DOCUMENT RESUME

ABSTRACT
        This volume contains one of the four sets of
materials produced for training science supervisors in educational
technology. It contains a script and a black and white copy of each
photographic slide used in five coordinated audio-tape and slide
presentations. Audio-tapes and slides are not included with this
report. The "curriculum revision" package lists the responsibilities
of supervisors in assessing present curricula, leading and managing
revision committees, public relations including teacher cooperation,
inservice course implementation, organization of supplies, equipment,
teacher scheduling, and evaluating the new course. The "evaluation"
package indicates that the science supervisors' background should
enable him to make judgments of teachers, students, curricula, and
his own role as objectively as possible, always focusing on the
learner. Management functions and priorities are described in
"management," and methods of involving teachers, parents, students,
and the community in science education improvement are discussed in
"public relations." The "research" package identifies sources of
scientific and educational research results and suggests methods of
their utilization. All packages contain a short bibliography and a
copy of pre- and posttests, assessing the achievement of the
objectives stated in each. (AL)

EDUCATIONAL TECHNOLOGY PROJECT

ED 043522

SE 009 865

ROLE OF THE SCIENCE SUPERVISOR
SET I

VOLUME TWO

ED043522

FINAL   REPORT

PROJECT NO.   8-0427

GRANT NO.   OEG-3-8-080427-0052 (010)

VOLUME TWO

ROLE OF THE SCIENCE SUPERVISOR (SET I)

Educational Technology Project
National Science Teachers Association
Washington, D.C. 20036

February   1970

CONTENTS

INTRODUCTION

This introduction is intended only to acquaint you
with the total structure of the entire Set of packages and
provide an application plan for the Set. Specific content
information and objectives for the individual packages are
a part of the Application Handbook and will not be covered
in this introduction.

Set I contains five independent packages of material
concerned with the role of the science supervisor. Each
package is a complete, self-contained unit except for media
hardware (tape recorder and slide projector). Two sections
comprise each unit: *

          First)   Applications Handbook containing

                         Media Specifications

                         Introduction

                         Criterion Assessments

                         Script

                         Bibliography

          Second)   Audio tape (either reel to reel or cassette)

                         and slides.

---

*NOTE: For this report, only the application handbooks are
         included.

The packages within this set have been developed
as learning materials for science supervisors to be able to:

    a)   identify specific areas where his science super-
           visory activities should be modified or enlarged.

    b)   seek information in areas where he is unfamiliar
           (exhibits openness to change).

Each package covers a specific supervisory area and
has a number of objectives for that area.

It must be strongly emphasized that these presentations
are not - do not profess to be - the last word on the role of
the science supervisor. No single person could do everything
presented. Every supervisor operates within a real world
situation. He usually has a specific job function with both
overt and covert restraints. A major unspecified purpose of
the materials is to force supervisors, both experienced and
new, to examine their real world situations. Job functions
are flexible and constraints can often be eliminated or soft-
ened. The functions presented in these packages invite re-
examination of the total supervisory role and of existing
operational priorities.

Each supervisor should use Set I as the material meets
his needs. There is no specified sequence for the packages.

The five major areas covered (in alphabetical order) are:

Curriculum Revision

Evaluation

Management

Public Relations

Research

In using the packages pick the one that interests you
most. Take the application handbook, read the media sheet
and introduction. If you decide to go further you may take
the pre-assessment* which covers the specific content of the
tape/slide presentation. This will provide an individual
indication of the degree to which you already know the contents.
Going through all of the pre-assessments is a fairly time
consuming activity, and it is not necessary if you intend to
go through all of the packages. In that case, use the pre-
assessment following this introduction.

Each presentation if followed by a listing of biblio-
graphic material relevant to the content of the package.
This selected listing will serve to extend and refine the
concepts in the presentation. Some references will be of
value for your future use (e.g., the "Sources of Information
for Media Selection" included at the end of the Curriculum
Revision and Management packages). Other references will be
of immediate value upon completion of a package.

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* NOTE: In this report, the criterion assessment responses
are included.

PROTOTYPE

APPLICATION HANDBOOK

for

CURRICULUM
REVISION

SET I

ERIC
Full Text Provided by ERIC

The following package on Curriculum
Revision was   prepared by

   Writer: Layton Mabrey

   Art Preparation: Layton Mabrey and Lee Marrs

   Photography: Douglas Boyd and Mary McGovern

   Audio: Douglas Boyd

   Editing & Revision: Clarice Leslie &
                         George H. Zinner

   Criterion Assessments: Virginia Trowbridge

   Manuscript Coordinator: Dorothy B. Lutz

TABLE OF CONTENTS

MEDIA SHEET

INTRODUCTION

SCRIPT

BIBLIOGRAPHY OF SUPPORT MATERIAL

CRITERION ASSESSMENTS - PRE/POST

MEDIA SHEET

The following media are necessary for the presentation
of this package:

    1 set of SLIDES on CURRICULUM REVISION.

    1 audio cassette TAPE on CURRICULUM REVISION.

    1 carousel SLIDE PROJECTOR.

    1 audio CASSETTE TAPE RECORDER.

    (Optional)

    1 CASSETTE SLIDE SYNCRONIZER by Norelco or its

    equivalent.

INTRODUCTION

Purpose:

1) To present the need for a science supervisor to
    be involved in curriculum revision.

2) To identify some of the mechanisms of curriculum
    revision and the means by which a science super-
    visor might function.

Objectives:

The science supervisor will be able to

1) identify three reasons for curriculum change,

2) identify three characteristics of a good curriculum,

3) specify areas where he can influence curriculum
    change,

4) develop an outline for action by which he can
    provide input into the curriculum change process.

Curriculum
Revision

SOUND   VISUALS

Music in strong then out

1. Today a vast display of information

    engulfs us.

    INFORMATION....

    On paper....

    As electronic message....
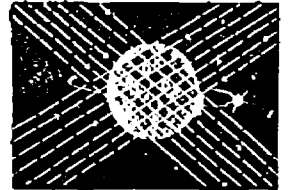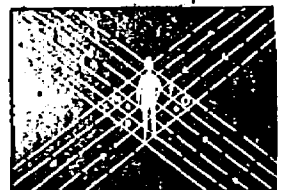
    Riders of the airways.

    Hitchhikers via satellite....

    On a 1/7 of a second scan of the

    globe....

2. Within the past decade mankind has

    been bombarded with more information,

    some worthwhile....some perhaps not,

    but, by far, more than man can

    handle....

3. ....and science education has had

    its share of this information

    deluge....

4. Some dramatic social changes have

    mixed in with this information

    scatter-out, compounding the

    processes of effective and credible

    COMMUNICATION,

/10

5. ....in the middle of this H-O-T-B-E-D

    challenge, stands the science

    supervisor....

6. ....and above all YOUTH is there in

    the students he must reach....and

    YOUTH BY NATURE NO LONGER TOLERATE

    THE OBSOLETE....The message....

    KEEP YOUNG....

7. To escape the threat of obsolescence,

    education in the sciences must be

    based upon the kind of information

    that has SURVIVAL VALUE....
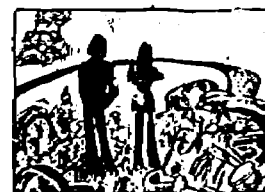
SOUND	VISUALS

8. ....and it must contain validated procedures of inquiry that facilitate the ADAPTATION of KNOWLEDGE to NEW DEMANDS....

9. Your role as science supervisor in developing a curriculum is to make sure that the information selected for inclusion in science courses WILL SURVIVE longer than the year in which it's taught.

/1:

10. You must be aware of new innovative methods that will allow adaptation of such information to meet the demand for survival.

11. Today, the scientific, the social, and the cultural scenes are in a continuous process of change; therefore....the CONTENT of science courses must be frequently.... EVALUATED....

SOUND	VISUALS
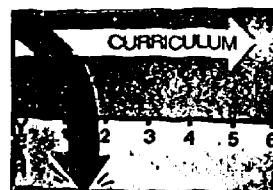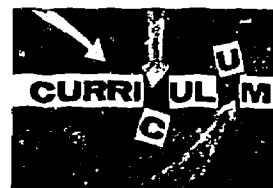
12.   ....and when necessary....REVISED

to reflect major shifts in thinking

and new interpretations of

phenomena.

13.   You, the science supervisor play   /1

the role of CHANGE AGENT. You

either initiate and direct

significant changes or stand to

watch your science program be-

come obsolete....

14.   Contributing to the scene of

ferment are a number of other

science curriculum development

projects, already completed or in

process....

15.   ....these curriculum developments

add another dimension to your

job. Since each project has

developed it's own approach to-

ward meeting its own problems, you
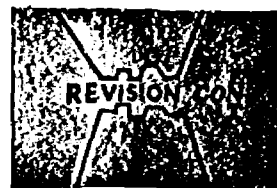
15. Continued.

     the supervisor, must now utilize

     these approaches in terms of

     student needs at the local level.

16. Now, underlying principles of a   /13

     curriculum project influence the

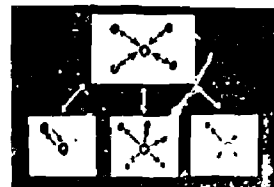   direction and manner in which the

     curriculum develops....therefore

     strategies necessary to implement

     curriculum change within one

     framework may be quite different

     from those required under an

     alternate framework.....
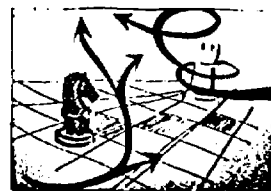
17. GREATER INVOLVEMENT and LEADERSHIP

     must be exercised on your part

     when administrative decision is

     made to shift from one framework

     to another. This requires decision

     making on your part....

5

SOUND	VISUALS

18.   ....A program for curriculum
development does not spring ready-
made from a cookbook for science
supervisors. It must be developed
through careful, thorough planning
by an interested and willing group
of competent individuals....

/1
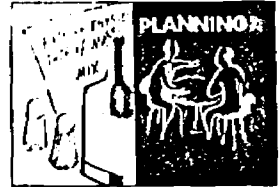
19.   Major decisions, with far reaching
implications, are often made early
in a program of curriculum develop-
ment. Effecting a midstream change
in an existing approach or set of
principles is difficult and can
be disastrous to the whole program..
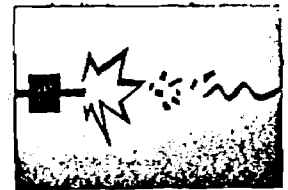
20.   One major decision you as science
supervisor will have to make....
will you merely FOLLOW the TRENDS
and IMPLEMENT suggestions made by
the administration and the faculty....
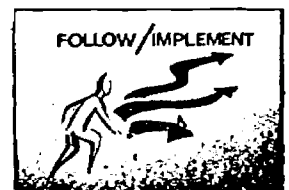
21.   ....OR....

22.   ....will you provide <u>LEADERSHIP</u>
       in new fields and <u>develp new ideas</u>
       that can influence the trends of
       the future?

/15

23.   Someone must innovate....Others will
       adapt to the trends -established by
       the more imaginative....and the
       more courageous....
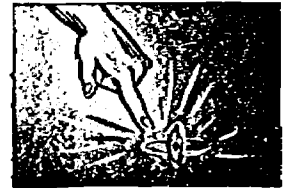
24.   <u>The desired end product for any</u>
       <u>curriculum revision or development</u>
       <u>is improved student learning ex-</u>
       <u>periences</u>....

SOUND	VISUALS

25.   ....And so <u>all aspects of con-</u>
      <u>templated changes</u> must be <u>care-</u>
      <u>fully investigated</u> to establish
      sound, valid reasons for the
      need of such changes....

/16

26.   ....The process of changing the
      curriculum encompasses a wide
      variety of sub-processes.

27.   Forces predictable and unpredict-
      able invade the process, modifying
      the nature of the curriculum.

28.   Some of these forces are:
      ....the mushrooming growth of
      scientific knowledge....

29.   ....certain more stable but
      evolving concepts of science....

8
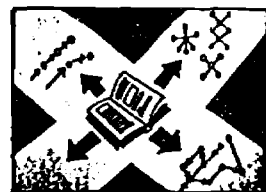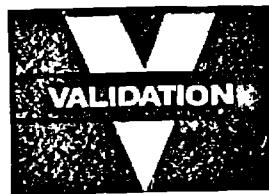
30.   ....those varied processes by
      which scientific advances are
      made....

31.   ....research developments in the
      field of learning theory and   /17
      creativity....

32.   ....and forces related to the
      philosophy of the school system,
      and the community. All of these
      exert a pressure on the develop-
      ment of a science curriculum.

33.   Let us not deceive ourselves....
      the task of developing a valid
      science program is difficult....

34.   ....it takes time....
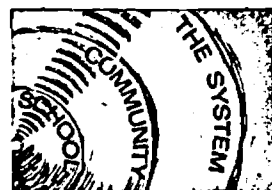
35.   ....and money....
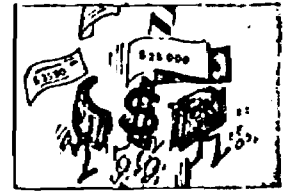
36.   ....dedicated personnel....

