have not been significant. This, too, might be expected under the circumstances, since behavior as perceived early in October was compared with that of the following March or early April in the only available studies of this aspect of change.

One might summarize the research on the effectiveness of the laboratory approach in general by saying that participants tend to be highly enthusiastic about it and perceive it to be more valuable than other learning activities, they develop conceptually to a moderate extent, and they re-allocate their time slightly in the direction intended in the training program, but they do not change their behavior enough (in approximately a six-month period of time during the training program) for the change to be perceived by others.

Limitations

Whether a laboratory exercise or some other strategy should

be used to achieve some instructional goal will depend, of course, on many situational factors. As far as the laboratory approach is concerned, it would appear that the only limiting considerations in determining whether this approach could or should be used to teach a given generalization are the following:

1. Can a group activity be developed that will produce the supporting data within the time ordinarily available for a group session? Probably most of the important generalizations in education cannot be, or should not be, taught through the laboratory approach. We should hold no special brief for this or any other approach; the only question here is whether a laboratory exercise is even a feasible possibility. In addition to those previously mentioned, the following topics have been developed into training exercises which have been used extensively in preservice and inservice training programs sponsored by The University of Texas: goal-setting, observation of instruction, teacher-principal interviews, selection of personnel, diagnostic lesson analysis, rating of teachers, evaluation of pupils' work, analysis of teacher-made tests, diagnostic analysis of standardized achievement tests, flexible diagnostic grouping, action research, communication with subordinates, leadership in group decision-making, feedback, discussion leading, and self-evaluation.
2. Will the findings be truly generalizable to relevant situations on the job or in the "real" world? This is a big question, and it needs to be asked. In the spelling paper example cited above, we must ask ourselves whether the fact that most people do not score the paper correctly in the laboratory exercise means that the same thing happens on the job. We must also satisfy ourselves that the making of such errors is something to be concerned about. The question of relevancy is a tough one to answer, but it is a legitimate one to ask about *any* teaching device.
3. Is it worth the time and effort required to design the learning activity, produce the materials, plan the procedures, and conduct the exercise with various groups, or could the same or similar objectives be reached in other less costly ways?
We must not delude ourselves—the conception as well as the construction of these training exercises is a highly demanding thing. It requires considerable creativity, skill, and time.

If the answers to these questions are all in the affirmative,

then only the lack of ingenuity on the part of the teacher should prevent the development of a useful training exercise. After try-outs with two or three groups, with subsequent modifications in materials and procedures, the exercise should be ready for full-scale use.

The laboratory approach seems to work equally well with groups of teachers, administrators, supervisors, or other school personnel, and it is equally applicable to preservice or in-service programs. It can be used in campus courses (provided that classes are at least 2 to 2½ hours in length), meetings, conferences—any assemblage that is convened for the amount of time required for a particular exercise.

Whether a laboratory training exercise or some other tool should be selected to do a specific instructional job will always be a matter of professional judgment. The important point is that such judgments can now be made from a position of much greater strength and with many more resources to draw upon than was possible a few years ago.

FORM 1

Key to Spelling Demons Test

1. accommodate
2. aeronautics
3. apparatus
4. beginning
5. cemetery
6. chauffeur
7. complexion
8. conscientious
9. cylinder
10. defense
11. descent
12. dessert
13. discipline
14. ecstasy
15. embarrass
16. exaggerated
17. foreign
18. grammar
19. grievous
20. height
21. interrupt
22. lieutenant
23. lovable
24. maintenance
25. mathematics
26. mileage
27. mischievous
28. misspell
29. murmur
30. noticeable
31. nuisance
32. occurrence
33. original
34. pamphlet
35. parliament
36. personnel
37. prejudice
38. privilege
39. professor
40. psychology
41. recommend
42. referred
43. restaurant
44. sacrilegious
45. seize
46. separate
47. similar
48. sophomore
49. therefore
50. they're
51. tobacco
52. unnecessary
53. vengeance
54. yield

FORM 2

TEST OVER SELECTED SPELLING DEMONS

NAME Janice Henry DATE Jan. 4, 1964

CLASS English 8 PERIOD 3rd

1. accommodate	19. grievous	37. prejudice
2. aeronautics	20. height	38. priviledge
3. apparatus	21. interrupt	39. profesor
4. beginning	22. lieutenant	40. psychology
5. cemetary	23. lovable	41. recommend
6. chauffer	24. maintenance	42. referred
7. complexion	25. mathematics	43. restaurant
8. consientious	26. mileage	44. sacreligious
9. cylinder	27. mischevous	45. seize
10. defense	28. misspell	46. seperate
11. decent	29. murmur	47. similar
12. dessert	30. noticeable	48. sophamore
13. dicipline	31. nuisance	49. therefore
14. ecstasy	32. occurrance	50. they're
15. embarass	33. original	51. tobacco
16. exaggerated	34. pamphlet	52. unnecessary
17. foreign	35. parliament	53. vengance
18. grammer	36. personell	54. yield

FORM 3

Background Information

The Haven Cove Junior High School reports grades as A, B, C, D, or F, with a D being the lowest passing grade. Teachers are given considerable freedom in assigning marks, but general practice is to regard 70 as barely passing.

Spelling Demons Test

Student—Janice Henry
Subject—English
Teacher—Miss Ruby Brown

School—Haven Cove J.H.S.
Class—8th grade

Test Results

Words correct 37
Words incorrect 17

A. Calculate her percentage score. ———%
B. Give her a letter mark. ———

FORM 4

II. *Janice Henry's Spelling Test*

A. The following is information about the scores earned on this Spelling Demons Test by students in Janice's classroom.

1. Highest score	41
2. Lowest score	26
3. Average score	33
4. Janice's score	37 (One of the top four)

B. Give Janice a letter mark———

———

FORM 5

III. *Janice Henry's Spelling Test*

A. The following scores are from among nine classes of 8th grade English at Haven Cove. Some 250 students took the Spelling Demons Test and scored as follows:

1. Highest score	42
2. Lowest score	0
3. Average score	22
4. Janice's score	37 (one of the top five)

B. Give Janice a letter mark———

———

FORM 6

Instructions for Grouping Exercise

Your deck of cards contains real data on 100 school pupils. For each pupil you have a separate card which shows his score on 24 different measures. These scores are expressed in stanine (standard nine) units, the high scores being at the "desirable" end of the continuum. The cards also indicate the sex of the pupils, although no sex differentiation is suggested in this particular exercise.

You are to play the role of a principal whose job is to divide into class sections the 100 pupils whose cards you have. You want them grouped in the best way possible to help the teachers to provide for individual differences. You may make whatever assumptions you wish concerning the grade level of subject involved; for purposes of realism, however, think of an actual situation and select your criterion and related measures accordingly.

Look over the different measures available on the cards in order to choose the single measure that you feel will serve as the best criterion for grouping the pupils into class sections. Unless another team has already selected the criterion that you want, get permission of the session leader to proceed, and record your criterion in Section 1 of the worksheet. One or two teams should use the multiple-criterion scores located at the bottom of the cards; the session leader will explain how these scores were derived.

Sort the cards into nine groups on the basis of the stanine scores achieved by the pupils on the criterion measure. Use the cards numbered 1 through 9 to designate a stack for each stanine. Count the number of cards for each stanine and record these numbers in Section 2 of the worksheet.

On the basis of the distribution of scores, group the pupils into three class sections: "slow," "middle," and "fast." If the class sizes do not come out to at least 30 and not more than 36, divide the stack for the stanine in question simply on the basis of the card numbers, the higher numbers going into the "faster" sections. In general, the card number indicates the pupils' rank on a combination of several academic and cognitive measures. Record in Section 3 of the worksheet the number of pupils and the stanines included in each of the three class sections. Keep the cards for each class section separate from now on, using the cards marked "slow," "middle," and "fast" to identify the three sections.

Now that you have grouped the pupils into class sections on the basis of the criterion measure, you will want to look at the distribution of scores made by the pupils in each section on some of the other measures in order to see how effectively you have narrowed the range of individual differences. Select two or three other measures that you consider important in teaching the subject or grade that you have in mind, and record the names of these measures in Section 4 of the worksheet. Then, using the blanks provided on the worksheet, tally for each class section the scores of the pupils on these related measures.

Examine the distributions of scores you obtained on the related measures. How effectively has the range of individual differences been reduced? What differences would it make if you were dealing with 500 pupils instead of 100? Is ability grouping equally appropriate for all purposes or for all levels of schooling? What about the psychological, emotional, and social aspects of grouping?

FORM 7

WORKSHEET FOR ANALYZING INDIVIDUAL DIFFERENCES

1. Criterion Used for Grouping into Class Sections _____

2.

Number of Pupils in Each Stanine on Criterion Used for Sectionizing:								
1	2	3	4	5	6	7	8	9

3.