/1£

37.   ....and the task is never really
       finished....but it is vital. All
       possible intellectual and financial
       resources must be summoned to do
       the job.
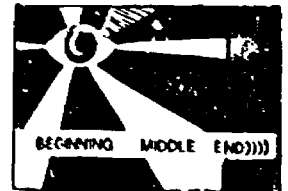
.38.   Long range curriculum development
       requires the leadership and organ-
       izational skills of a highly
       motivated individual, whether he be
       a special curriculum coordinator or
       YOU, the science supervisor....
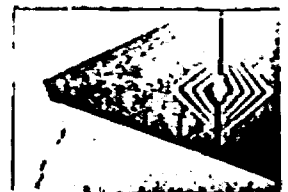
39.   Remember, even though the philosophy
       of the science program has been

39. Continued.

     determined before you begin, you

     can contribute your skills and your

     special talents as an innovator and

     facilitator of change.

                                                    /19

40. ....And the chances are high that

     you may even modify that pre-

     determined philosophy.

41. Again, as a supervisor you will be

     influenced from many sources to

     bring about change. For example,

     a number of students receive low

     grades on their science achievement

     tests. Communication lines grow

     hot....parents call the situation

     to the attention of the principal....

     and the final assessment of the

     problem is left to YOU....

                        11
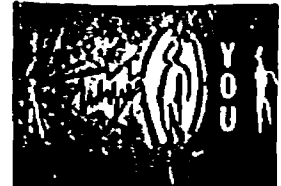
SOUND	VISUALS

42. This chain of communication is only one of many, which serve to INITIATE the FIRST STEP IN THE PROCESS OF CURRICULUM REVISION:

43. The assessment of the current curriculum.
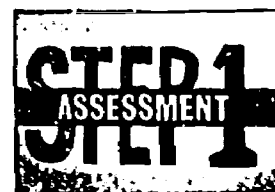
/20

44. Another aspect of communication which will have a positive influence on curriculum change is the establishment of an action oriented committee, a committee small in numbers perhaps, but strong in terms of vigor, action, and dedication to meeting the challenge.

45. Your participation in the selection and operation of this committee can produce one of the strongest forces
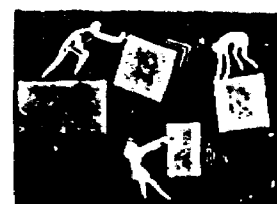
45. Continued.

    in the curriculum change process....

46. This identifies another area of
    responsibility for the science
    supervisor in the curriculum
    revision process: leadership
    and management.
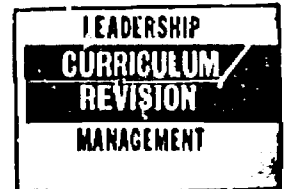
    LEADERSHIP
    CURRICULUM
    REVISION
    MANAGEMENT   /21

47. As a Manager you must identify
    those in the community who will
    be sympathetic to curriculum change
    and be willing to serve on the
    committee.
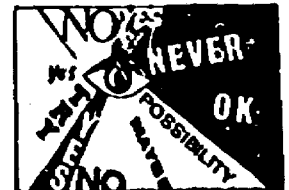
48. As a leader, you must keep up to
    date on trends in science education
    and the latest science-related
    research projects.

49.   ....survey the literature and
      communicate this wealth of in-
      formation to the curriculum
      committee....

50.   ....apply your skills in <u>group</u>   /22
      <u>action strategies</u>, enabling the
      committee to function effectively....

51.   ....provide necessary materials and
      supplies for the committee members
      to use....

52.   ....<u>arrange for special projects or</u>
      <u>demonstrations</u> to support curriculum
      change-over....

53.   ....you keep the teaching staff
      informed of the committee's progress
      and in turn, benefit from an exchange
      of ideas with the teachers.
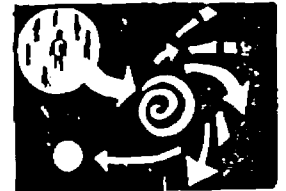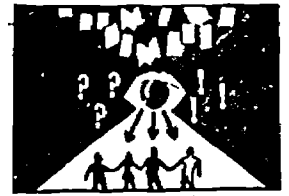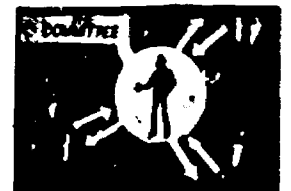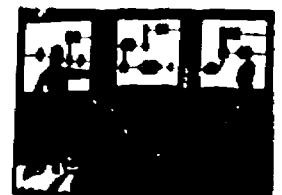
54. ....you communicate essential

     information to the community at

     large....serving as a voice for

     the inarticulate and encouraging

     involvement by minority groups

     who are often reluctant and lack

     opportunity to participate in

     school affairs.   /23
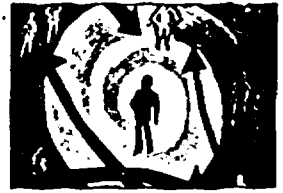
55. The ultimate effectiveness of the

     committee's work depends greatly

     on your leadership qualities as

     well as your ability to delegate

     authority to members of the

     committee.

56. But successful initiation and

     functioning of a curriculum

     committee does not relieve you,

     the science supervisor, of further

     responsibilities in the curriculum

     change process....Implementing the

     change becomes your next challenge.

57. Implementing curriculum change is
     really a selling job. Public
     relations experience will go a
     long way in helping to create a
     positive change-environment....

/24

58. A curriculum plan possessing style
     and character stands a better
     chance of winning the cooperation
     of both the teachers and the
     community at large.

59. Attainment of change goals requires
     that rapport, especially with
     teachers, be carefully nutured.
     Only by maintaining faculty cooper-
     ation can the completion of a well-
     planned and carefully structured
     program be expected.

60. Sometimes, curricular changes can-
     not be implemented because of in-
     sufficient funds.
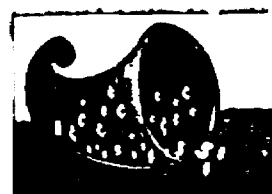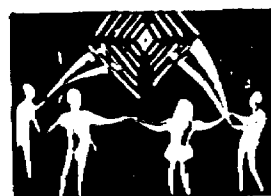
61. As Science Supervisor you need
     to be aware of available sources
     of funds, whether federal,
     foundation monies or industrial
     contributions....and should be
     able to prepare proposals to
     acquire those funds.

/25

62. You must also initiate in-service
     programs for teachers who will be
     responsible for implementing the
     revised curriculum.
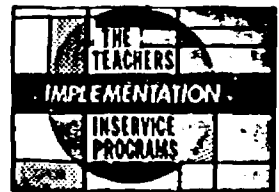
.63. A good in-service program is an
     A-C-T-I-O-N program....
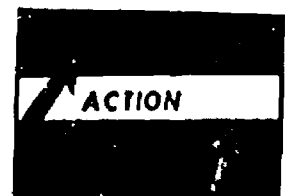
64. ....an action experience in which
     the teachers are directly involved....
     where they will have the opportunity
     to discuss the program's goals and
     to contribute to the project's
     development and implementation.

17

65. The planning of an in-service
     program should run parallel to,
     not follow, the process of
     curriculum revision....

/26

66. A continuing spectre of paper-
     work faces you as you attempt to
     implement a new curriculum....

67. Paperwork tasks may include: more
     meticulous teacher scheduling,....

68. ....addition of more materials,
     supplies, and equipment,....

69. ....complication of budgeting
     procedures,....
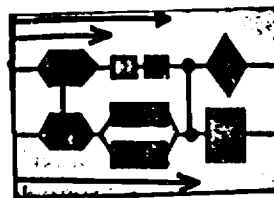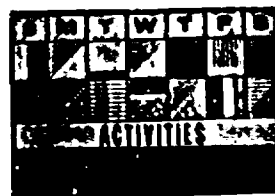
SOUND	VISUALS

70.   ....and additional reportage and
       record-keeping chores....

71.   These management tasks are important
       to the successful implementation
       of curricular changes. By applying
       sound management procedures down the
       line, these tasks can be effectively
       handled.
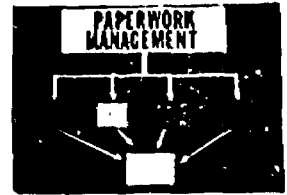
/27

72.   Finally, one of the most difficult
       and vital functions in the process
       of changing a curriculum, is the
       carrying out of a carefully designed
       and valid EVALUATION of the program.

73.   Above all, an effective evaluation
       program must be developed as an
       integral part of the curriculum
       project, in order to reach the
       established goals.
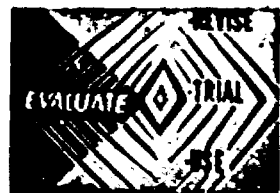
SOUND	VISUALS

74. And so, your role may appear
to be an overwhelming one....
It is, rather, an invitation to
take on additional facets of
science supervisorship which
could extend horizons and
prove to be an exciting and
rewarding experience.

/28
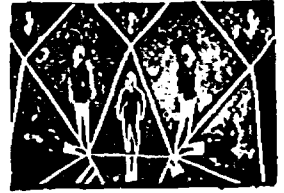
CURRICULUM REVISION PACKAGE

B I B L I O G R A P H Y

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    produced and distributed by the Far West Laboratory for
    Educational Research and Development, 1 Garden Circle,
    Hotel Claremont, Berkeley, California 94705. Includes
    folders, six filmstrips and audio tapes, and other print
    information. Developed as a comparative guide to the
    following elementary science programs:
        Science--A Process Approach
        Inquiry Development Program (IDP)
        Science Curriculum Improvement Study (SCIS)
        Elementary Science Study (ESS)
        Minnesota Mathematics and Science Teaching Project
        (MINNEMAST)

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    Models of Audio-Visual Equipment. Fairfax, Virginia:
    National Audio-Visual Association, Inc. ($7.00)

    An annual directory, produced by the trade association
    of audiovisual hardware manufacturers, includes pictures
    and specifications of the equipment.

/30

Audiovisual Marketplace: A Multimedia Guide, second edition.
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    The most comprehensive directory of hardware and soft-
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Educational Products Report. Published monthly, October-June.
    Educational Products Information Exchange, 386 Park
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    Each issue covers a specific product; e.g., recent issues
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Harris H. Shettel and Pamela C. Reilly, "Evaluation of Existing
    Criteria for Judging the Quality of Science Exhibits,"
    AV Communication Review, 14:4 (Winter 1966), pages 479-
    488.

EDUCATIONAL TECHNOLOGY PROJECT
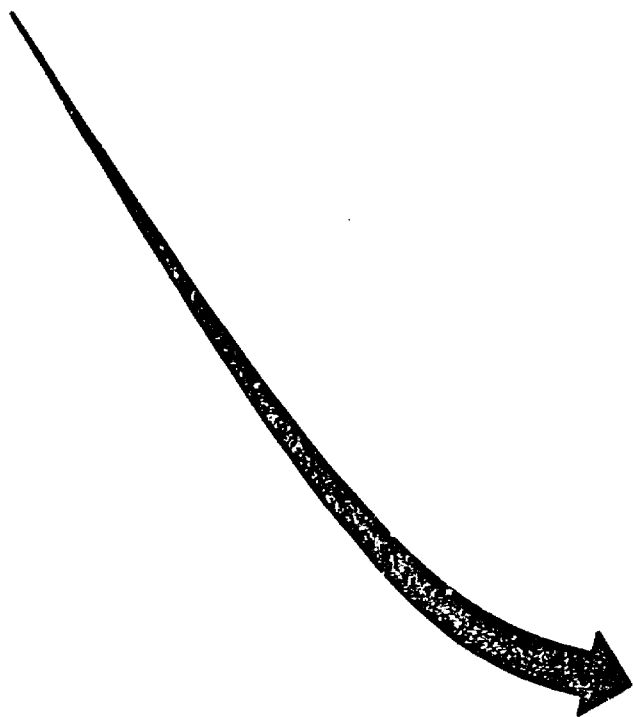
PRE-POST

criterion assessments

SET I   CURRICULUM REVISION

For this report the desired
responses have been included
on the sheet opposite each
question.

CRITERION ASSESSMENT

SET ____I____   PACKAGE____CURRICULUM REVISION____

DATE _____   NAME _____

STIMULUS	RESPONSE
1. Give a rationale of at least two (2) reasons for the need for curriculum revision.	1) Knowledge explosion. 2) Adaptation of knowledge to new demands. 3) Sociological change. 4) Obtain content with survival value. /33 5) Cultural change. (At least two are acceptable)
2. Describe the role of the science supervisor as a CHANGE AGENT.	1) Provide leadership. 2) Develop new ideas. 3) Direct significant changes.
3. Complete the following statement: "The goal of any curriculum revision or development is improvement of _____."	Student learning.

CRITERION ASSESSMENT

SET ____I____   PACKAGE__ CURRICULUM REVISION ____

DATE _____   NAME _____

STIMULUS	RESPONSE
4. List at least four (4) forces that are tending to shape the science curriculum.	1) Mushrooming growth of scientific knowledge. 2) Evolving concepts of science. /34 3) Varied processes by which scientific advances are made. 4) Developments in the field of learning theory. 5) Developments in the field of creativity. 6) Forces related to philosophy of the school system.
5. State the three (3) major conditions necessary for the development of an articulated science program.	Time, money, dedicated personnel. (May be paraphrased)

2

CRITERION ASSESSMENT

STIMULUS	RESPONSE
6. List three (3) or more ways of working within the present philosophy of your science program and still be an in- novator and faciliator of change.	1) Assessment of existing curriculum. 2) Select an action-oriented committee. /35 3) Keep current on trends in science education. 4) Apply group action strategies. 5) Arrange special projects or demonstrations to suppor curriculum change. 6) Keep teaching staff in- formed.
7. Name at least four (4) possible sources of funds that could be gotten for initiating a curriculum change, when the local budget is inadequate.	1) Federal funds. 2) Professional funds(NEA, etc 3) Foundation monies. 4) Industrial contributions. 5) Local individuals.

CRITERION ASSESSMENT

SET ____I____   PACKAGE __CURRICULUM REVISION__

DATE _____   NAME _____

STIMULUS	RESPONSE
8. List the most important characteristics of a good in-service program.	1) Involvement of teachers in discussing the program's goals. 2) Contributing to project's improvement and implementation. /36 3) Parallel the process of curriculum revision. (All answers must imply <u>action</u>)
9. Demonstrate knowledge of paper-work impediments that may arise during the implementation of a new curriculum, by listing at least four (4).	1) Teacher scheduling 2) Addition of more materials. 3) Addition of more equipment 4) Budgetary complications. 5) Addicion of more supplies.

4

CRITERION ASSESSMENT

DATE _____   NAME _____

STIMULUS	RESPONSE

10. From the following factors in
     curriculum, indicate by boxes
     and arrows one possible arrange-
     ment for effective curriculum
     change. Number your arrows
     and give the reason for each
     arrow. (One fictious model is
     given below.) Make your model
     as useable as possible for
     your situation.

Factors: Community
             Faculty
             Parents
             Students
             Supervisor

1. _____
2. _____
3. _____
4. _____
5. _____
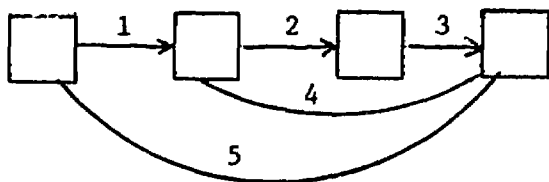
Must indicate a sensitivity
and need for obtaining
information from each.   One
example of this sensitivity
is shown in the model below
                         /37
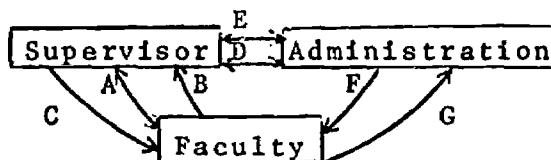
A. Faculty involved in
    committee to discuss new
    revision. Feeds back to
    supervisor pro's and con's
    Implements program of
    supervisor.
B. Supervisor accepts re-
    commendations of faculty.
C. Supervisor suggests work-
    shop in new teaching
    method.

5

CRITERION ASSESSMENT

SET ___I___   MODULE CURRICULUM REVISION

DATE _____ NAME _____

STIMULUS	RESPONSE
10. Continued.	D. Supervisor notifies administration of need and monetary cost. /38
	E. Administration accepts input from Supervisor and arranges monetary and other supports.
	F. Administration recognizes extra work of participating teachers.
	G. Teachers accept budgetary limitation of administration.

6

APPLICATION HANDBOOK

for

EVALUATION

SET I

The following package on Evaluation
was prepared by   .

  Writer: Harold J. Maloney

  Art Preparation: Creston B. Coffield

Louis M. Custodio

  Photography: Douglas Boyd

                · Mary McGovern

  Audio: Douglas Boyd

  Editing & Revision: Clarice Leslie

                     George H. Ziener

  Criterion Assessments: Virginia Trowbridge

  Manuscript Coordinator: Dorothy B. Lutz

/40

TABLE OF CONTENTS

MEDIA SHEET

The following media are necessary for the presentation
of this package:

    1 set of SLIDES on EVALUATION.

    1 audio cassette TAPE on EVALUATION.   /42

    1 carousel SLIDE PROJECTOR.

    1 audio CASSETTE TAPE RECORDER.

    (Optional)

    1 CASSETTE SLIDE SYNCRONIZER by Norelco or its

        equivalent.

INTRODUCTION

Purpose:

1) To identify the need for a science supervisor
   to evaluate his activities and the effectiveness
   of the science education program. /43

2) To present some specific approaches to evaluation
   and areas for application.

Objectives:

The science supervisor will be able to

1) specify his role in evaluation of both teaching
   and learning effectiveness,

2) describe the differences between standard
   (norminative) evaluation and criterion evaluation,

3) outline a specific plan for effective evaluation
   of the present science education curriculum.

SOUND   VISUALS

1. Evaluation is a daily duty of
    every science supervisor. Your
    specific activity will differ
    according to local needs, but
    criteria ar: necessary for
    assessing:

2. preparation and skills of new
    science teachers entering the
    system,

3. aptitudes and performance of
    experienced teachers as a basis
    for establishing class assign-
    ments in grade levels and
    subject areas,

4. appointments to committees and
    projects,
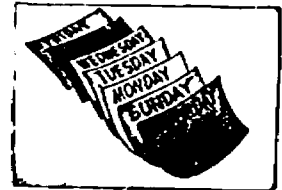
5. salary increments and professional
    benefits such as graduate study,

6. degree of student learning.

                                                                    /45

7. In addition, science supervisors
    must continually evaluate the
    design of the science program
    as a whole.

8. Is the basic philosophy of the
    science program adequate?

9. Does the science program meet
    the pupils' needs?
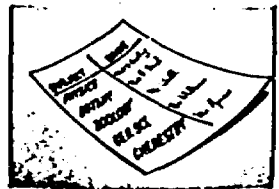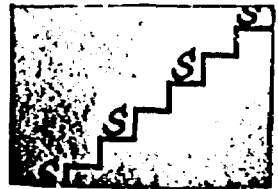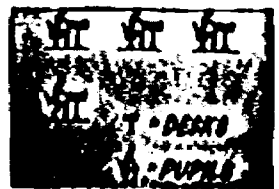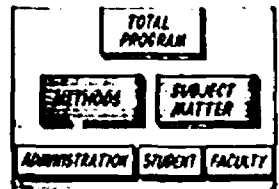
10. Does it meet the needs of the
    community?

11. In addition to applying sound
    evaluative techniques in your
    own system, you must keep
    current on research in new
    techniques. The value of this
    research, as well as its
    applicability, must be estab-
    lished relative to_local needs.

    /4

12. You must continuously evaluate
    your own professional strengths
    and weaknesses, asking such
    questions as:
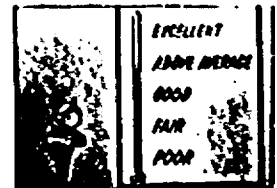
13. What formal courses might be
    helpful to me?

3

14.   What should I read to keep up
      in my field?
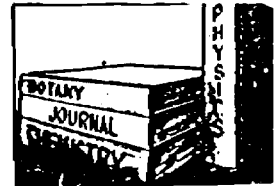
15.   Where am I having the most
      difficulty? The greatest
      success?

/47

16.   The process of evaluation man-
      ifests itself in the science
      supervisor's decisions in every
      function he performs, in every
      sphere of activity.

17.   Evaluations must be made of
      curriculum, research, public
      relations, management, teachers,
      and students.

4
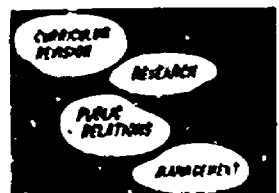
18. All evaluations must be as
     objective as possible. Criteria
     for evaluation must be based on
     measurable standards.

/48

19. In dealing with human beings,
     however, objective criteria must
     not become a rigid standard since
     certain areas are immeasurable.
     Your trained perception plays an
     important role; often you will
     need to make subjective value
     judgments.

20. When a school system's science
     program is viewed in relation to
     the needs and demands of the
     community, subjectivity plays an
     important role, for....

5

21. ....each school system is unique
     in terms of finances, community
     support, and student response.
     Rigid objective criteria do not
     always match the situation exactly.

/4
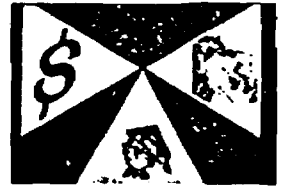
22. Again, on a more personal level,
     subjective involvement often causes
     problems.

23. In many school systems, the science
     supervisor is called upon to
     evaluate the science teachers.
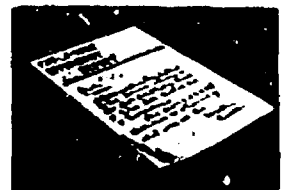
24. Even in cases where you are not
     actually the evaluator, you have
     a responsibility to help set up
     objective evaluation criteria by
     which valid judgments of teacher
     effectiveness can be made.

	SOUND	VISUALS

SOUND   VISUALS

25. Why can't pupils' development be a major basis for teacher evaluation?

26. If the science supervisor evaluates how much each individual has learned, that evaluation is much closer to being an objective assessment of the teacher.

/50

27. Evaluation of pupil learning will also provide an effective measure of the overall educational program.

28. Effective evaluation provides a basis for either changing or maintaining the existing instructional system.
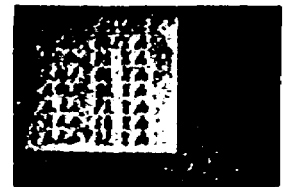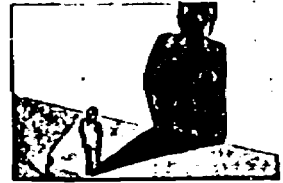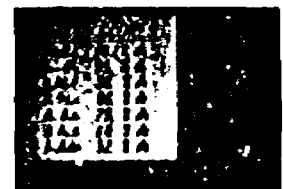
| SOUND | VISUALS |

29. Therefore, the learner should
     be the focal point of all
     evaluation.

30. As has just been pointed out,   /51
     subjectivity often enters into
     value judgments made by science
     supervisors.

31. In contrast, however, most science
     supervisors have academic pre-
     paration in one or more of the
     sciences where stress is placed
     on obtaining measurable data.
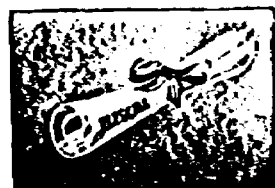
32. Being so placed in a position
     between that of scientist and
     educator, you, the science
     supervisor, must integrate both
     approaches into a meaningful
     evaluation.

8

| SOUND | VISUALS |
| | |
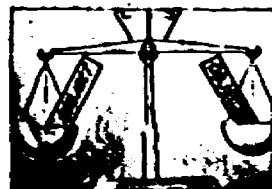
33. Perhaps more than supervisors in
     other academic areas, the science
     supervisor should have an expanded
     concept of evaluation. The field
     of science is rapidly changing,
     and the evaluative techniques
     employed must be flexible enough   /52
     to meet new demands.
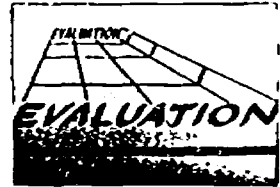
34. As a result of your background in
     research and science, you should
     be more acutely aware of contemporary
     evaluative methods and techniques
     than supervisors in other academic
     areas.

35. This increased awareness can make
     the science supervisor a leader in
     applying modern objective evaluation
     techniques.
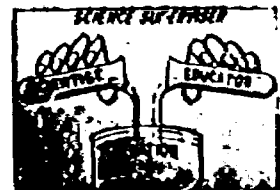
36. Whenever possible, judgment must
    be based on measurable, observable
    performance of both individuals
    and programs.

37. However, you must not overlook   /53
    the attitudes and opinions of
    the students, the parents, and
    the teachers toward the science
    program.

38. The science supervisor must work
    toward better measuring devices,
    especially in the areas of attitudes
    and opinions, in order to obtain
    the information he needs.

39. Just as a scientist works toward
    his goal of a verified hypothesis,
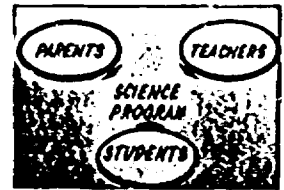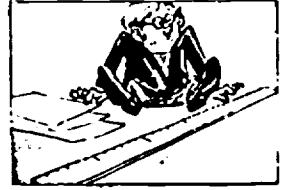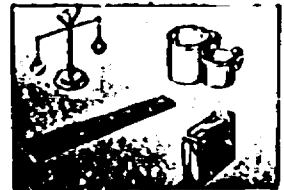
40.   ....the science supervisor works

      toward the goal of verified

      learning.

/54

EVALUATION PACKAGE

B I B L I O G R A P H Y

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    Instructional Materials," Journal of Independent Teacher
    Education, 6:4 (June 1969), pages 57-60.

Le Von Balzer, "Nonverbal and Verbal Behaviors of Biology
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    pages 226-29.

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    Behavior," Educational Leadership, 26:8 (May 1969),
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Process," National Business Education Association Year-
book, number 7, pages 33-40.

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Journal of Engineering Education, 59:7 (March 1969),   /56
pages 852-7.