Distribution of Pupils into Class Sections:		
Section	Number of Pupils	Stanines Included
Slow Group		
Middle Group		
Fast Group		

4.

Tabulation of Scores on Related Measures:										
Related Measure	Section	Stanine Scores: Lowest 1	2	3	4	5	6	7	8	Highest 9
	Slow									
	Middle									
	Fast									
	Slow									
	Middle									
	Fast									
	Slow									
	Middle									
	Fast									

FORM 8

(Version 1)

February 3, 1959
1:30 p.m.

Memo to Mr. Baker, Principal
from Nancy Atterbury, Secretary
Mr. Baker:
Judge Flynn, new circuit court judge, came by this morning. He has just moved into Wheatville and is returning to Foster City to get his family. He wants to enroll his second grade son when they return on Thursday. He asked about enrollment requirements and I mentioned the new policy handbook's requirement that we have a physician's statement that the child has been vaccinated for smallpox before we can admit him. He said that he has such a statement but has misplaced it during the move. He said that perhaps you will understand and that he will keep looking for it. Shall I enroll his child if he cannot find it by Thursday?

N. A.

Item 17

FORM 9

(Version 2)

February 3, 1959
1:30 p.m.

Memo to Mr. Baker, Principal
from Nancy Atterbury, Secretary
Mr. Baker:
A Mr. Marsh came by this morning. He said that he has just gone to work down at the S and L shops and that his family will arrive next Thursday. He wants to enroll his second grade son as soon as his family gets here. He asked about enrollment requirements and I mentioned the new policy handbook's requirement that we have a physician's statement that the child has been vaccinated for smallpox before we can admit him. He said that he has such a statement but has misplaced it during the move. He said that perhaps you will understand and that he will keep looking for it. Shall I enroll his child if he cannot find it by Thursday?

N. A.

Item 17

The Classroom Experience Model

CHAPTER III

The Classroom Experience Model

DAVID P. BUTTS

FOR THE PAST fifteen years cooperating groups of academicians, administrators, and public school teachers have been developing new instructional materials in a variety of areas. Curriculum innovations in mathematics and science illustrate the impact of these groups. These curriculum innovations reflect a changed philosophical orientation and, for many teachers, a changed approach to instruction. They require implementation by individuals who know and accept both the new philosophical orientation and the changed goals of the teacher and the student.

It should be noted that the individuals responsible for implementing these innovations in instruction may not be their originators. Indeed, the teacher or consumer of the innovation likely has had no role in the development of the innovative materials. The gap between development by "outside" originators and use by the practitioners must be bridged if the materials are to gain widespread use.

Intelligent use of curriculum innovation requires that the teacher knows:

1) What to do both in terms of content and instructional strategies,
2) How to do it in terms of how to implement the strategies involved,
3) Why to do it that way; i.e., the teacher needs to generate a basis on which to decide the wisdom of using a particular strategy at a particular time.

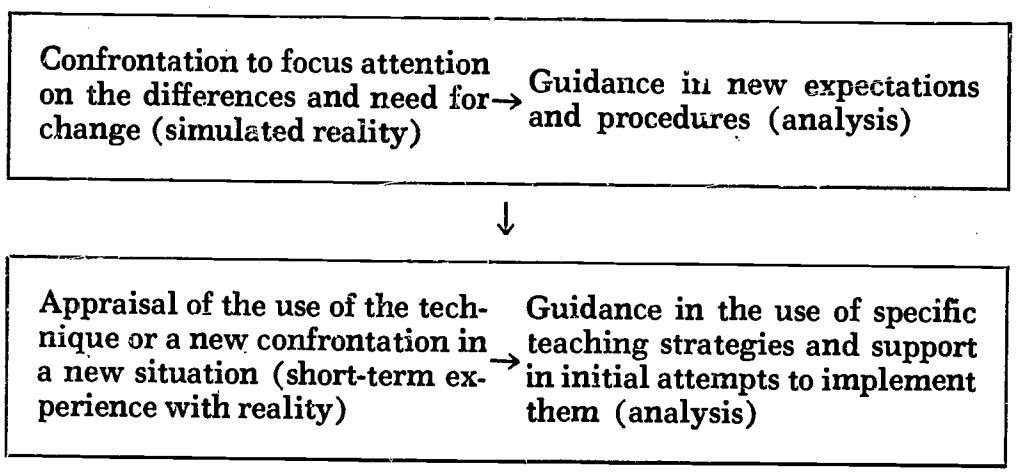
The Classroom Experience Model—What Is It?

The focus of the problem of implementing educational innovation becomes the identification of strategies of organiza-

tion and guiding learning experiences of students. Logically, learning experiences for the teacher should begin with illustrations of teaching, continue with classroom practice, and culminate with analysis of experience. The reality of the learning encounter thus becomes the primary means by which teachers can be confronted with the need for new knowledge about teaching and guided in their development of the understandings of the *what*, *how*, and *why* for the curriculum innovation.

The classroom experience model of inservice education is a plan whereby the educational encounter is accomplished through simulation of direct experiences with students. This provides a means for the guidance of teachers toward the implementation of a curriculum innovation.

The selection and organization of the learning encounter begins with the identification of goals for the classroom experience model in behavioral terms. This permits development of tests to assess the acquisition of these behaviors and makes possible a careful analysis of the appropriateness and adequacy of the classroom experience model. The behavioral objectives also give specific direction to the strategies of instruction. It is a common statement that "one teaches as he or she has been taught." If an innovative program emphasizes specific aspects of classroom instruction, then teachers should also experience those aspects in their inservice program. The sequence from model to classroom use may be illustrated as follows:



The Classroom Experience Model—An Example

The inservice training program for elementary teachers who are using the new materials in science developed by the Commission on Science Education of the American Association for the Advancement of Science illustrates the classroom experience model. Early in the development of these materials it was evident that teachers needed more than just a manual to describe new activities.

Statement of Behavioral Objectives

Implementation of the A.A.A.S. program known as *Science —A Process Approach* required a teacher education program which would meet the needs of the elementary teachers. Statement of the objectives of the program in terms of specific behaviors was the first task. These objectives are stated as follows:

At the completion of the teacher education program the teacher should be able to:

1) Identify and demonstrate the use of teaching strategies which are compatible with the philosophy of *Science—A Process Approach*. This should include such strategies as:
   a) Describing situations in which students can raise questions, describe procedures, and demonstrate appropriateness of conclusions
   b) Describing classroom situations which illustrate willingness to wait for appropriate responses rather than to tell the "correct" answer
   c) Identifying learning situations which involve active participation rather than passive listening
   d) Describing questions which are posed to secure thinking rather than those with single "correct" pat answers from students

e) Describing learning experiences in which students have the satisfaction of completing a worthwhile task
f) Distinguishing between classroom experiences that are directed toward experience objectives and those that are "side excursions" into other areas
g) Describing student achievement in terms of observed behavior rather than opinion of what behavior ought to be present, and
h) Identifying goal achievements through assessment of student behavior.

2) Demonstrate the acquisition of specific behaviors and knowledges which are part of the structure of *Science—A Process Approach* including the following:
a) Distinguishing similarities and differences in objects and events
b) Distinguishing between observations and inferences
c) Identifying the unit or units of measurement appropriate to a particular task
d) Stating observations in terms of precise position or motion descriptions
e) Identifying shared properties of objects or events and using these in constructing classification systems
f) Constructing statements of expected observations based on past observations
g) Stating observations in quantitative terms when appropriate
h) Constructing a scheme for recording data so that interpretation of that data may be distinguished from that data

The sequence of activities of the Classroom Experience Model illustrates the alternating of reality with analysis. The inservice program includes three major emphases:

1) "What to do" portion accomplished through simulated reality and analysis for a period of two to three days
2) "How to do it" accomplished through short periods of classroom experience reality and analysis by two to three sessions every seven to fourteen days
3) "Why to do it that way" accomplished through longer periods of classroom reality and analysis in three to four sessions scheduled every four to six weeks.

Related to the specific objectives of the teacher education

program, the initial orientation sessions are directed toward the "what-I-am-to-do" dimension of the teacher need.

During the first day the teacher completes the Process Measure—an instrument that permits her to assess specific areas of science background in which she needs to improve. Answers to the tests are given to the teachers and they are led in a brief discussion of results.

Attention is then directed to a small white cube that each one has been given (it is actually an ordinary sugar cube). The teachers usually give many responses to the question "What do you think we are going to do with it." They are asked to write down all that they can observe about this cube in about three minutes. This will vary from 4 to 5 entries to as many as 26. Time is called at the end of 3 minutes. The teachers then code their responses in the following way:

#1 if the entry required them to use their eyes.
#2 if the entry required them to use their ears.
#3 if the entry required them to use their noses.
#4 if the entry required them to taste.
#5 if the entry required them to touch.