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EDUCATIONAL TECHNOLOGY PROJECT
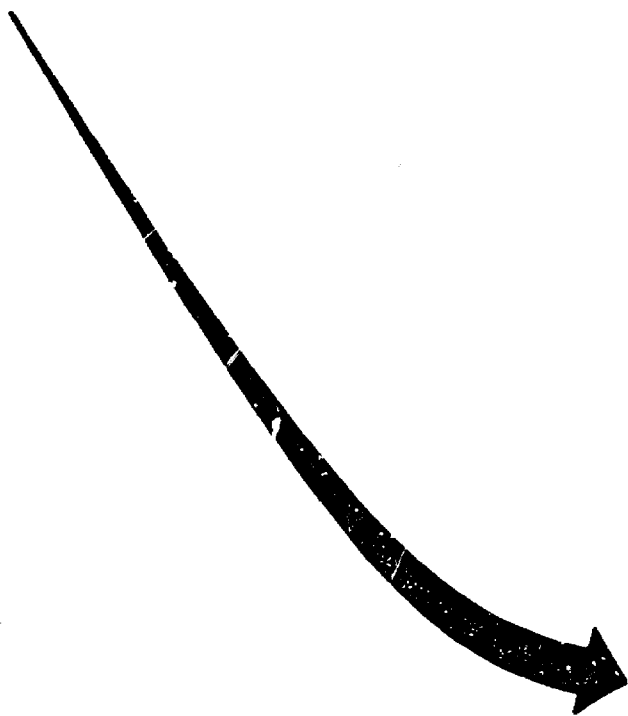
PRE-POST

criterion assessments

SET I   EVALUATION

For this report the desired
responses have been included
on the sheet opposite each
question.

CRITERION ASSESSMENT

SET ___I___   PACKAGE_____EVALUATION_____

DATE _____   NAME _____

STIMULUS	RESPONSE
1. List at least three (3) evaluative duties in regard to the teaching staff.	a) Interview applicants. b) 'ppointment to committees. c) Assignment to classes. d) Set up standards for /60 evaluation of prospective and experienced teachers. (Similar answers acceptable)
2. List at least three (3) aspects of a new science curriculum that must be evaluated.	a) Total program. b) Philosophy. c) Relevancy. d) Pupil need. e) Community need. f) Flexibility.

CRITERION ASSESSMENT

SET _____I._____   PACKAGE_____EVALUATION_____

DATE _____   NAME _____

STIMULUS	RESPONSE
3. State the main purpose of evaluating a science program.	Minimally this must include the concept that "the measureable learning of the individual pupil will be /61 increased".
4. Explain the statement: "The science supervisor is in a position between that of scientist and of educator."	Minimally, this must incorporate the objective measureable approach of the scientist, and the subjective, difficult-to-measure approach of the educator, plus the necessity of integrating both approaches for a meaningful evaluation.

2

CRITERION ASSESSMENT

SET ___I___   PACKAGE ___EVALUATION___

DATE _____   NAME _____

STIMULUS	RESPONSE
5. Complete the following statement: "Just as a scientist works toward the goal of a verified hypothesis, the science supervisor works toward the goal of _____."	Verified learning; Validated learning; Measureable learning. /62 (Any are acceptable)
6. Demonstrate knowledge of the role of objectivity in developing standards by writing at least one objective criterion for evaluating prospective science teachers.	Any measureable criterion acceptable.

APPLICATION HANDBOOK

for

MANAGEMENT

SET I

The following package on Management
was prepared by

    Writer: Camille Marker

    Art Preparation: Creston B. Coffield   /64

                                 Louis M. Custodio

                                 Jack Martinelli

    Photography: Mary McGovern

                     E. Wayne Nobles

                     George H. Ziener

    Audio: Douglas Boyd

    Editing & Revision: Clarice Leslie

                            George H. Ziener

    Criterion Assessments: Virginia Trowbridge

    Manuscript Coordinator: Dorothy B. Lutz

TABLE OF CONTENTS

MEDIA SHEET

INTRODUCTION

SCRIPT

BIBLIOGRAPHY OF SUPPORT MATERIAL

CRITERION ASSESSMENTS - PRE/POST

MEDIA SHEET

The following media are necessary for the presentation
of this package:

    1 set of SLIDES on MANAGEMENT.

    1 audio cassette TAPE on MANAGEMENT.

    1 carousel SLIDE PROJECTOR.

    1 audio CASSETTE TAPE RECORDER.

    (Optional)

    1 CASSETTE SLIDE SYNCRONIZER by Norelco or its

      equivalent.

INTRODUCTION

<u>Purpose:</u>

To expose supervisors to an imposing number of management functions in order to stress the importance of good management techniques (systems) and the establishment of a priority system placing human needs above paperwork.

/67

<u>Objective.</u>

The supervisor will be able to

1) identify at least ten specific management functions and place them in a priority order ranking people over paper,

2) specify at least three reasons for establishing good management techniques (systems),

3) present justifications for either changing his present order of priorities or keeping it.

Management

1. There are five categories of
    functions of science supervisors:
    Management, Evaluation, Research,
    Curriculum Revision, and Public
    Relations. Of these, that of
    Management is the broadest and
    most comprehensive.
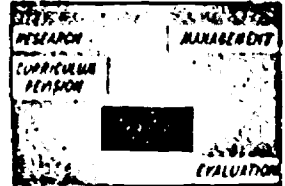
/68

2. It is only through the under-
    standing and utilization of
    management that all the other
    categories - and their functions -
    can be given their proper weights
    and balances.
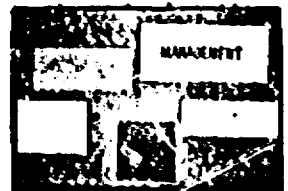
3. The many functions of management
    can be placed into five groups:
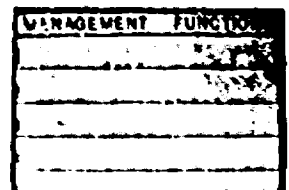
4. Research, design, implementation,
    and evaluation of <u>optimum learning</u>
    <u>systems</u>....
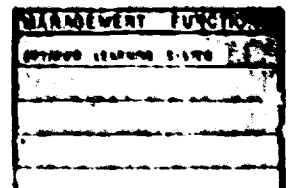
SOUND	VISUALS
5. Provision of services to science teachers....	
6. Preparation and allocation of the budget....	
7. Evaluation and distribution of professional materials, supplies, and equipment....and....	
8. Preparation of reports and record keeping.	
9. Within these five groups are more than 40 management functions. A complete list of these functions is available in your handbook....	
10. Overwhelmed?	

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2

SOUND	VISUALS
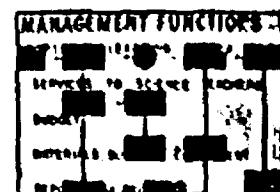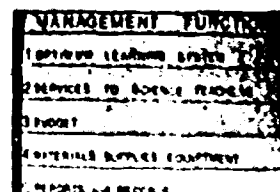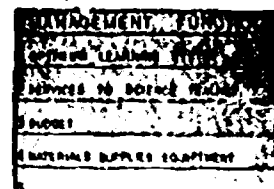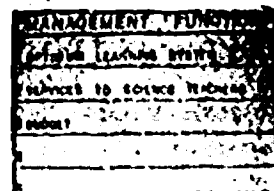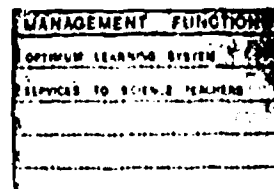
11. It will be easy for you to become
    overwhelmed by the magnitude of
    the functions in management, _if_
    you allow it to happen.

12. But not all supervisors perform
    all of these functions. Nor are
    we suggesting that that they
    should; it will depend on your
    particular school situation.

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13. Records and reports _alone_ could
    monopolize your time, _if_ you
    allow it.

14. Many supervisors are questioning
    the time alloted for their
    various responsibilities.

15. Should you be primarily engaged
    in keeping books, making reports,
    keeping records,

3
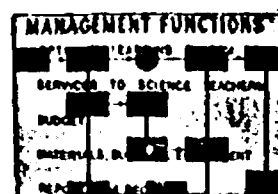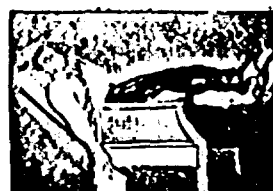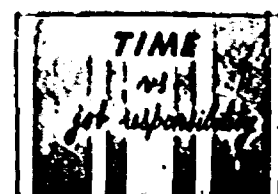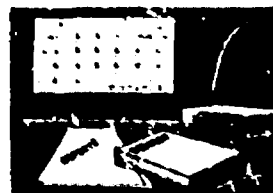
SOUND	VISUALS

16. or should you be initiating acti-
     vities involving students,
     faculty, administration, parents,
     and community?
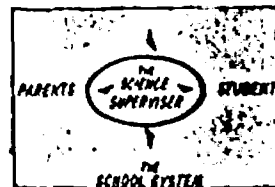
17. Paper work cannot be eliminated,
     but emphasis on it can be mini-
     mized, if you desire to do so.
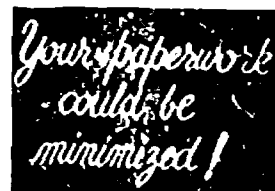
/71

18. Let us consider two science
     supervisors at work on their
     budget.

19. One determines his budget by
     evaluating the effectiveness of
     all the programs in the science

4
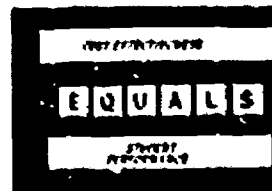
19. Continued.

     curriculum in terms of student

     performance.

20. The other uses a conventional

     budgeting method.   /72
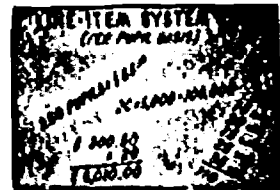
21. But you say, "my school district

     has a line-item budgeting system,

     and I'm allocated funds for the

     science program on a per pupil

     basis ---- I really have no

     choice".

22. Do you really have no choice?....

     Often it is assumed that the

     leadership role of the supervisor

     be directed only toward the

     teaching staff of the school

     system.
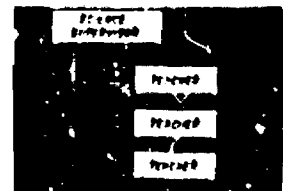
SOUND	VISUALS

SOUND

23. Most supervisors do not realize
    the challenge and necessity of
    educating, influencing, and
    persuading their superiors ----
    principals, superintendents,
    and other administrators.

/73
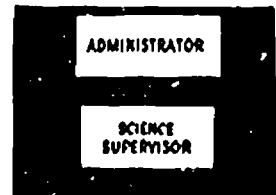
24. And .... receiving education
    and direction from the teaching
    staff of their schools.
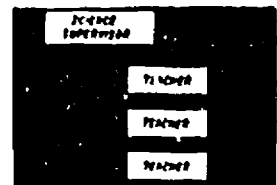
25. The role of the teachers, in
    relation to your responsibilities
    as a supervisor, is a vital one.
    Their involvement in decision
    making is a critical necessity to
    your successful functioning as a
    supervisor, and to the successful
    operation of the total science
    program.

6

SOUND	VISUALS

26. As a supervisor, you must act
as a motivating force for the
teaching staff,

27. and a liaison between them and
the administration....keeping
open the lines of communication
in all directions.

/74

28. As a supervisor you are doing
your school system an important
service by educating the
administration in effective
resources allocation.

29. In planning the budget for your
school system, you can exercise
greater responsibilities in the
allocations of funds. This can
be done by more closely scruti-
nizing the effectiveness of the
science curriculum and evaluating
it on the basis of student learning.
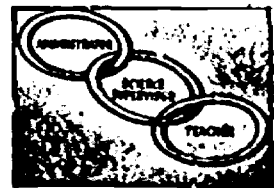
	SOUND	VISUALS

SOUND   VISUALS

30. Hopefully, this would enable you
    to eliminate costly programs whose
    effectiveness and results are
    dubious.

WE SHOULD
ELIMINATE
INEFFECIVE
SCIENCE
PROGRAMS
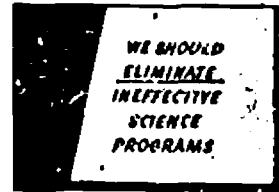
.31. As a supervisor, you may be re-
    quired to write proposals for
    government funded projects related
    to your science program.

OFFICE OF EDUCATION
BUREAU OF RESEARCH
FUNDING PROPOSAL
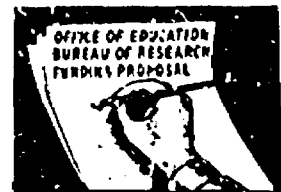
/7.

32. The red tape involved can be
    exasperating.

33. But obtaining outside funds for
    equipment and facilities, as well
    as for innovations and curriculum
    developments, is usually an
    important part of an expanding
    science program;

EQUIPMENT   FACILITIES

8

34. A science supervisor must know
     the sources of those funds, such
     as the numerous Federal Education
     Acts,....

35. ....the foundations and private   /76
     industries....

36. You must have the expertise to
     write the necessary proposals for
     these funds.

37. The announcements, notices, and
     bulletins you may have to prepare,
     in addition to the directions for
     use of supplies, and manuals for
     safety,

38. all the bibliographies of materials
     and latest research which need to
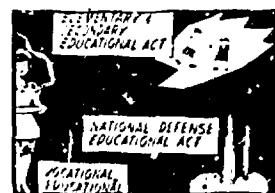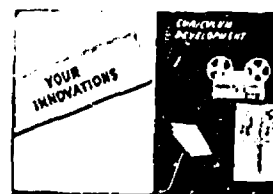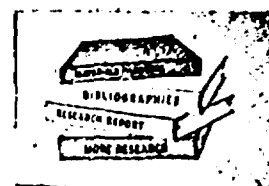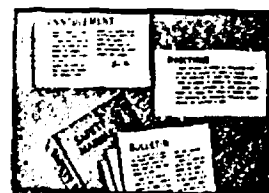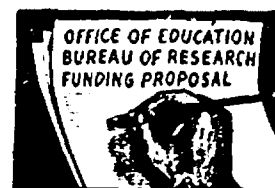
38. Continued.

be made up, can involve more work

than one person can really handle.

39. Also, you may be expected to

coordinate the total educational   /77

program in science in your school

district.

40. When a new science facility is

built you will be expected to

decide what equipment will be

necessary and to determine if the

physical design is adequate to

house present and future software.

41. Through the application of manage-

ment, you the science supervisor,

can change and direct your role.

There is opportunity for you to

choose those functions which you

consider the most important for

your particular situation.
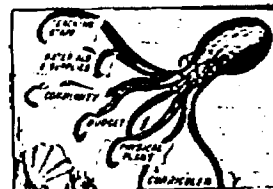
SOUND	VISUALS
42. And establishing priorities among your functions is as important as actually carrying out those functions.	
43. In any management situation, whether it is in a business, an institution, or a school system, the importance of affective communications cannot be over emphasized.	/78
44. The average adult human being spends over half his waking time on the job - working with others.	
45. Thus , it is necessary for a good supervisor to develop and acquire those skills which will enable him to communicate and function as a leader, and	

11

SOUND	VISUALS

46. be a catalyst of activities
    involving his fellow teachers,
    students, administrators, parents,
    and the community.

47. One of the most important respon-
    sibilities of a supervisor is the
    setting up of in-service workshops.   /79
    It's not easy; it can be much more
    difficult than working on your
    budget.

48. Such workshops demand utilization
    of your group dynamics skills. It
    is you who must create an environ-
    ment in which teachers are free
    to discuss their opinions and ideas.

49. Scheduling periodic conferences
    with principals, superintendents,
    and school board members may also
    be part of your responsibility.
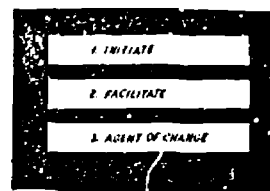
50. Because these people are not
directly involved in science
education, you'll have to
explain the philosophy of the
science program to them,

51. the plans and curriculum which   /80
will be necessary to implement
the program, and be able to
interpret and defend requests
for budget allocations.

52. Some of you may be expected to
interview and evaluate prospective
science teachers for the district.
All of you need to be aware of the
teaching methods and techniques
utilized by the teaching staff.

53. As such, it is necessary for you
to establish a system of evaluative
criteria which will enable the

53. Continued.

proper evaluation of science

teachers to be made with

objectivity and professional

responsibility. Once set up,   /81

this system permits you to

request a recap of evaluation

data on all science teachers,

when needed, for your own

utilization.

54. The management functions of the

science supervisor are compre-

hensive and _can_ _be_ overwhelming.

55. Your performance as a manager

depends on your understanding and

utilization of all these functions.
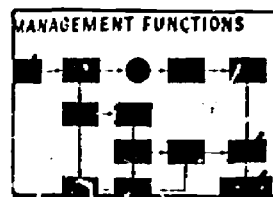
56. Your _involvement_ will depend on

how well you delegate responsi-

bilities to the science teachers,

students, and clerical staff of

your school district.
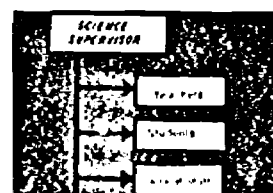
57. A working advisory board of your
     best teachers and students, your
     secretary (if you have one), and
     any interested lay people will
     determine the success or failure
     of your role as manager.
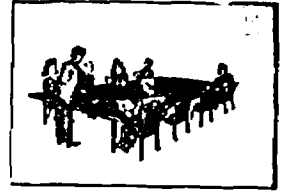
/82

58. With adequate direction and feed-
     back coming from the science super-
     visor, such a group can assist in
     the performance of management
     functions.

59. They can....establish a system of
     teacher evaluation criteria....

60. ....locate consultants and
     speakers for in-service training
     programs....

SOUND	VISUALS

61. ....determine equipment and
     supply needs from a teacher/
     student viewpoint....
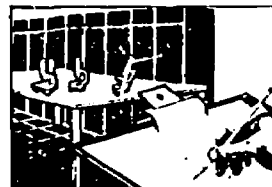
62. ....execute and maintain a
     science teacher project to set
     up a bibliography of current
     materials and research....
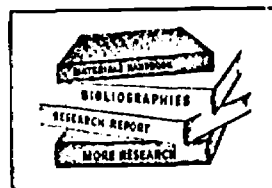
/83.

63. ....investigate sources of funds
     for science education development
     and innovative projects....
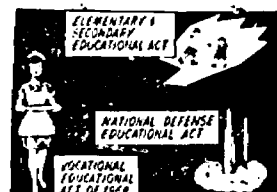
64. ....participate in the process of
     proposal writing....
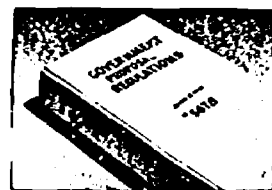
65. But remember....the effectiveness
     of the board depends on what you
     choose to make of their role. To
     delegate responsibility is to
     assume things won't always end up
     the way you envisioned the final

65. Continued.

product. Leadership is the ability

to listen and learn as well as to

give direction.

66. The science supervisor's role of

manager is difficult, demanding,

dynamic--It requires that the

person in that role engage in a

continual process of professional

growth--You will suffer from

frustration, pressures, and errors

in judgement as you involve others

in the management process.

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GROWTH

67. However, as you suffer, you will

outgrow that feeling of being over-

whelmed. Priorities among your

functions will be established, as

you begin to function as a <u>leader</u>

and a <u>catalyst</u> of activities in-

volving teachers, students, admin-

istrators, parents, and the

community.
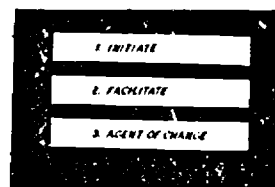
MANAGEMENT PACKAGE

B I B L I O G R A P H Y

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    Learn from Industry?" (Paper presented at the North
    Central Association Annual Meeting, March 26, 1969.),
    North Central Association Quarterly, 43:4 (Spring 1969),
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    11:3 (March 1967), pages 96-102+.

EDUCATIONAL
TECHNOLOGY
PROJECT

PRE-

criterion assessments

SET I   MANAGEMENT

For this report the desired
responses have been included
on the sheet opposite each
question.

SET _____ I _____   PACKAGE _____ MANAGEMENT _____

DATE _____   NAME _____

STIMULUS	RESPONSE
1. You have a set of cards which list various management functions. Put them in the order of your priority.	Any order is acceptable. The requirement being super- visor identification and justification of his own priorities. /87

    a)   In the response column in-
         dicate the top five functions
         by letter and briefly justify
         why you ranked each of them
         as you did.

    b)   Taking either the rejected
         cards or the lowest four
         cards list the functions by
         letter and very briefly
         justify your ranking.

LIST OF MANAGEMENT FUNCTIONS

A   ASSIST IN SECURING AND USING
    INSTRUCTIONAL MATERIALS

B   ATTEND AND PARTICIPATE IN
    ADMINISTRATIVE STAFF MEETINGS

C   ATTEND CONFERENCES AND PARTIC-
    .IPATE IN COMMITTEE WORK WITH
    GENERAL AND SPECIAL SUPER-
    VISORS

D   COMMUNICATE THROUGH TALKS,
    BULLETINS, AND ABSTRACTS
    SIGNIFICANT NEW RESEARCH
    DEVELOPMENTS TO THE .LACHING
    STAFF

E   CONDUCT CONFERENCES WITH
    INDIVIDUAL TEACHERS CON-
    CERNING PROBLEMS IN TEACHING

F   CONDUCT SEMINARS FOR DIS-
    CUSSING PROBLEMS AND THEIR
    SOLUTIONS

G   CONFER WITH PRINCIPALS AND
    SUPERINTENDENTS IN DEVELOP-
    MENT OF PHILOSOPHY AND PLANS

H   CONFER WITH SALESMEN CON-
    CERNING AUDIO-VISUAL
    MATERIALS AND OTHER INSTRUC-
    TIONAL AIDS

I   PLAN AND DIRECT LOCAL WORK-
    SHOPS FOR TEACHERS

J   PREPARE ANNOUNCEMENTS,
    NOTICES, BULLETINS AND NEWS-
    LETTERS FOR SCIENCE PERSONNEL

X   PREPARE ANNUAL REPORTS ON
    PROGRESS, ACTIVITIES AND PLANS

L   PREPARE BIBLIOGRAPHIES CON-
    CERNING LATEST SCIENTIFIC AND
    EDUCATIONAL RESEARCH

M   PREPARE BIBLIOGRAPHIES OF
    AVAILABLE MATERIALS
                                    /88

N   PREPARE HANDBOOKS AND SYLLABI
    FOR SCIENCE SUBJECTS

O   PREPARE SPECIAL REPORTS ON
    PARTICULAR PROBLEMS AND
    POLICIES AS THESE AFFECT THE
    SCIENCE INSTRUCTIONAL PROGRAM

P   RECOMMEND SCIENCE TEACHERS FOR
    SALARY INCREMENTS, TRANSFERS,
    APPOINTMENTS, AND ASSIGNMENTS

Q   COORDINATE THE TOTAL EDUCATION
    PROGRAM IN SCIENCE

R   DISTRIBUTE PROFESSIONAL BOOKS
    ON LOAN BASIS

S   EVALUATE AND SELECT BOOKS FOR
    PROFESSIONAL LIBRARY

T   HELP TEACHERS SET UP SCIENCE
    FAIRS, EXHIBITS, AND OTHER
    SIMILAR ACTIVITIES

U   INTERVIEW PROSPECTIVE SCIENCE
    TEACHERS

2

V KEEP PERMANENT RECORDS RE-
   LATING TO SCIENCE PERSONNEL

W ORDER EQUIPMENT

X PLAN AND ADMINISTER BUDGET
   FOR MATERIALS

Y SECURE PROFESSIONAL RECOG-
   NITION FOR OUTSTANDING
   TEACHERS

Z WORK WITH COLLEGES IN THE
   IN-SERVICE TRAINING OF
   TEACHERS

EDUCATIONAL TECHNOLOGY PROJECT

POST

criterion assessments

SET I   MANAGEMENT

For this report the desired
responses have been included
on the sheet opposite each
question.

POST - CRITERION ASSESSMENT

SET _____I_____   PACKAGE_____MANAGEMENT_____

DATE _____   NAME _____

STIMULUS	RESPONSE
1. You have a set of cards which list various management functions. Put them in the order of your priority. a) In the response column indicate the top five functions by letter and briefly justify why you ranked each of them as you did. b) Taking either the rejected cards or the lowest four cards list the functions by letter and very briefly justify your ranking.	Any order is acceptable. The difference in ordering of the cards should indicate increased job awareness toward learner and teacher /91 needs and decreased emphasis on paper work.

APPLICATION HANDBOOK

for

PUBLIC RELATIONS

SET I

The following package on Public Relations

was prepared by

   Writer: Harold J. Maloney   /93

   Art Preparation: Michael Biss

                       Mary McGovern

   Photography: Douglas Boyd

   Audio: Douglas Boyd

   Editing & Revision: Clarice Leslie

                       Mary McGovern

                       George H. Ziener

   Criterion Assessments: Virginia Trowbridge

   Manuscript Coordinator: Dorothy B. Lutz

TABLE OF CONTENTS

MEDIA SHEET

INTRODUCTION

SCRIPT

BIBLIOGRAPHY OF SUPPORT MATERIAL

CRITERION ASSESSMENTS - PRE/POST

MEDIA SHEET

The following media are necessary for the presentation
of this package:

    1 set of SLIDES on PUBLIC RELATIONS.

    1 audio cassette TAPE on PUBLIC RELATIONS.

    1 carousel SLIDE PROJECTOR.

    1 audio CASSETTE TAPE RECORDER.

    (Optional)

    1 CASSETTE SLIDE SYNCRONIZER by Norelco or its

      equivalent.

INTRODUCTION

<u>Purpose:</u>

1) To present to the science supervisor a breakdown
   of the various publics he must work with.

2) To discuss each of these publics in detail   /96
   identifying not only his responsibilities to them,
   but also, showing their needs and importance to
   him.

<u>Objectives:</u>

The science supervisor will be able to

1) identify the major 'publics' he must work with,

2) present reasons for the involvement of each of the
   publics,

3) suggest at least one way of involving each of them
   in improving science education,

4) identify at least one positive result of involvement
   on the part of each public.

SOUND	VISUALS

1. Your success as a science
    supervisor depends on the
    support you re eive from four
    different but related groups.

/97

2. Teachers,

3. Students,

4. Parents,

5. and the Community.
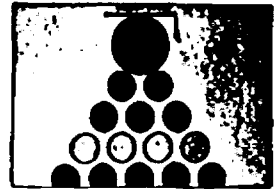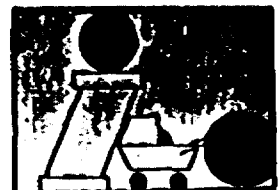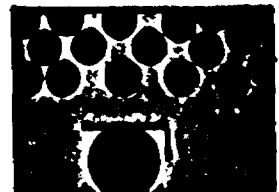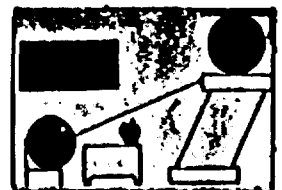
6. Support from these groups was once
    given automatically to educators.
    Education was solely the concern of
    those trained and with experience
    in the educational system.