In most groups the teachers are quick to see that they used the senses of sight and touch most, a few used the sense of taste and almost none used the sense of smell or hearing. From the discussion the point emerges that negative results, for example, "no smell," are extremely important to the scientific enterprise.

Some teachers will then pause to state that they have some entries with no numbers such as, "It could break" or "It is sugar" or "It is two centimeters on an edge."

Analysis of these responses leads to the categories of:

#6 Measurement or quantified observations that state a unit of comparison and how many of these units are involved.
#7 Inference or statements of explanation.
#8 Prediction or statements of expectation especially when related to change.

The teachers are then given a few drops of alcohol on the palm of their hand. They are instructed to write down all that

they can in three minutes. Coding these responses permits the instructor to identify both the progress in more careful observation and in the categories of the entries of the teachers' lists.

From this experience the structure of the exercise in *Science, A Process Approach* is analyzed through directly relating the activity the teacher has just experienced to the Teacher's Manual.

The *objectives* of the sugar cube activities were to:

1) Identify the properties of an object or situation by using all five senses
2) Distinguish between observation and inference
3) State the observations in quantitative terms whenever possible.

In these objectives key words like "identify," "distinguish," and "state" represent an important aspect of training for instruction. Time is devoted to narrowing the meaning of the word "identify," for example, to a specific set of expected student behaviors.

The role of *vocabulary* as being labels for experience which should come *after* the experience and not before as illustrated by the use of the word "inference."

The use of *originating the problem* as a confronting situation is also illustrated with the sugar cube activity. It is so designed so that the instructor can immediately assess the competence of the students and know where to go next. This is not only true with teachers but the teachers have now experienced the way this procedure can be used with students.

The *appraisal activity* is one in which the teacher checks up to see how far students have progressed. The "alcohol" experience is such an appraisal. The specific range of progress which the teachers observe is identified from the group's responses.

This is the introduction to the tools of the science program —the components of the exercise. On the following day, attention is focused on teaching. The group develops specific plans for teaching an activity. These plans include writing a brief outline, identifying key questions or "instructional handles,"

and estimating the time needed. The instructor uses these plans with a group of students while the teachers observe. While observing, the teachers have been asked to watch for situations or responses that they would not have made had they been in the instructor's shoes. The analysis session after this demonstration illustrates how teachers identify different strategies of teaching, question their appropriateness, and are stimulated to try these teaching strategies for themselves. The analysis session may also include a discussion of how a teacher handles student responses that may be incorrect, incomplete, or silent. During these analysis sessions, there is an observable shift in the teacher's perspective, going from concern for *her* response to concern for her *interaction* with the student and, finally, to her concern for the *student*. This shift is a predictable outcome of the knowledge and of the classroom experience implied in the model.

Additional guidance results from the confrontation with reality of the classroom as the teacher attempts to use the instructional materials. Within the context of directing the educational encounter, the teachers identify both problem situations and triumphs and share with others their experiences while securing guidance in handling new situations. These sessions, scheduled every seven to fourteen days, along with short periods of classroom reality and analysis classes are directed toward the "How I am to do it" dimension of the teacher's need.

Longer periods (four to six weeks) of classroom experience followed by analysis then provide the opportunity to identify and describe a rationale. This is the "Why I am doing it" phase of the teacher's need.

The Classroom Experience Model—Rationale

Three assumptions comprise the rationale for the classroom experience model. If the activities arising from one of these assumptions are omitted, it is likely that the outcomes of the teacher education program will be less than satisfactory.

Teachers are not likely to be interested in change if they

have no knowledge of either the change or its potential. Therefore;

Assumption 1 is that knowledge of the innovation precedes and is essential to its implementation.

However, even if one has this knowledge, no action may result if there is no commitment to change. There have been many inspirational speeches which resulted in no changes in the behavior of the listeners. The key factor may be that there was no need for action in that there was no commitment on the part of the teacher to any change in the classroom. Thus;

Assumption 2 is that commitment to the use of the innovative materials is essential to acceptance of the innovation.

Even with knowledge of a change and a commitment to its implementation, results may be far from satisfactory for both teacher and student. What the printed page communicates varies in direct proportion to the relevant experience of the reader. Therefore;

Assumption 3 is that guidance in the use of the innovation is essential to its implementation.

To be communicated adequately, such experiences must draw on the reality of the classroom in order to provide the basis for what Church described as—

> the individual's total schematic orientation to reality . . . (which) is a concrete theory from which he draws inferences and makes predictions and in terms of which he values or disvalues, believes or disbelieves, attempts or ignores . . .

The classroom experience model has for its primary focus the educational encounter. To communicate adequately either the specific science encounter or the rationale for its organization requires many experiences in the reality of many situations. From these experiences and their analysis and because of knowledge gained, commitment to, and guidance with the structure of the curriculum innovation, the educational encounter becomes a richer and more meaningful experience for both the student and teacher.

Some Suggestions for the Planner

The purpose of any curriculum innovation is to improve instruction. To achieve this goal successfully, there are three rule-of-thumb suggestions.

First, let the innovation grow as naturally as possible in the local setting. It is fine to say that the curriculum innovation works well in Baltimore or in San Diego, but whether it will work in our school district is the key question. Experience indicates it will if given a chance. Select a few good teachers to pilot the innovation for a year. Let their enthusiasm be the convincing voice.

Secondly, involve as many as possible in the pilot program. The broader the base in the administration, the greater the identification there will be with the program. The superintendent, director of curriculum, principals, and teachers all have key roles in the success or failure of the program.

Finally, provide an adequate base of materials to support the pilot study. Good teachers are excellent scroungers, but making them round up all the material while trying an innovation is an excellent way to kill the innovation.

Once the decision is made to implement the classroom experimental model, there are some additional suggestions that experience has demonstrated to be essential.

Materials for the teachers must be readily available. They can many times be shared within the building but not among buildings unless there is an adequate central delivery service.

Careful selection of teachers for the pilot program from a limited number of schools will help.

Since more than half the classroom experience model involves teachers observing and analyzing work with students, it is essential that the program be conducted during the school day. Careful analysis of the cost for released time must be made and reflected in the budget for inservice education.

Once the teachers have been selected, who should work with them and how should they be organized?

In the first year of the pilot studies, an outside consultant must be secured who is both familiar with the material and at

ease when working with classroom teachers. During the first year, the group of teachers and administrative staff must be selected. Competent local consultants can be developed.

It is suggested that the number of teachers should be kept small during the first year. A good number is from 20 to 30. This number makes it possible to provide greater personal and individual assistance during the first year. A small first year effort also requires a smaller initial investment on the part of the school district in order to have the opportunity to see how the project might work in their local area.

In selecting the pilot teachers, it is usually helpful to have at least two per grade level in a school building. The interaction between these two teachers has been found to produce helpful results.

With the teachers as the jury and the classroom as the locale for the learning activity, the setting is right for the classroom experience model to introduce a curriculum innovation into a local situation.

Teaching Demonstration Model

CHAPTER IV

Teaching Demonstration Model

BEN M. HARRIS

Introductory Statement

THE DEMONSTRATION might be thought of as an attempt to bridge the gap between firsthand experience and just hearing about things. The notion that people learn by doing is an old one. There is some truth in the proverb, "Experience is the best teacher," but experience alone is not enough. For many teaching purposes, firsthand experience is too dangerous, too expensive, too time-consuming, or too inefficient. The demonstration as a teaching strategy offers a compromise between the need for realistic experience and the disadvantages accompanying firsthand experience. While demonstrations vary as widely as teaching activities, they always offer an approach involving reality simulation. In the demonstration, near reality is observed and analyzed by those who would learn to *do* likewise.

We refer to reality as being simulated because a demonstration is not pure reality. If for no other reason, reality is reduced because the purpose toward which a demonstration is directed is different from the normal situation in which a similar kind of activity might occur. The purpose of the demonstration is for the learning of the observers rather than the accomplishment of the demonstrated task.

In addition to departing from reality in terms of purpose, a demonstration may depart from reality in a variety of other ways. The time at which the demonstrated events occur may not be realistic. The sequence of events being demonstrated may not be realistic. The demonstrated events may be taken

out of context. The presence of viewers is another variation from reality. The use of narrative or explanatory comments which may accompany a demonstration is a further modification of the real situation. Even the locale in which the demonstration occurs may be different from that which would normally be expected. Demonstrations, then, must be thought of as a variety of kinds of strategies which may range all the way from a very accurate portrayal of a real situation with only the purpose being modified to a highly structured and rather dramatically modified situation in which many elements of reality have been sacrificed for demonstration purposes.

Demonstrations vary in complexity and elaborateness of purpose as well as in the amount of reality maintained. In the simplest form, a demonstration may present viewers with a very brief and simple example of manual skills of some kind. In their more elaborate and complex forms, we have seen demonstrations which are continuing on-going operations such as model farms or demonstration schools.