/98

7. Today, however, passive acceptance
    of the standard educational system
    is over. Within the school and in
    the community, voices are being
    raised demanding a role in the
    formulation of educational policy.

8. Since World War II there have been
    staggering technological changes.
    Scientific accomplishments have
    assaulted, stunned, and captured
    public attention bringing them sharply
    to focus on the field of science.
    This increassd public awareness has
    resulted in a corresponding in-
    crease of expectations with regard
    to improved school science programs.
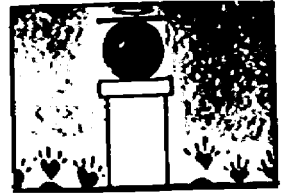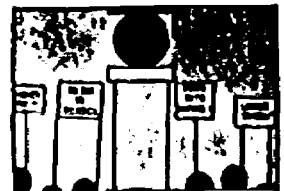
9. As the p rson directly respon-
    sible for the content of the
    science curriculum, it is the
    supervisor who must justify
    the science programs, first to
    the school administration, and   /99
    then to a public consisting of
    students, teachers, parents, and
    the community at large.
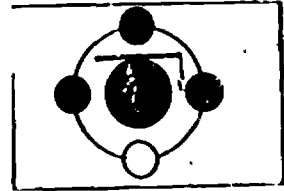
10. The science supervisor is being
    challenged to provide leadership
    by channeling today's increased
    public awareness in education
    into support of creative new
    programs. He must develop sensi-
    tivity to the needs of the public,
    adapt the programs accordingly,
    and then have the ability to put
    these program ideas into action.
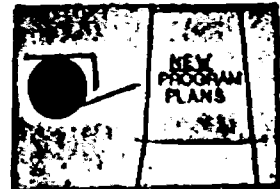
SOUND	VISUALS

11. Today, the role of the science supervisor has expanded to include the art of public relations.

PUBLIC RELATIONS

12. In the classroom, the teachers lounge, administrative offices, in the homes and businesses of the community, the supervisor should create an atmosphere where there is an exchange of information, ideas, and problems. Only through such dialogue does public relations become communication.
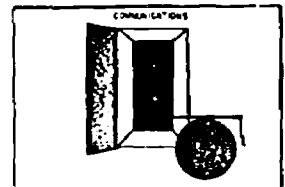
/100

13. A science supervisor must initiate this communication if there is to be support for the science program and for necessary changes.... first he must inform the public....

4
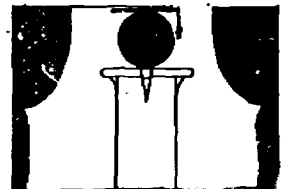
SOUND	VISUALS

14. What the present science program is.

    Why changes are necessary.

    How these changes can be accomplished.

    When the changes can be adopted.
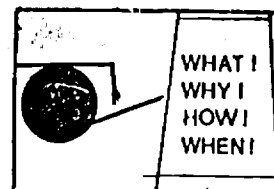
15. These questions must be answered by

    the science supervisor if the public

    is to be informed -- but, to inform

    is not to communicate. The supervisor

    then seeks comments, encourages

    questions, and directs discussion.

    An informed public will respond with

    reasonable thoughts and ideas on the

    science program.
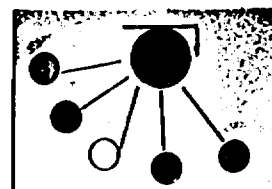
16. Begin with the teachers. A successful

    science program is impossible without

    their support. Some teachers are

    threatened by change. Other teachers

    will welcome change, but their enthusiasm

    needs direction. Still others resent

    anything that might create disruptions

    in their established routine.

5

SOUND	VISUALS.
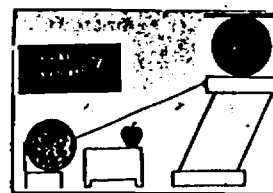
17. Using the tools of communication the supervisor can deal with these varying teacher attitudes. If he can objectively lead group discussions, conduct inter-group consultations, and listen to feedback he should be able to evaluate and act upon what the teachers are saying.

COMMUNICATION SKILLS
1 GROUP DYNAMICS
2 HUMAN RELATIONS
3 PSYCHOLOGY OF BEHAVIOR
5 SENSITIVITY TRAINING
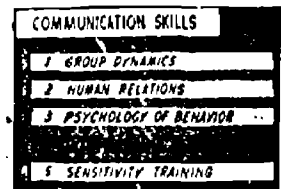
/102

18. The supervisor will gain from teachers insight into student capabilities and limitations. This knowledge is vitally necessary in designing programs to increase individual learning.
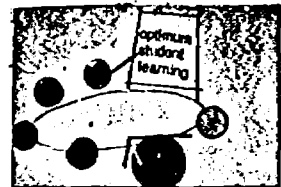
19. Also, increased communication will help the supervisor identify teachers who might participate in any new program and to determine the type of training these teachers will need to introduce new curriculums and teaching methods into the classroom.
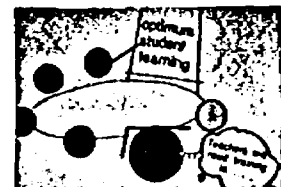
20.   Students are eager for change.
      Provide them with an opportunity
      to participate in the decision
      making process. Listen and
      learn from their opinions on
      course changes, teacher ratings,
      and program activities. Encourage
      them to talk with teachers and
      clarify their ideas on the science
      program by answering the following
      questions.:
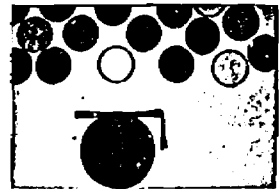
/103

21.   Where can changes be made in the
      present science program?
      Why are these changes necessary?
      How can these changes be accomplished?

22.   The supervisor in turn must respond
      to the students ideas and work to
      help them identify their respon-
      sibilities as participants in a new
      program.
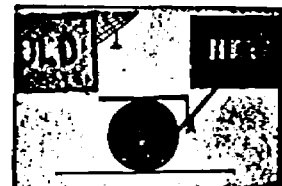
23. Student support will make the job
of public relations outside the
school much easier. Students can
explain the changes to their
parents, and create exhibits and
projects to aid in obtaining
support from the business and
civic community. Student involve-
ment and enthusiasm is a major
factor in selling a program.
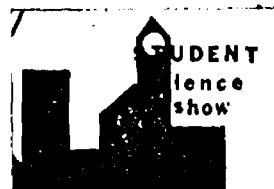
/104

24. Parents form another group the
science supervisor must be con-
cerned with. Parents are often
misinformed about what is going on
in school. It is essential that
their misinformation become
information.
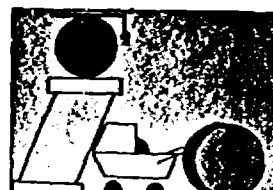
25. At a PTA meeting discuss with
parents the change in approach to
science teaching. Demonstrate how
recent scientific discoveries
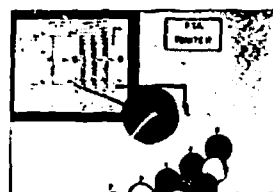
| SOUND | VISUALS |

25. Continued.

demand teaching a scientific process
rather than merely memorization of
predetermined facts. A question
and answer period will result in
parents understanding - for example -
why their children are using new

/105

science books this year. Parents
are proud when they feel their school
is keeping up with the times. En-
courage their pride.

26. Another group with whom the
supervisor must communicate is the
community-at-large. The composition
of and the conflicts within that
community will largely determine
what approach he must take.
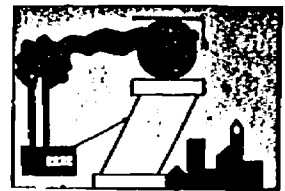
27. For example, a fairly straightforward
approach can be employed in a relatively
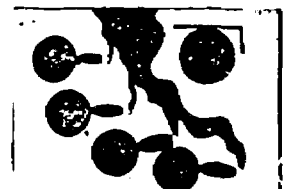
	SOUND	VISUALS

27. Continued.

    homogeneous community which enjoys

    a large degree of social and

    economic integrity.

28. Usually in these communities, schools

    have always provided educational

    programs of excellent quality, and

    as a result there is a degree of

    confidence in the school leadership.

    Thus, the supervisor can provide in-

    formation about proposed programs,

    demonstrate the relevancy of new

    curriculum content, and feel confident

    that his audience will be attuned to

    the necessary changes.
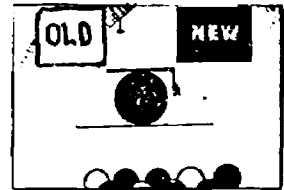
29. On the other hand, in communities

    with large concentrations of minority

    groups, the quality of education has

    generally been poor. In these areas,

    people are demanding a better

    education for their children.

SOUND	VISUALS

SOUND   VISUALS
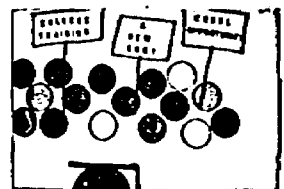
30. The science supervisor must learn
    how to listen and understand what
    the community's voice is saying.
    Real effort must be exerted in
    establishing a dialogue between
    the school and minority families.

/107

31. The supervisor can establish a group
    representing the community. Then,
    provide the members with information
    on the present and proposed science
    program and ask the group to evaluate
    and formulate plans for new programs.

32. He must objectively listen to feed-
    back from the community on educational
    goals and proposals. Evaluate what
    is being said....channel these ideas
    into proposals from the group....
    incorporate these proposals into
    program development plans.

11
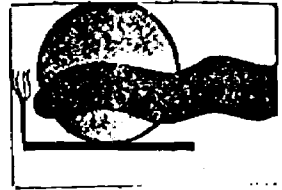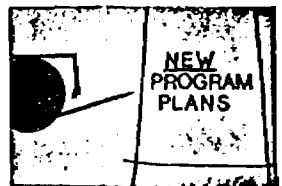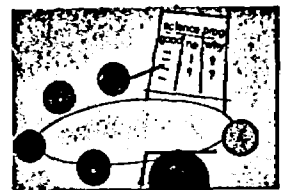
33.   After such dialogue the supervisor
      must determine whether the program
      meets the needs of the students
      within the community. It is under-
      standable to want all young people
      to reach for the moon. But con-   /108
      fronted with the economic and
      social realities of the community,
      it might be far wiser to develop
      students' ability to deal effectively
      with the task of living on the earth.
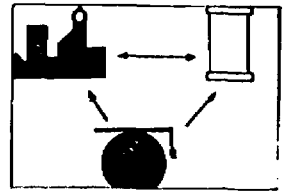
34.   When all interests have been com-
      promised and a plan formulated, the
      supervisor should turn over to the
      group some responsibility for in-
      forming civic and business groups
      in the community about the curric-
      ulum changes.

                          12
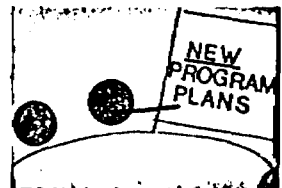
35. Use the news media to obtain

     support for new programs. Partic-

     ipation in radio and television

     broadcasts and publicizing science

     exhibits represent ways of keeping

     the community in touch with the   /109

     school. If you can be interesting,

     the mass media will be interested.
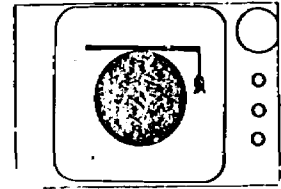
36. Within the school, it has always

     been necessary, as it is now, to

     have open lines of communication

     with school administrators. With-

     out their approval, any changes in

     existing programs are impossible.
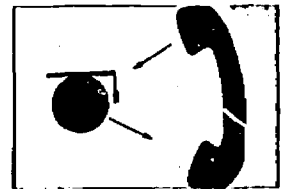
37. The supervisor must be able to sell

     new ideas to the administrators.

     Before approaching the administration,

     do your homework. Anticipate questions

     and prepare answers to problems of

     space, equipment, personnel, finances,
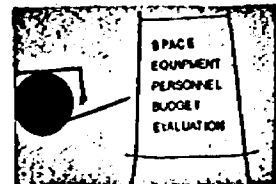
37. Continued.

     and evaluation. Show why the

     public will give its support.

     The burden of proof lies with

     the person advocating change.

                                                        /110

38. Public relations provides

     groundwork for utilizing potential

     human resources available to a

     science supervisor: teachers,

     students, parents, the community,

     and the school administrators.

     This potential is realized only

     when the supervisor creates an

     atmosphere where communication

     becomes a two way process.
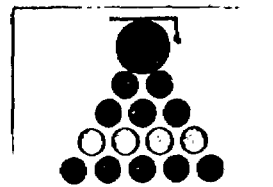
PUBLIC RELATIONS PACKAGE

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Gene C. Fusco. Improving Your School-Community Relations
    Program. Englewood Cliffs, New Jersey: Prentice-Hall,
    1967.

Floyd W. Matson and Ashley Montagu. The Human Dialogue,   /111
    Perspective on Communication. New York City: Free Press,
    1967.

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    A Handbook for Publicity Chairmen. Washington, D.C.:
    Public Relations Service, National Association of Broad-
    casters, 1771 N Street, N.W., Washington, D.C. 20036.