Despite their long existence in a variety of forms, very few descriptions of demonstrations as they have been employed, with a fully developed set of procedures, have been reported. The education literature is especially lacking in careful descriptions of teaching demonstrations used for inservice or preservice education purposes. In this chapter, a description of one specific form of demonstration teaching will be presented, and a rationale developed which will distinguish it from others. The description and the rationale are intended to be useful to those who work in planning inservice teacher education. We will attempt to distinguish *teaching demonstrations* as one of a variety of demonstration forms which might be distinguished, and to analyze and describe procedures accompanying this kind of demonstration.

Teaching Demonstration Defined

The term *teaching demonstration*, as used here, refers to a lesson drawn from the context of a real classroom situation,

presented by the teacher as she would normally present such a lesson, with sufficient special preparation to facilitate systematic observation and analysis of specific events by interested observers.

A demonstration such as the one defined above provides opportunities for the presentation of practices, procedures, and materials according to a carefully developed plan without destroying the real context within which the teaching and learning normally take place. A variety of critical elements can be identified in this type of demonstration. These critical elements distinguish it from some other types of demonstrations and are critical in the sense that they permit the maintenance of a very substantial degree of reality in the demonstration itself. These elements include:

1) A regular classroom teacher who presents the teaching; that is, who is the demonstrator;
2) A student group that is involved with the teacher in the lesson and is the group normally studying with the teacher;
3) Teaching objectives which are those the teacher would have specified for the lesson had no demonstration situation existed;
4) Content presented in a lesson which is essentially the same as would have been presented had no demonstration situation existed;
5) Changes in methods and procedures of presentation that are restricted to those which would be worthy of consideration by the demonstrating teacher in any event in order to provide the best possible lesson for children.

In short, this type of demonstration is characterized by the maintenance of a high degree of normalcy with regard to teacher, pupils, and lesson. Only a few changes are dictated by this type of demonstration. Some changes and procedures are dictated by the demonstration situation no matter how hard one strives to maintain reality, however. These departures from reality need to be recognized. They include the following:

1) Students and teachers know they are being observed; hence, preparatory procedures by both are intensified to some degree;

2) Teacher planning is extended over a longer than normal time period in order to permit the scheduling of the demonstration well in advance while still conforming to a normal sequence of learning activities consistent with a long-range plan;
3) A group of observers is employed in order to justify rather extensive preparation and planning while facilitating group follow-up activities. The use of a videotape recorder may be associated with this type of demonstration, but this simply delays the observational act and doesn't change the basic character of the demonstration itself;
4) Teacher planning results in the writing of carefully detailed lesson plans and the preparation of other materials which are made available to observers to assist them in gaining an overall understanding of the demonstrating teacher, and teaching plans are formulated with these clearly in mind.

While all of these special features are departures from reality that might have some influence upon the character of the teacher-pupil interaction being observed, they should not and do not necessarily change it in any fundamental way.

Description of a Demonstration Program

The South Park Independent School District in Beaumont, Texas, launched planning activities for an inservice education program for second and third grade teachers in February, 1964. Demonstrators were selected from among these teachers, while others were assigned to inservice viewing groups. Assignments were made so that different schools and both grade levels were represented in each inservice group. Approximately 50 teachers from 15 elementary schools were included in the three inservice groups. A schedule was developed which allowed each group to view three demonstrations during the 1964–65 school year in which this inservice program was under way. Each group viewed one demonstration with a focus primarily on the teaching of reading, another with a focus upon creative writing, and a third with a focus on oral language and/or listening skill development. The schedule allowed for the demonstrations to be staggered over an eight-month period, so that each group viewed one demonstration

early in the fall, one in the middle of the school year, and another in the early spring.

Each demonstration was viewed by teachers along with various supervisory and administrative personnel. These relatively large viewing groups were made possible by the use of a closed-circuit television arrangement in which remote control cameras did the actual observing with the pictures being transmitted to a viewing room where two TV receivers were readily visible to all. Each demonstration was the central event in a number of carefully planned related events. The demonstrations themselves were, of course, thoroughly planned. Viewers were then briefed on these plans, provided with materials to guide them in viewing the teaching demonstrations, and a discussion followed in an effort to identify promising techniques and useful approaches. The demonstration teacher was provided an opportunity to meet with the group and answer questions presented by viewers. Supervisory personnel followed up with teachers individually to assist them in transferring selected ideas to their own classroom situations.

Demonstration purposes. In order to avoid having just three isolated, quite different demonstrations, unifying purposes were selected which provided the framework for planning *all* demonstrations. These purposes helped to give continuity from demonstration to demonstration as viewed by the second and third grade teachers. Four closely related purposes were selected, each one emphasizing an approach to the individualization of instruction. These four purposes can be stated specifically as:

1) Improvement in techniques for intra-class grouping of students,
2) Improvement in techniques for using a variety of instructional materials,
3) Improvement in approaches to the differentiation of assignments for pupils,
4) Improvement in techniques for providing students with greater freedom for independent learning.

Whether the demonstration involved second or third grade

students, and whether it was on developmental reading, listening, or creative writing, each of the above-mentioned aspects of individualization of instruction was given special attention. It was thus possible to discuss each demonstration, not only as a specific lesson in reading or listening or spelling, but also in terms of its illustration of techniques for individualization of instruction. Exhibit I is a sample of one such demonstration lesson plan, and Exhibit II shows the seating chart provided to assist viewers.

EXHIBIT I

DEMONSTRATION #8—CREATIVE WRITING

Lesson Topic: Writing original stories, story endings, and imaginative descriptions

Teacher: Mrs. Betty Black Class: Second Grade Number of Pupils: 23 12 Girls 11 Boys

The Lesson in Brief

Mrs. Black organizes four subgroups for the following writing activities:

Group I. (Listening to part of a story on tape and then writing the ending to it) The six children in this group listen to Robert Browning's "The Pied Piper of Hamelin" to the point where the Pied Piper led the children into the mountain, and the door was closed behind them. The story takes about five minutes, and then the children spend the remainder of the time writing their own endings.

Group II. (Using a mirror to make a written description of themselves) Each of the five children in this group is given a stand-up mirror and is asked to make a written description of himself. Several children are likely to write much more than visual descriptions and reveal many things about their own self images.

Group III. (Using "story starters" for individual stories) Each of the seven children in this group receives a slip of paper containing an opening phrase and is asked to write an individual story from his "story starter." The starters are inside a large cardboard pencil made by the teacher. One of the slips of paper contains the following:

"This morning, I opened the closet door, and there was . . ."

Group IV. (Writing imaginative stories about objects) Each of the five girls in this group chooses a story starter from pictures of eyes, lips, fingers, toes, thumb, etc., and writes an autobiographical story about her picture.

Lesson Plan

I. Background Information
Pupils in this class began writing original sentences and paragraphs in September. They wrote second lines to rhymes and also short poems. They have written songs, letters, stories, and book reports. They may attempt a play before school is out.

II. Teacher Objectives
To motivate a desire to do creative writing
To emphasize independence in writing
To create a relaxed environment for writing
To improve written and oral language

III. Pupil Activities

A. Listening to part of a story on tape and writing the ending to it. The children will be hearing the story, "The Pied Piper of Hamelin," by Robert Browning, for the first time. They will be taken only up to the point where the mountain opens and the children go inside. What happened to them?

B. Using "story starters" for individual stories.
The "story starters" are contained in a large cardboard pencil made by the teacher. A chart next to the pencil will give the following directions:
1. Handle carefully. It is magic.
2. Take off the magic eraser.
3. Tip the pencil slightly until the magic papers show at the end.
4. Pull one of the magic papers out gently.
5. Push the other papers back into the pencil.
6. Read your paper and write your story.

The slips of paper will contain the following story starters:
1. This morning, I opened the closet door, and there was . . .
2. If I were a giant I would . . .
3. On the way to school I saw . . .
4. If I were a space man . . .

5. The prettiest thing I ever saw was . . .
6. One day I was a moon man and I . . .

C. Using a mirror to make a written description of themselves. Pupils of this group will each have a stand-up mirror and will write what they see.

D. Writing imaginative stories about objects.
This group will choose a story-starter from pictures of eyes, lips, fingers, toes, etc., and then they will write about the picture. If any child wishes to write a story without a story starter of any kind, he is completely free to do so.

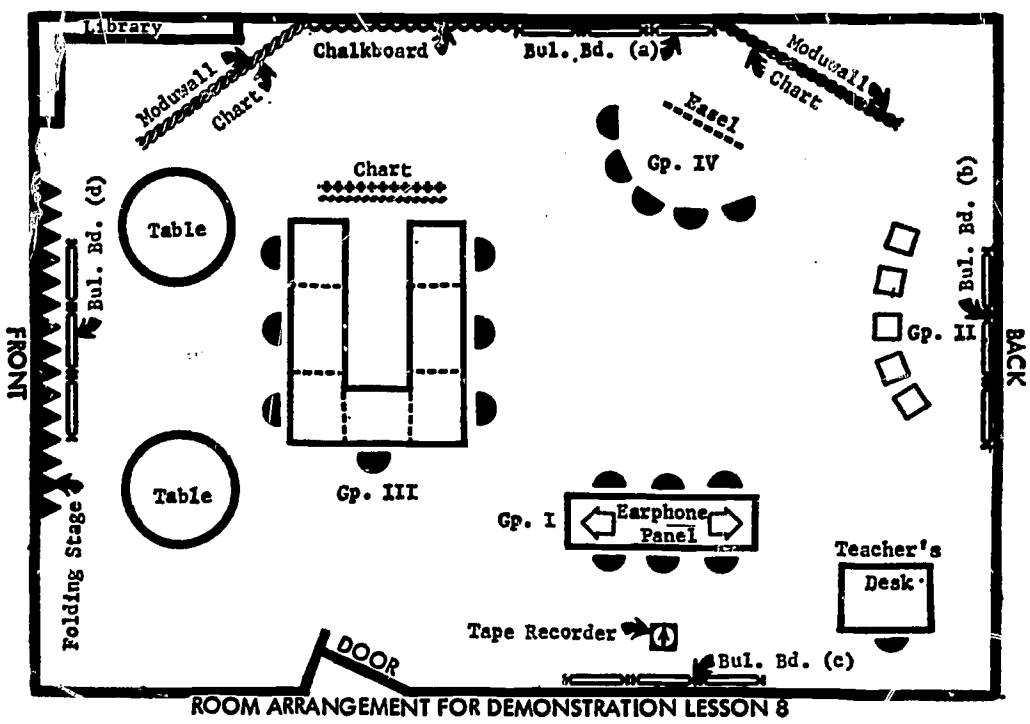
IV. Materials To Be Used
Tape recorder and earphones
Pictures
Bulletin boards
Pencil, paper
Mirrors
Charts

V. Sequence of Events—Teacher Working With Groups
Tape, earphones—listen to story (5 minutes)
Teacher working with story starters (5 minutes)
Writing about objects (7 minutes)
Teacher working with mirror describing group (5 minutes)
Reading stories written using pictures of objects (15 minutes)

Physical Arrangements. At the front of the room, a U-shaped pattern of individual desks and chairs is arranged facing the left side of the room. The seven children in Group III, seated here, are facing a chart rack and a chart with directions for using a "magic pencil." A large, teacher-made cardboard pencil containing "story starters" is on the floor beside the chart rack.

The six children in Group I use a table and an earphone panel on the right side of the room. A tape recorder, on a small table nearby, is also provided for this group. The five children in Group II are seated in a semi-circle of individual desks and chairs near the chalkboard at the back. The five children in Group IV are seated in a semi-circle of individual desks and chairs facing an easel near the left side of the room.

EXHIBIT II



ROOM ARRANGEMENT FOR DEMONSTRATION LESSON 8
CREATIVE WRITING–IMAGINATIVE STORIES

Briefing Sessions

As observers arrived at the administration building to view a teaching demonstration, they were sent directly to one of several offices and conference rooms where a briefing was to be held. The briefing included a review of the lesson plan by one of the supervisory staff who had been involved in the development of the demonstration. The lesson plan was sent to observing teachers prior to the scheduled demonstration with instructions to read it carefully and bring the plan to the briefing session. The objectives of the demonstration lesson were called to the attention of the group. The purposes of the demonstration were reviewed and observers were asked to look for certain aspects of the teaching which would exemplify one form or another of individualization of instruction.

The briefings were conducted from 9:00 until 9:45 a.m., when a tour of the demonstration classroom was begun. In touring the classroom, the observing teachers were able to see charts and other materials and equipment that would be used

in the demonstration. The tour lasted only ten to fifteen minutes and ended just before the pupils returned to the demonstration classrooms from a recess on the playground. At 10:00 o'clock, all observation groups came together in the viewing room. Cameras were turned on and the classroom activity came into view with activity sounds carried by the microphones while the pictures were carried by the remote-controlled television cameras.

Viewing the Demonstration

In 35 to 45 minutes, a section of one language arts lesson was televised and viewed. Viewers were encouraged to watch the demonstration without comment but were provided with a guide for observing and recording impressions for later discussion. Exhibit III shows one such guide as completed by an observer.

EXHIBIT III

GUIDE FOR OBSERVING TEACHING DEMONSTRATIONS

Demonstrator—Mrs. Smith
Pupils—3rd Grade Subject—Dev. Reading
Demonstration Topic(s)—Reading Groups
Date—Nov. 10. 1964

DIFFERENTIATING INSTRUCTION

What evidence do you observe that idicates:	*Notations*
1. Different assignments or tasks are offered to individual or groups?	"Most working without teacher direction"
2. Materials are used on different levels of difficulty and interest?	"Texts differ"
3. All pupils are interested in the work assigned?	"Good concentration" "Some restlessness"
4. All pupils are participating actively and purposefully?	"Describe story sequence" "Many raise hands eagerly"
5. Some pupils are doing advanced level and/or enrichment work?	"Library books"

6. Work is timed to allow significant progress without loss or boredom	"All actively engaged" "Teacher moves quickly from group to group"
7. Pupils can accomplish assigned work with a great deal of independence?	"Go back to seats"
8. Routine duties are shared by pupils according to some system or plan?	"Take own chairs"

INTRA-CLASS GROUPING

1. Furniture arrangement promotes flexible grouping?	"3 groupings" "Horse-shoe arrangement"
2. Flexible groupings are employed to meet a variety of needs?	"Some sit together to form a group, but read in different groups"
3. Pupils help each other with work?	"Moves quickly from group to group"
4. Teacher maintains check on progress of groups?	
5. Pupils work independently in groups?	"3 groups with no teacher attention"
6. Teacher is aware of group behavior?	
7. There is freedom of movement within groups?	
8. Groups vary in size and number to reflect pupil needs?	"One group has only 4 or 5" "One group is quite large"

MULTI-MEDIA TEACHING

1. Displays relate to activities in progress?	"Word chart on compared words"
2. A variety of reference materials is in use?	"Texts different" One group using library" "Selected materials"
3. A variety of maps, charts, globes, and models is in use?	

4. A variety of audio-visual materials is in use?	
5. A variety of teacher-made materials is in use?	"Worksheets" "Charts"
6. A variety of newspapers and magazines is in use?	
7. A variety of pupils' work is on display?	"Pictures of students"
8. Teacher-made displays are colorful, well-designed, timely, and serve specific teaching purposes?	"Large bear display with basket of vegetables"
9. A variety of library books is in use?	"Library?"

SELF-DIRECTION IN LEARNING

1. Pupils are permitted to help in planning?	
2. Pupils are allowed to select goals?	"Boys tell experiences" "Teacher waits patiently" "Book salesmen highlight their books for group"
3. Pupils are allowed to lead class or group?	
4. Pupils seek aid from many sources?	
5. Pupils find and correct own errors?	"No! Pawing—" "All right, but what did we think?"
6. Pupils use various problem solving methods?	
7. Pupils suggest procedures to be used?	
8. Pupils are held responsible for their own actions?	"No reprimanding or cautioning" "Ready for book salesmen" No further directions required"

Immediate Follow-up

At the end of the viewing period when the cameras were turned off, the viewing teachers were asked to complete a session rating sheet to guide the supervisory staff in assessing the acceptance of the demonstration. The principal of the school from which the demonstration teacher and the pupils

had been selected was then asked to present a brief summary of information on the class, the teacher, and the school and community from which the children were drawn.

Arrangements were made for relieving the demonstration teacher of her students so that she could appear briefly before the viewers shortly after the end of the demonstration. Viewers were encouraged to ask questions and clarify impressions.

Following the presentation by the principal and the questioning period with the demonstration teacher, a coffee break was scheduled. This served to facilitate informal discussions and offered visitors a chance to leave. When the viewing teachers re-convened, they formed a small discussion group with only one or two school officials present. A semi-structured discussion followed for approximately thirty minutes, with focus on the techniques demonstrated as they illustrated individualization of instruction and implications for practice in other situations.

Individualized Follow-up

When viewing teachers returned to their own classrooms, it was hoped that certain demonstrated techniques would be incorporated into their daily routines, at least on a trial basis. To facilitate this, supervisory personnel made appointments with teachers within two weeks following each demonstration. These supervisors conferred with individual teachers about their recent effort at individualizing instruction. When certain techniques were being adopted, a supervisor would observe the teacher in action and offer suggestions for improvements. When teachers seemed reluctant to try any demonstrated techniques or wished to adapt them, a supervisor would suggest ways of modifying the techniques and would offer assistance with lesson planning and materials preparation.