National Association of Broadcasters. So You're Going on TV.
    Washington, D.C.: Public Relations Service, National
    Association of Broadcasters, 1771 N Street, N.W.,
    Washington, D.C. 20036.

National School Public Relations Association. Public Relations
    Gold Mine series.

    10-volume bookshelf available. Each volume is an annual
    overview of the best PR ideas and suggestions available
    from National School Public Relations Association, 1201
    Sixteenth Street, N.W., Washington, D.C. 20036.

National School Public Relations Association. This is Public
    Relations series; titles include "Education's New Language,"
    and "What is Classroom Public Relations?" Washington, D.C.:
    National School Public Relations Association, 1201 Six-
    teenth Street, N.W.

Public Relations Society of America, Inc. Films About Public
    Relations and Related Subjects (mimeographed). New York
    City: Information Center, Public Relations Society of
    America, Inc., 845 Third Avenue.

Harold Rand, "Public Relations: Its Place and Function in
    Society," _Journal of Aesthetic Education,_ 3:3 (July
    1969), pages 65-73.

School Management. "How to Get Your Staff to Accept Change,"
    School Management, 11:3 (March 1967), pages 117-21+.

EDUCATIONAL TECHNOLOGY PROJECT

PRE-POST

criterion assessments

SET I   PUBLIC RELATIONS

For this report the desired
responses have been included
on the sheet opposite each
question.

CRITERION ASSESSMENT

SET _____ I _____   PACKAGE _____ PUBLIC RELATIONS _____

DATE _____   NAME _____

STIMULUS	RESPONSE
I. After intensive research, you have decided that the science curriculum should be more research oriented. The new thrust of the program will include the study of and individual research into the sex life and sterilization possibilities and problems of fruit flies, ticks and fleas. (A) What groups will you need to be involved with in order to secure the support for your program? (B) How will you secure support from each group?	a) Teachers, students, parents, and community. b) <u>Teachers</u> /11(Listen and seek their input. Acquaint teachers with their role and function in the change. Help them communicate necessity of change. <u>Students</u> Convey relevance of course to their life. Show that your desire for change equals their Encourage them to discuss plans for change with their parents. <u>Parents</u> Demonstrate a lesson at P.T.A.

CRITERION ASSESSMENT

SET _____I_____   PACKAGE _____PUBLIC RELATIONS_____

DATE _____   NAME _____.

STIMULUS	RESPONSE
1. Continued	Explain and demonstrate the validity cf scientific processes. Involve parents in a /11! question and answer period. . Seek their involvement in science fairs, etc.. __Community__ Relate to mutual needs using all available media. Speaking to Community groups. Arrange student tours to businesses that utilize the recent findings of research and/or engage in scientific research. (One or more similar answers in each group acceptable)

2

CRITERION ASSESSMENT

SET _____ I _____   PACKAGE_____ PUBLIC RELATIONS _____

DATE _____   NAME _____

STIMULUS	RESPONSE
1. Continued.	
(c) What will be the specific result from each group's non-support of the program?	**Teachers**
	Successful changes _within_ the school impossible with-out teacher support. /11(
	Necessary insight into qtudent capabilities will be unavailable.
	Students
	Changes more difficult with-out student support.
	It would be more difficult to get parent support.
	Parents
	Program could be scuttled if parents use mininformation when talking to community.
	May prevent community finan-cial and moral support.

2

CRITERION ASSESSMENT

SET ____I____ .   PACKAGE____PUBLIC RELATIONS_____

DATE _____   NAME _____

STIMULU'	RESPONSE
1. (c) Continued.	<u>Community</u> Financial and moral support may be missing. Interaction with the /117 comuunity (jobs etc.) may be retarded or stopped. (One or more of the ideas listed abɔve for each category acceptable)

2. Demonstrate by chart or diagram
   the concept of communication as
   a circular activity. Be sure
   .o include interrelationships
   between the Supervisor and
   School Administration, Parents,
   Teachers, Students, and
   Community.
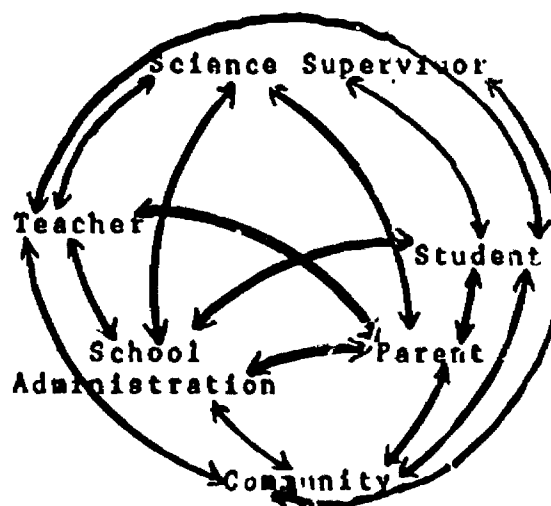
Example of Interrelationship

(Must show a two-way process)

CRITERION ASSESSMENT

SET ____I____   . PACKAGE_____ PUBLIC RELATIONS _____

DATE _____   NAME _____ _____

STIMULUS	RESPONSE
3. Contrast the type of support educators received in the past with support of present time.	Past - Automatic, passive acceptance. /118 Present - Must be earned a) "Show-me"attitude of students, parents, society, community, teachers. b) Questioning - content, methodology, relevance etc. (Minimally, include two or more of the above or similar ideas.)
4. Name two reactions which teachers generally have to change.	a) Fear. b) Welcome change, but don't understand what is expected of them.

CRITERION ASSESSMENT

SET _____ I _____   PACKAGE___ PUBLIC RELATIONS ___

DATE _____   NAME _____

STIMULUS	RESPONSE
5. What is the direction of flow of communication? Support your choice.	Communication is a <u>two-way flow</u>. The science supervisor <u>must initiate</u> this /11' communication, if he desires support, but he must also <u>listen and seek</u> and utilize the input. (Minimally include the under-lined ideas)
6. In what way is communication similar, regardless of the group to whom one is communicating?	a) Describing, explaining, justifying. b) Informing WHY the changes are necessary: - What changes are needed - Where these will lead. - How it will be done.

6

CRITERION ASSESSMENT

SET ____I____   PACKAGE____PUBLIC RELATIONS____

DATE _____   NAME _____

STIMULUS	RESPONSE
7. What is the goal of the science supervisor's involvement in the community?	Interaction of the school and community. Growth and understanding through the interaction. /120 Support of the science program. (One or more of the ideas similarily stated)
8. What are the rewards of a good Public Relations program?	a) Support for your work. b) Successful changes in the schools. c) Innovative programs. d) Highe· quality learning system. e) Public support. (Two or more of the above or similar answers)

APPLICATION HANDBOOK

for

RESEARCH

SET I

The following package on Research
was prepared by

Writer: Camille Marker

Art Preparation: Jack Martinelli   /122

Photography: Mary McGovern

Audio: Douglas Boyd   ,

Editing & Revision: Clarice Leslie

                     Mary McGovern

                     George H. Ziener

Criterion Assessments: Virginia Trowbridge

Manuscript Coordinator: Dorothy B. Lutz

TABLE OF CONTENTS

MEDIA SHEET

INTRODUCTION

SCRIPT

BIBLIOGRAPHY OF SUPPORT MATERIAL

CRITERION ASSESSMENTS - PRE/POST

MEDIA SHEET

The following media are necessary for the presentation
of this package:

    1 set of SLIDES on RESEARCH.

    1 audio cassette TAPE on RESEARCH.

    1 carousel SLIDE PROJECTOR.

    1 audio CASSETTE TAPE RECORDER.

    (Optional)

    1 CASSETTE SLIDE SYNCRONIZER by Norelco or its

      equivalent.

INTRODUCTION

Purpose:

1) To expose the science supervisor to the need for
research in new developments both in science and
in education.   /125

2) To present a number of available sources for this
information and suggestions for utilizing these
sources.

Objectives:

The science supervisor will be able to

1) identify at least eight major professional journals
he should be aware of,

2) specify the importance of ERIC in meeting his
research needs and identify the specific ERIC center
for science education,

3) give at least three specific reasons for the
importance of educational research in his professional
activity,

4) outline a means by which he can make this research
available to teachers in science.

SOUND	VISUALS
1. No sound.	**NSTA** EDUCATIONAL TECHNOLOGY PROJECT

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2. No sound.	**RESEARCH**
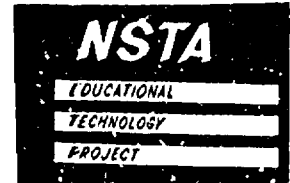
3. In the desert sands of Alamagordo,
   New Mexicc, July 16, 1945, the
   world of science and scientists
   was pushed into an awesome, new
   perspective, a new responsibility,
   and into the public limelight.

4. Sound of explosions.

	SOUND	VISUALS

5. Sounds of explosions.

6. Sounds of explosions.   /12

7. It became imperative for the
   U.S. to raise its general level
   of scientific literacy....

8. Not only to train more young
   scientists to meet the demands of
   this new, exploding technology,
   but also to develop literate
   citizens in the new age of
   technology.
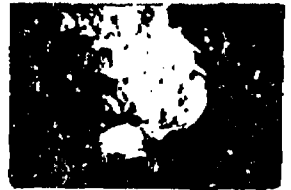
SOUND	VISUALS

9. Then....

    in 1957....

10. (Countdown in Russian)

    Sound of lift-off.

    /128

11. ....the U.S.S.R. sent the first
    artificial Earth satelite into
    orbit.

12. The reverberations initiated
    then, still echo in our time.

13. The post mortems....
    the devastating critiques of our
    educational system....
    prescriptions for all our
    educational problems.

3

SOUND	VISUALS

SOUND   VISUALS
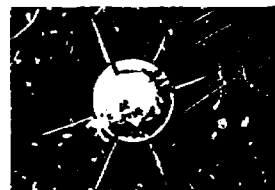
14. All this is past history, but
    the emphasis and need for
    improving the science curriculum
    continues.

15. The already vast body of scientific   /129
    knowledge continues to grow with
    increasing momentum.

16. Educational institutions are
    notoriously slow to change. The
    lag between the movement of
    ideas from formulation in theory
    and research to implementation
    in the science curriculum is a
    continual problem for curriculum
    people.

4

17. One of your most important jobs
    is to act as an agent of change....
    to facilitate growth and develop-
    ment of the science curriculum,

18. of the science teaching staff,   /130

19. and as an end product, the growth
    and development of a high level
    of scientific literacy in the
    students themselves.

20. To be such an agent of change,
    you must be knowledgeable of the
    major developments in science
    teaching as well as in the
    scientific community.

5

| SOUND | VISUALS |
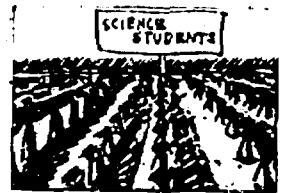
21. Most supervisors share with many
    college professors a critical
    deficiency....Few are actively
    involved in research which will
    improve science education.

/131

22. There is a need to develop a
    climate in which the science
    supervisor turns to educational
    research for guidance or answers
    to the many unresolved and critical
    questions in science education.
    Just as he would turn to science
    research for answers in science.

23. At the same time, it is necessary
    to maintain a critical attitude
    toward the results and validity
    of that research.

6

	SOUND	VISUALS
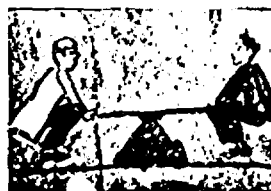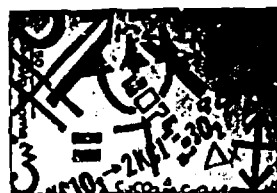
24   But what kind of research????

      Research for what????

25.   Basic, pure research....of

      the great....scientific thinkers....   /132

      of the past and present????

26.   Or, the applied research of the

      technologists who are seeking

      practical solutions for the myriad

      of problems of society. For

      example....

27.   ....the disposal of junk, much of

      it unreusable in any form....

28.   Food supplies from the ocean

      floor....
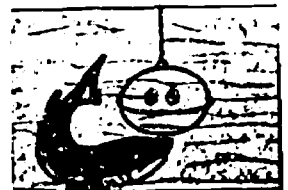
SOUND	VISUALS

| SOUND | VISUALS |

29. The release of man from crippling
    diseases of mind and body....
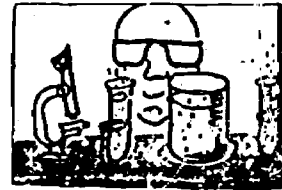
30.

/133

31.

32. Or research in curriculum revision.
    and innovation. Research in the
    applications of individualized
    learning procedures, student
    oriented learning, and a myriad of
    new ways to improve student learning.

8.
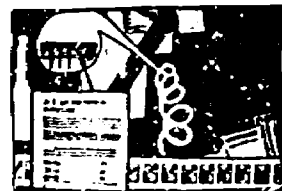
| SOUND · | VISUALS |

33. The relationship of the Supervisor
    to both science and educational
    research is, indeed, important. But,
    it is necessary for you to determine
    what research has applicability to
    your own school system's needs.
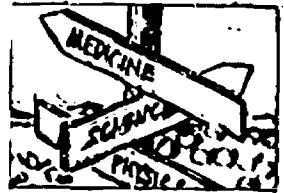
                                                                        /134

34. Not all the packaged material of
    the major educational research
    projects may be appropriate for use
    in your school.
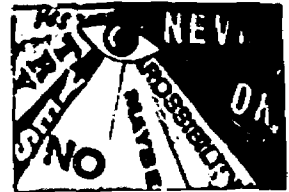
35. The philosophy and emphasis of many
    of those projects in curriculum
    innovation may meet the needs of
    only a small segment of your school
    population....the academic elite.