The Rationale

Altering complex patterns of teacher behavior is a difficult task at best, yet this is often the kind of outcome inservice education programs are expected to produce. The teaching

demonstration approach is based upon the assumption that teacher change, in certain complex forms, requires more than knowledge, understanding, and willingness to change. Indeed, some changes in behavior require, among other things, a model by which the teacher can guide his or her behavior change.

If a guiding model of desirable teacher behavior is essential, the teaching demonstration has much to offer. Realism is maintained but structure is provided to assure discriminating use of demonstrations in building the model. It is not necessary to think of the use of teaching demonstrations as a "copying" process.

On the contrary, the demonstration in a context of reality offers the viewer a chance to contrast and compare his own behavior with that of the demonstrators. He can reject certain practices, accept others, and adapt still others. It is a model-building process rather than a model emulating process.

The characteristics of the teaching demonstration program defined and described here are such as to anticipate certain influences for change. These can be stated explicitly:

1) A high degree of realism facilitates ready identification with the demonstration by viewers,
2) The structuring of the demonstration to emphasize a limited number of specific and significant teaching practices provides viewers with a clearly visible element to consider in developing a model,
3) The use of peer demonstrators rather than "experts" encourages critical appraisal and comparisons by teacher viewers. They are not placed in a position where either blind acceptance or rejection as "idealistic" or "theoretical" are likely reactions. Viewers have no reason to take offense at being "shown-up,"
4) The use of systematic briefing and follow-up activities with structured observation procedures sets the stage for serious consideration of demonstrated practices. These procedures also prevent much misinterpretation and faulty selection of practices,
5) Viewing in a group, with the group discussions that follow, provides a context in which no individual is on the spot, yet the in-

fluence of peer leaders can be directed toward specific practices, and

6) Individualized follow-up activities provide supervisory staff member the opportunities to assist teachers in adapting practices to their own styles of teaching, assist with needed skill development, and provide psychological support as new practices are tested for the first time.

Limitations

Any approach to inservice education will have certain limitations which must be recognized. Some of the limitations of the teaching demonstration approach include the following:

1) Cost is high in terms of staff time for planning, viewing, and individualized follow-up,
2) Skill development cannot be expected to follow from viewing demonstrations; follow-up activities must be geared to skill development,
3) The use of peer demonstrators may prevent or make difficult, at least, certain demonstrations because of lack of certain competencies within the peer group,
4) Since a limited number of demonstrations cannot be expected to provide poor teachers with a model for a complete new *modus operandi*, caution needs to be exercised to avoid efforts to copy everything the demonstrating teacher does, and
5) Outstanding teachers may gain relatively little from demonstrations by peers.

Evaluation Efforts

In a recently completed study (1), the teaching demonstration approach was evaluated in several ways. Evidence indicated that the demonstrations were associated with significant changes in classroom practices. Teachers' understanding of basic concepts of teaching were also significantly improved. These results were most impressive with the teachers who were not using the techniques being demonstrated.

Support for the demonstrations as an approach to inservice education comes from a limited number of other studies. A study by the California Council on Teacher Education (2)

shows that teachers do regard opportunities to see their peers in action as very valuable. DeVault (3) found that both live and filmed demonstrations were very effective in changing arithmetic teaching techniques in the elementary classroom.

The use of closed circuit television to facilitate viewing by fairly large groups is supported by studies of Rumford (4), Carpenter (5), and Chabe (6) as being essentially as effective as live observation.

(1) Ben M. Harris, *A Research Study of the Effects of Demonstration Teaching Upon Experienced and Inexperienced Teachers.* Cooperative Research Project No. S-384, Cooperative Research Program, Office of Education, U.S. Dept. of H.E.W., Austin, Texas: The University of Texas, 1966.

(2) California Council on Teacher Education, *Toward Better Schools*, Bul. 26, No. 3 (Sacramento: California State Department of Education, 1957), p. 36.

(3) M. Vere DeVault, W. R. Houston, and C. C. Boyd, *Television and Consultant Services as Methods of Inservice Education of Elementary School Teachers of Mathematics* (Austin: The University of Texas Press, 1962), p. 100.

(4) H. P. Rumford, "An Experiment in Teaching Elementary School Methods via Closed Circuit Television," *Journal of Educational Research*, 56: 139–143, November, 1962.

(5) C. R. Carpenter and L. P. Greenhill, "An Investigation of Closed Circuit Television for Teaching University Courses," *Instructional Television Research*, Project I (University Park, Pennsylvania: The Pennsylvania State University, 1955).

(6) A. M. Chabe, "Experiment with Closed Circuit Television in Teacher Education," *Peabody Journal of Education*, 40: 24–30, July, 1955.

Inservice Programs as Organizational Learning

CHAPTER V

Inservice Programs as Organizational Learning

MICHAEL P. THOMAS, JR.

THE PRECEDING CHAPTERS have contained descriptions of strategies that have been found useful in actually promoting behavior change in some unit of the school organization. Each of the authors would, I am confident, rush to be the first to admit that neither the kind of change he is trying to promote nor the strategy used to promote it is the most important kind of change or the best possible strategy. That they would hurry to file their disclaimers is appropriate, but it leaves you who must select subjects and strategies with the problem of finding a way of thinking about inservice efforts that will give guidance and rationality to your decisions.

My purpose in this chapter is to suggest a way of thinking about inservice development programs that might have some utility for the administrator who must decide upon the content of these programs and methods appropriate to their goals. The belief underlying this somewhat arrogant purpose is that the decisions made by an administrator reflect a more or less conscious theory about his organization, its motive forces, its structural characteristics and the direction of its efforts. The corollary linking this belief to the purpose of the chapter is that a systematic way of approaching decisions requires a systematic and consciously formed theory designed to alert the decison maker to potential consequences of his actions.

Three major propositions subsume the content of this chapter and determine its organization. They are as follows:

1) School systems, indeed all organizational systems, are so struc-

tured that any change in the performance of one part of the system will have some effect on the performance of other parts of the system,

2) Just as human beings develop ways of viewing the world that help them to cope with the situations in which they find themselves, so do organizations learn to look at their world in ways that help them better to understand the forces that are constraining them,
3) Certain characteristics of organizational behavior seem to impede the learning of new ways of looking at the relevant aspects of the organizational environment.

These three propositions will be expanded and related to the general problem of developing inservice programs that actually do make a difference in the way people in the organization behave.

One Man's Food . . .

Faced with the desire to change some procedure in order better to accomplish the educational goals of the school, the administrator might well first decide to what extent the proposed change will seriously impinge on people or groups other than those whose procedures are in question. Unquestionably any change in one part of the organization will have some effect on other parts or on the whole system, but the effect might be sufficiently insignificant that no special care need be taken. If the effect is small and if a small number of people is involved, an alternative to the inservice development strategy might be sought. Although it has been argued that most of what teachers do in the schools is accomplished in the relatively unsupervised privacy of the classroom, unaffected by and not affecting others, there is reason to believe that privacy is not so complete that there is no risk attending a change of procedures. Where the risks of an innovation upsetting the system are minimal, however, one might send the individual teacher or a small group outside of the school system to learn new behaviors, to special institutes or even to scheduled classes at the closest college or university.

Generally, the systemic effects of change are great enough

so that they must be anticipated if an innovation is to enjoy any longevity at all. The lot of a teacher who has gone to summer school and has picked up a new idea is not unlike that of an organ destined for transplant in the human body. Except in unusual circumstances and when supported by extraordinary precautions, the host body rejects the transplant. Abandoning the corporal metaphor, this is simply to suggest that organizational systems tend to be suspicious of procedures developed in other contexts and to treat a potential innovator as if he were estranged from the organization until such a time as the innovator re-integrates into the prevailing patterns of behavior. The great advantage of the inservice development program lies in its apparent indigenuity.

In a recent issue of the *Administrator's Notebook*, Dan C. Lortie has described another situation which exemplifies the poignancy of the interrelationships that obtain among the several sub-systems that together compose an organization.

"The new principal of Central High School, Ernest Simpson, was in a quandary. Although the official recommendations of the curriculum council calling for revision of the high school curriculum were popular, he could not win acceptance for the schedule changes they required. Nor could Simpson locate the weakness in the schedule he had developed. The criticisms of his opponents were no help at all, for they were either trivial or irrelevant. Not inclined to coerce agreement to something so evidently unacceptable, and puzzled by the intensity of the opposition, Simpson decided to examine the sources of the resistance.

"It became clear to Simpson that the most persistent and effective opposition came from six senior teachers who were members of an informal group which met daily over the coffee pot in the teachers' lounge. He learned that other teachers did not resent this group (they never referred to it as "a clique") but looked to its members for leadership on faculty affairs.

"Simpson came to realize, after inquiry, that this informal group served purposes for the school above and beyond sheer sociability for its members. The mixed membership of the group (it included representatives from several departments) lead to its becoming a kind of "clearinghouse" for problems which could otherwise erupt into interdepartmental squabbles. The group acted to harmonize

potentially disruptive faculty relationships. Reviewing his schedule, Simpson discovered something he had not noticed before. He had overlooked the effects that his new schedule had on free periods for teachers and had, inadvertently, so arranged "off" periods that coffee group members would be unable to meet at a common time. The superficiality of their stated objections to the new schedule now became clear to him; the senior teachers, since he was new to them did not know how to take his actions. Was he out to break up any groupings within the faculty? Or if he was not, how would he react to hearing their real objections to the new schedule? Would he regard concern with a common coffee break as "hopelessly unprofessional?"[1]

While the story has a happy ending, it still serves to underscore the importance of estimating the system effects of change. In this case the work flow change had an effect on the communication system, an effect serious enough to challenge the change itself.

One could stack example upon example, but perhaps the point is sufficiently clear. It is useful to think of an organization as being composed of a number of interrelated sub-systems each having its own unique function or set of goals, but the whole set of sub-systems being held together by the glue of mutual benefits. Further, in a way analogous to the processes by which bodily systems compensate and adjust to change in a physical sub-system, organizational systems adjust to changed behavior in their sub-systems.

The utility of thinking about a school organization in these terms lies in the power of the theory to sensitize the administrator to the latent complexity of his organization and to suggest at least in general the kind of organizational developments that lend themselves to inservice training. The foregoing analysis leads to the conclusion that inservice programs will be especially useful when the procedure being inaugurated is likely to involve more than one sub-system of the organization and when the organizational context is an im-

[1] Dan C. Lortie, "Change and Exchange: Reducing Resistance to Innovation," *Administrator's Notebook,* Vol. XII, No. 6 February, 1964 (Quoted with permission).

portant consideration in the design of the innovative performance.

Each of the changes in procedure described in the preceding chapters did portend rather obvious systemic implications. Thus, the inservice strategy was clearly appropriate.

Given, then, that changed behavior in one aspect of an organization has systemic effects throughout the organization, effects that often serve as impediments to change, we now turn to a discussion of the nature of organizational learning. The general position to be expanded is that learning is a process of changing a way of looking at something, which change subsequently has an effect on what is done with the object of attention.

A Little Learning Is . . .

Just as individuals develop categories into which they can place the things they come into contact with, so also do organizations develop category systems that direct their attention to certain kinds of problems and away from others.[2] Although organizational category systems tend to be more complex and resistant to change than individuals' systems, it is convenient to discuss the function of category systems in guiding individual behavior for purposes of analogy.

To know something is to recognize that thing as a special instance of a larger class of things. The normal thought processes involve locating classes or categories into which can be put the objects deemed relevant to the individual. Rational behavior would very likely be impossible if each of us had to deal with every object and event in our experience as if it were a unique object or event. Folk wisdom describes the results of the failure to classify objects as "not being able to see the forest for the trees." It is unlikely that most of us could process all the information available to our five senses unless we could group that information into meaningful sets.

[2] This analysis relies heavily upon the excellent discussion of the function of category systems in Gordon W. Allport, *The Nature of Prejudice*. New York: Doubleday and Company, Inc., 1958. pp. 17–27.

The basis a person uses for classifying objects (the term object is intended to include people, things, and events) is whatever about that object seems most relevant to him. The average person probably finds that two categories are sufficient to includes the whole of the avian species: those that can be eaten and sparrows. Later experience with birds might well force him to increase the number of classifications in order to come to grips with a penchant for bird watching. The point of the illustration is simply that the normal way for a human to deal in an orderly way with the million and one things that daily demand his attention is to lump some of them together into categories. It is useful to think of organizations as doing the same kind of thing. For example, in order to cope with hundreds of thousands of pupils that arrive at our doorsteps each September, we group them into categories based traditionally on age. This helps us to bring order out of chaos. Orderly operations depend upon our grouping this part of the school world some way. We might have chosen height, weight, test scores, family background, or any number of other classes to accomplish our purposes, but our experience has led us to believe that there is some utility in classifying children by age. Or to put it another way, we have come to believe that age is a relevant aspect of children and one on which it makes sense to classify them. Let us think, then, of the classification of children by age as a scheme that school organizations have *learned* to help them adapt to a situation. In general, classification is a process of systematically ignoring some of the characteristics of an object in order to focus on those which are relevant to some purpose.

Although it would be impossible to adapt our behavior to the exigencies of life here below without the use of categories, our dependence on them is not without some cost. Part of the price we pay for the efficiency of category systems is a loss of flexibility. Once a category scheme has been used successfully for some time, it gains a privileged status and is quite resistant to change. Often long after the scheme has lost any real utility it retains its favored position. To *learn* a new category system takes heroic effort on the part of individuals and organizations.

To move an object, in our thought, from one category to another demands almost superhuman effort. A consideration of the way our category systems function may give some insight into their resistant characteristics.

Perhaps the most salient function of the category systems of individuals and organizations is the direction they give to behavior. Once an object has been identified as belonging to a certain category, it is not only known, but its potential relationships to other objects or events is established. This function becomes clearer when it is understood that category systems are constructed by the process of abstracting from objects some characteristic or set of characteristics that are felt to be especially important. To a young child the most poignant characteristic of candles and light bulbs is that they are light-producing. Having touched either one or the other, the child is likely to alter (read: to relearn) his primitive basis for categorization of these objects to include pain-producing. Thus he has begun to produce not only names for the objects in his world but names that help him to know how to behave toward these objects.

The longer one successfully uses a set of categories, the less likely he is to try to change them. To put it another way, when we behave towards an object on the basis of the way we have classified it and our behavior is "successful," the use of that classification is reinforced. The longer our experience of success with a system, the more resistant to modification that system is likely to be. In fact, it is likely that a kind of myopia sets in once a category set has crystalized, because category systems not only tell us what the important and relevant characteristics of an object are, they also systematically blind us to other characteristics. The French philosopher Gabriel Marcel has warned of the importance of keeping in mind that our classifications are not the sum total of reality and of the necessity to keep looking beyond our abstractions to the reality beneath them. The linkage between our way of thinking about things and our way of behaving toward them, then, is one aspect of category systems that tends to make their alteration difficult.

When an individual or an organization is in the process of restructuring its relationship to its environment, inefficiency is almost certain to ensue. To fall back upon an earlier example, when the school organization decides to readjust its way of categorizing children, perhaps by using test scores instead of age categories, it is in effect deciding to govern its relationship to this one dimension (children) of its environment through a new category set. The organization has directed its attention to a different characteristic of youngsters. It also has found a new basis for coming to grips with the problem of processing students in a smooth way through the system. We would anticipate that for some time the new category system would be inefficient. Error should be more frequent. Misclassification should occur. Indeed, there is always the possibility that the new system will fail.

To the extent that one part of the organization's total configuration of ways of categorizing objects is linked to another part, resistance to changing one category basis is likely to occur. When our hypothetical school changes its basis for classifying children, it may find that it is forced to change its basis for classifying teachers or instructional materials. Even more complex is the effect of changing the basis for thinking about the knowledge content of a subject. Referring to the Butts chapter, consider the effects of changing the way of thinking about natural science from information categories to process or inquiry categories. The shift clearly requires finding new ways of thinking about instructional materials, and perhaps about children and their relationship to the natural sciences.

An important corollary derives from the impact of organizational learning on productive efficiency. It is that the learning unit must be protected. Referring again to the individual learner as an example and analog, when a baby begins to learn to walk, the efficiency with which it crept is sacrificed for temporary inefficiency of the stumbling progress from one end table to another. While this is happening, the parent takes great pains to close off the stair wells, to keep sharp objects out of reach, all in an effort to protect the child (and also to protect lamps and figurines that have been classified as valued

objects). The need to protect a learning segment of an organization is even more urgent because it is often overlooked. This point will be expanded below. Presently it is sufficient to note that the demand for protection is legitimate considering the likelihood that new ways of acting will be temporarily inefficient.

To summarize to this point, the major aspect of learning as it is manifested in individuals and in organizations, is developing a breadth of categories sufficient to give direction to efforts to adapt to changing circumstances. When we refer to organizational learning, at a minimum we are attempting to define the process by which organizations alter their own definitions (classifications) of people, events, and objects they attend to. The concrete manifestation of organizational learning is often a change in standard operating procedures or in the rules and regulations that govern the behavior of people in the organization vis-a-vis their work.

The Uses of Stress

What seems to trigger organizational learning? Although the conditions that cause an organization to search for new ways of coping with the important elements in their environments are undoubtedly complex, for the purposes of this analysis one is especially important.[3] When it is apparent that actual performance or production is falling short of expectations for performance, then organizations begin to search for alternative procedures or alternative goals. This condition for organizational learning has been called *performance stress*. It is possible to manipulate the stresses that surround performance quality. In work groups with a high production orientation, for instance, members often create performance stresses to induce better production from members who are slow. Whatever the source of this stress, once it becomes apparent that there is a discrepancy between actual performance and

[3] For a good summary of the concept of organizational learning, see Vincent E. Cangelosi and William Dill, "Organizational Learning: Observations Toward a Theory," *Administrative Science Quarterly*, Vol. 10, No. 2, September 1965, pp. 175–203.

desired goals, a readiness exists to search for alternative modes of behavior. The search for alternatives implies and depends upon a search for new modes of classification.

An important corollary to the importance of performance stress on organizational learning is that learning tends to take place in fits and starts. Units of the organization that are experiencing stress seem to learn new procedures or new ways of dealing with information while units not under stress remain stable.

The laboratory approach described by McIntyre has as its great strength the capacity to engender anxiety about the efficiency of present practice. Experience with the laboratory exercise leaves little doubt that it is a powerful strategy for making people uneasy about their usual ways of looking at things. Confronting a group with recently produced evidence of the shortcomings of behavior based on current category schemes seems to function effectively as a shatterer of shibboleths and almost forces a search for more significant dimensions on which to classify important objects, children, tests, or report cards

To this point, stress has been put on organizational learning as primarily taking place vis-a-vis important objects in the environment. Learning might well involve altering the conception of what can be done with those objects. More simply, organizations do, from time to time, alter their aspirations and goals. The whole intent of the process approach to science, for instance, is to change (read: to cause teachers to learn) the instructional goals of the science program. Changing the goals of a program clearly involves restructuring old ways of thinking about children, materials, and strategies. It is, therefore, quite appropriate that the inservice model be used to effect the change. More important, the genius of "Science, a Process Approach" lies in demonstrating to teachers that they and their classes of pupils profit from such a restructuring. In effect, Butts creates a performance stress and then proposes an immediate solution to the stress by providing the major elements of a reordered instructional material package. The teacher is not left with simply a partial restructuring or reclassification of his relevant objects, but is helped to restruc-

ture his instructional strategies, his reasons for using them and his skills in pursuing the new goals. All of the conditions for important organizational learning are present.

The use of the demonstrator models described by Harris also serves to trigger performance stress and thus to encourage the first movements toward organizational learning. That the models are found within the boundaries of the system is an important element in the teaching demonstration model if it is to become something other than an inspirational exhortation. While the costs in energy for planning, viewing, and follow-up activities might appear to be limitations on the utility of this approach, these characteristics will tend to foster a more permanent and continuous program and eventually promote the development of a permanently institutionalized structure for organizational learning. The argument for the desirability of such a structure is presented in the last section of this chapter.

Although they are most often used to reinforce the organization's way of looking at the world, inservice development programs are capable of serving to alter the view. In the normal course of events learning new patterns of behavior entails some measure of unlearning, with the consequent inefficiencies discussed earlier. Events in organizations, however, seldom happen normally. There are many forces in most organizations that block efforts to change procedures or goals and thus get in the way of a successful inservice effort. The next section of the chapter provides an overview of these forces.

Blockages to Learning

The argument of this section is simply that organizations, in order to reduce the amount of uncertainty with which they must cope, develop mechanisms for controlling the behavior of their own members and as much as possible of the behavior of those they were.[4] Both the demand for control and the mechanisms of control function in ways that inhibit organ-

[4] This analysis relies to a great extent on the arguments proposed by James March and Herbert Simon, *Organizations.* New York: Wiley, 1958; and Michael Crozier, *The Bureaucratic Phenomenon.* Chicago, Ill.: The University of Chicago Press, 1964.

izational learning. It will further be argued that only by legitimitizing and institutionalizing the learning process can organizations attain the amount of flexibility they need effectively to anticipate and adjust to uncertainty where it is most likely to be felt, at the operating level. Finally, it will be proposed that, presently, inservice programs constitute the structures and strategies with the most potential to break through the barriers to organizational learning.

Learning by Experience

It will be recalled that our position on learning is that it involves changing the bases on which objects are classified and consequently the way to which they are responded. The process of classification functions to reduce uncertainty about how to behave toward objects. It is also important to remember that learning that takes place in one part of the organization generally has effects on other parts or sub-systems. What is it, then, that makes it difficult for an organization to learn from its own errors?

Public service organizations, of which the school is one, almost by definition are open to the observation of their clients. Especially when the public is in a position to compare and evaluate the performance of one unit of an organization against that of another, those members of the organization who come in contact with clients feel a need for some basis to which they can appeal to defend their behavior. In the vulnerable area of pupil evaluation, for instance, teachers are often subject to the cavils and complaints of students and parents alike. It is quite understandable that when the pressure gets great, the teachers appeal to the principal for a policy or a rule to which they can appeal in defense of their actions. The rules that they obtain may vary in detail, but it is not uncommon to find them going so far as to specify the percentage points that define each letter grade. From the point of view of increasing the defensibility of teachers' grading behavior, rules of this kind are very functional. They do, however, trigger other problems and other effects which are less

happy. For our purposes here it is sufficient to note that the common response of an organization to client pressure is the creation of rules which provide a defense for the individual who comes in contact with clients.

Looking at the problem from the point of view of the teacher or any subordinate member of an organization, the policies and rules that govern his behavior have the effect of supplying him with important bases for classifying parents, students, and other critical objects, even instructional materials. To fall back upon an earlier example, if it is the rule of practice of a school organization to group children in grades on the basis of chronological age, then chronological age becomes a most relevant category to use in making decisions about childrens' movement through the organization. The more rigid the rule, the less likely people in the school are to search for alternative categories . . . and the more pressure the school organization is under, the less likely it is to relax the application of rules. Thus we have a peculiarly vicious circle. When a rule gets in the way of adequate treatment of a special case, the typical organizational response is not to relax the rule, but rather to make it more detailed, more precise, and its application more rigid. This analysis is not offered as a censure, or even to demonstrate the inherent irrationality of organizational responses, but simply to throw light on the problem of organizational learning. Certainly not all organizations respond to pressure in the way outlined, but enough do to make it a viable description.

An important assumption underlies the analysis above and must be made explicit because in it may lie the key to strategies that might help to break the circle of rigidity reinforcing increased rigidity. It is assumed that most school organizations, indeed, most public organizations, are reactive rather than proactive. That is to say that learning generally takes place in response to pressure from outside the organization, not because of some systematic internal evaluation that uncovers new problems and needs. The experience of many schools that adopted the "new" mathematics and found the community of parents bewildered and defensive as a result

tends to support the wisdom of assuming a reactive stance. On the other hand, congenitally reactive organization tends to respond as described above until the rule book becomes at least a trilogy.

To summarize this rather dark description of what appears to be typical and normal organizational behavior, we have argued that organizations that are sensitive to the opinions of their clients must find ways to protect their members from client pressures. Policies and rules serve this end, but result in an increasing rigidity that reduces the likelihood that the organization will learn new ways of behaving. The basic problem the analysis raises is how to shift from a reactive to a proactive position in order to promote flexibility and intelligent problem solving.

Legitimatizing Learning

If the present structure of school organizations seems to inhibit the search for new ways of dealing with educational problems, then it would seem ideally that we must create an element in the organization whose primary role is to develop and test the utility of new category systems and new ways of behaving. This segment of the organization would be roughly analogous to the research and development arms of industrial organizations. The important characteristics of this innovative branch would be, 1) its removal from any line or command responsibility, 2) its protected status, and 3) its role definition as developer and tester of instructional strategies and curricular designs. A unit with these characteristics would be relatively free from the need to defend its behavior from outside pressures, would not have direct operational duties, and would possess that most important right of an innovator: the right to fail.

Practically, an institutionalized learning unit with these characteristics is unlikely to spring full grown into existence in most school organizations. However, the structure that comes closest to fulfilling the innovative or learning function is that which is developed for inservice programs.

Whether or not most inservice programs in schools are presently functioning to promote organizational learning, they do have the potential for both developing new ways of coming to grips with educational problems and disseminating solutions throughout a school system. As a generally accepted part of most school organizations, the inservice structure is in a position to capitalize on its position within the system to make use of knowledge about the present state of sub-systems in developing strategies for inducing learning.

As essentially a "home grown" product, the inservice program is able to coopt and provide protection for units of the system that are in the process of learning. Through the use of carefully planned strategies, such as those described in preceding chapters, the inservice program can reduce the felt need for defensibility in a way that no outside institution can.

Before the inservice program can function effectively as catalyst to organizational learning, it must be institutionalized and legitimatized. That is to say, it must be accepted as a legitimate, continuing part of the school organization. At a minimum this acceptance requires clear administrative sanction, probably manifested in the creation of a full-time coordinator working in conjunction with supervisory specialists on the staff. The lag between what we know and what we do might well be reduced by systematic effort to induce organizational learning from within. To move from a reactive to a proactive position undoubtedly will demand a purposive search for better ways of thinking about the important elements in the world of the school. Inservice programs are capable of providing the thrust toward these new modes of organizational thought.