SOUND	VISUALS

SOUND   VISUALS

36. As a supervisor, you must work
    toward an integrated and balanced
    science curriculum which will
    raise the general level of
    scientific literacy and serve the
    needs of the entire, broad spectrum
    of your student body. Both future   /135
    scientists and nonscientists.

37. To be a facilitator of change,
    you must know what research has
    been completed, as well as ongoing
    activities. This is no mean task,
    but there are ample resources at
    your disposal,
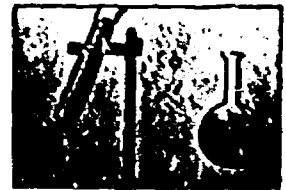
38. such as ERIC, Educational Research
    Information Clearinghouse, a
    division of the Bureau of Research
    in the U.S. Office of Education.

10

SOUND	VISUALS

39. ERIC, with its 19 clearinghouses
scattered throughout the country,
offers a variety of materials
which will enable you to keep
informed of many of the current
research projects in the country.

/136

40. For the science supervisor, the
ERIC Center at Ohio State University,
SEIAC (Science Education Information
Analysis Center) is the most im-
portant.

41. In your handbook, there is a
list of ERIC Centers and infor-
mation on how to obtain material
from the ERIC Document Repro-
duction Service.

SOUND	VISUALS

42. Another valuable source of research
information on science education is
the International Clearinghouse on
Science and Math Curricular Develop-
ments....a joint project of the
Commission on Science Education of
AAAS and the Science Teaching
Center at the University of
Maryland.
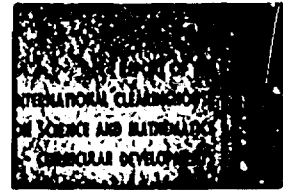
/137

43. In addition, there are numerous
professional journals which provide
reports and information of value
to science educators.

44. As a science supervisor you must
evaluate this plethora of material
available from the various sources
already discussed, in terms of
meeting student needs, through
curriculum change and through new
learning approaches.

	SOUND	VISUALS

SOUND   VISUALS

45. You should initiate research
     projects of a less ambitious
     nature within local schools, and
     involve the entire teaching staff,

46. and encourage teachers to initiate   /138
     projects of their own.

47. Participation in small scale re-
     search efforts of a cooperative
     nature, with other school systems,
     or with a local university, will
     create a spirit of involvement in
     research on the part of students
     and teachers, rather than remaining
     as passive consumers of the research
     results of others.

48. Engaging in research requires
     development of an adequate research

48. Continued.

     design to meet the requirements,

     and then the exercise of consid-

     erable leadership to see the

     project through to completion.

                                                              /139

49. Full participation and cooperation

     of the teaching staff are necessary

     for the success of any project.

50. As the proliferation of scientific

     knowledge continues with increasing

     momentum, so too have the challenges

     to science education.

51. While there are the moon,

52. the far reaches of outer space,

                          14

SOUND	VISUALS

53. and the depths of the sea to
    conquer....

54. there are many less glamorous
    challenges to science and
    education....including the
    collection and disposal of
    countless tons of garbage each
    day....

/140

55. ....the coming breakdown of
    transportation....

56. ....the increasing deterioration
    of the earth's water supply....

15

SOUND	VISUALS
57. ....the pollution of the air we breathe....	
58. ....and the increasing level of nerve destroying noise.	/141
59. These are but a sampling of the problems which make the challenge to science education loud and clear.	
60. Your role and responsibilities as a science supervisor are, to a great degree, what you choose them to be. The direction of any science program is significantly determined by how you utilize research as a means for improving local programs.	
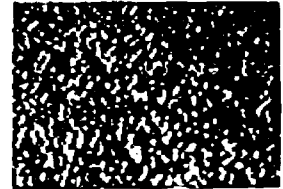
61. The challenge is there, but the
     decision is yours.

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RESEARCH PACKAGE

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    and Needs," Science Teacher, 34:8 (November 1967),
    pages 32-3.

Educational Resources Information Center.

The Educational Resources Information Center (ERIC) is a
national information network designed to facilitate
dissemination of educational research findings and other
research related documents. Four major components con-
stitute ERIC:

    (1) Central ERIC is the headquarters staff office
located in the U.S. Office of Education, Washington, D.C.
Overall management and coordination of the other three
components is carried out from Central ERIC.

    (2) Nineteen ERIC Clearinghouses analyze, abstract,
and index documents for dissemination through components
3 and 4 of ERIC. Each ERIC Clearinghouse staff has
competence in a specialized area of educational research,
the scope of which is described in the Directory beginning
on the next page.

    (3) Research in Education is a monthly abstract
journal which lists research reports currently abstracted
by the nineteen ERIC Clearinghouses and also contains
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ADDRESS: ERIC Clearinghouse on Educational Administration
320 Hendricks Hall
University of Oregon
Eugene, Oregon 97403

TELEPHONE: (503) 342-1411 Ext. 1336

The educational administration clearinghouse is responsible for research reports and other documents relating to the organization, leadership and administration of educational programs and organizations, and to the preparation of educational administrators. These reports cover the traditional and the economic and behavioral science factors of administration at all levels of education, except those limited specifically to facilities and to the junior college.

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DIRECTOR: Mr. Roger DeCrow

ADDRESS: ERIC Clearinghouse on Adult Education
Syracuse University
107 Roney Lane
Syracuse, New York 13210

TELEPHONE: (315) 476-5571 Ext. 3493

The clearinghouse on adult education is responsible for
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following areas: informal adult education carried on by
national or community voluntary and service agencies;
adult education in the formal educational system, such as
public schools, junior and community colleges and univer-
sities; inservice training in business, industry, unions,
and the armed forces; church-sponsored adult education;
educational aspects of community development, and rural
and urban extensions; fundamental and literacy education
for adults; educational media programs involving adults;
correspondence study; and continuing education in the
professions. Adulthood is defined not only by chronolog-
ical age, but also by the assumption of mature respon-
sibilities such as marriage or full-time employment.

COUNSELING AND PERSONNEL SERVICES

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ADDRESS: ERIC Clearinghouse on Counseling and
Personnel Services
University of Michigan
611 Church Street, 3rd Floor
Ann Arbor, Michigan 48104

TELEPHONE: (313) 764-9492

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responsible for materials and research reports relating to
the preparation, practice and supervision of counselors
and other personnel workers at all educational levels and
in all settings. Included are materials describing theo-
retical developments; the use and resul ? of personnel pro-
cedures such as testing, interviewing, disseminating, and
analyzing environmental information; group work and case-
work; and reports on program development and evaluation.
Included also are materials which deal with the nature of
pupil, student, and adult characteristics; descriptions of
educational, occupational, and community settings; and
discussions of the types of assistance provided by personnel
workers in such areas as career planning, family consulta-
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DISADVANTAGED

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ADDRESS: ERIC Clearinghouse on the Urban Disadvantaged
           Teachers College, Columbia University
           1258 Amsterdam Avenue
           New York, New York 10027

TELEPHONE: (212) 870-4804

The clearinghouse on the disadvantaged is responsible for
research reports and other documents related to the edu-
cational, psychological, social, and general development   /14
of urban children and youth who are socially, economically,
or culturally disadvantaged. Included are documents re-
levant to the effects of disadvantaged environments and
status on cognitive and affective development; the academic,
intellectual, and social performance of the disadvantaged
young person; programs and practices which provide directed
learning experiences designed to help compensate for the
special problems and build upon the characteristics of the
disadvantaged; and documents related to economic and ethnic
discrimination, segregation, desegregation, and integration
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ADDRESS: ERIC Clearinghouse on Early Childhood Education
           University of Illinois
           805 West Pennsylvania
           Urbana, Illinois 61801

TELEPHONE: (217) 333-1386

The clearinghouse is responsible for research documents on
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development of children from birth through primary grades.

ENGLISH, Teaching of

DIRECTOR: Dr. Bernard O'Donnell

ADDRESS: ERIC Clearinghouse on the Teaching of English
           National Council of Teachers of English
           508 South Sixth Street
           Champaign, Illinois 61820

TELEPHONE: (217) 359-4751

The clearinghouse on the teaching of English is respon-
sible for research documents on teaching the skills and
content of English and on the methodology of teaching
English through the secondary level.

EXCEPTIONAL CHILDREN

  DIRECTOR: Dr. Donald Erickson

   ADDRESS: ERIC Clearinghouse on Exceptional Children
             Council for Exceptional Children
             Jefferson Plaza, Suite 900
             1499 Jefferson Davis Highway
             Arlington, Virginia 22202

  TELEPHONE: (703) 521-8820

The clearinghouse on exceptional children is responsible
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youths who require special services, including the gifted,
mentally retarded, visually impaired, deaf, hard of hearing,
physically handicapped, emotionally disturbed, and speech
and language impaired. Included are reports concerned
with the cognitive functioning of such children, their
behavioral, psychomotor, and communication disorders,
visual impairments, and severe academic learning problems;
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DIRECTOR: Dr. Kenneth Mildenberger

ADDRESS: ERIC Clearinghouse on the Teaching of
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62 Fifth Avenue
New York, New York 10011

TELEPHONE: (212) 691-3200

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is responsible for research reports and other documents
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Russian, Latin, and Classical Greek. It is responsible
for collecting information on instructional methodology,
psychology of language and language learning, presen-
tation of the cultural and intercultural context, appli-
cation of linguistics, curricular problems and develop-
ments, and teacher training and qualifications specific
to the teaching of these languages. Also included in the
scope of this clearinghouse is the teaching and the pre-
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graduate and graduate level.

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ACTING DIRECTOR: Dr. Carl J. Lange

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One Dupont Circle Building, Suite 630
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science education, teaching of foreign languages, etc.)
are within the scope of other clearinghouses. However,
when a document deals with one of these subjects as a com-
ponent of an overall program for higher education, or when
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subject itself, it is within the scope of the clearinghouse
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                405 Hilgard Avenue
                Los Angeles, California   90024

    TELEPHONE: (213) 825-3931

The clearinghouse on junior colleges is responsible for
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staff, curriculums, programs, libraries, community services,
and any other subject specifically related to the develop-
ment, administration, and evaluation of junior college
operations.

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    DIRECTOR: Dr. Wesley Simonton

    ADDRESS: ERIC Clearinghouse on Library and
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                University of Minnesota
                2122 Riverside Avenue
                Minneapolis, Minnesota   55404

    TELEPHONE: (612) 373-7720

The clearinghouse on library and information science is
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LINGUISTICS AND THE UNCOMMONLY TAUGHT LANGUAGES

    DIRECTOR: Dr. A. Hood Roberts

    ADDRESS: ERIC Clearinghouse on Linguistics and the
                   Uncommonly Taught Languages
                Center for Applied Linguistics
                1717 Massachusetts Avenue, N.W.
                Washington, D.C.   20036

    TELEPHONE: (202) 265-3100 X 279

The clearinghouse on linguistics and the uncommonly
taught languages is responsible for research reports
and other documents dealing with linguistics and re-
lated language sciences and languages not commonly
taught in the United States; that is, all except French,
German, Italian, Spanish, Russian, Latin, Classical
Greok, and English as a second language. Included are
those reports concerned with the language teacher or
researcher in the language sciences and those dealing
with phonetics, psycho-linguistics, programmed in-
struction of languages, socio-linguistics, structural
and descriptive linguistics, applied linguistics,
language pedagogy, bilingualism, and those instructional
materials restricted to the uncommonly taught languages.   /150

MEDIA AND TECHNOLOGY, Educational

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   ADDRESS: ERIC Clearinghouse on Educational Media
                 and Technology
              Institute for Communication Research
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              Stanford University
              Palo Alto, California 94305

   TELEPHONE: (415) 321-2300 Ext. 3345

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The clearinghouse on reading is responsible for research
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behavior, with emphasis on physiology, psychology, sociology, and the teaching of reading. Included are reports on the development and evaluation of instructional materials, curricula, tests, and measurements; the preparation of reading teachers and specialists; methodology at all levels: the role of libraries and other agencies in fostering and guiding reading; and diagnostic and remedial services in school and clinic settings.

RURAL EDUCATION AND SMALL SCHOOLS   /151

   DIRECTOR: Dr. Everett Edington

   ADDRESS: ERIC Clearinghouse on Rural Education
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   TELEPHONE: (505) 646-2623

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impact of such factors as interest, intelligence, values,
and concept development upon learning of scientific
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education, home economics education, technical education,

trade and industrial education, training in new sub-
professional fields, and the related fields of in-
dustrial arts education, labor economics, occupational
psychology, and occupational sociology. Specifically
included are subject categories such as administration,
curriculum development, employment opportunities,
evaluation, facilities and equipment, historical studies,
individuals with special needs, innovative and experi-
mental programs, instructional materials and devices,
learning processes, manpower economics, occupations
(jobs), philosophy and objectives, research methods,
student personnel services, students (characteristics),
teachers, and teacher education and teaching methods
when related specifically to vocational and technical   /153
education.

EDUCATIONAL
TECHNOLOGY
PROJECT
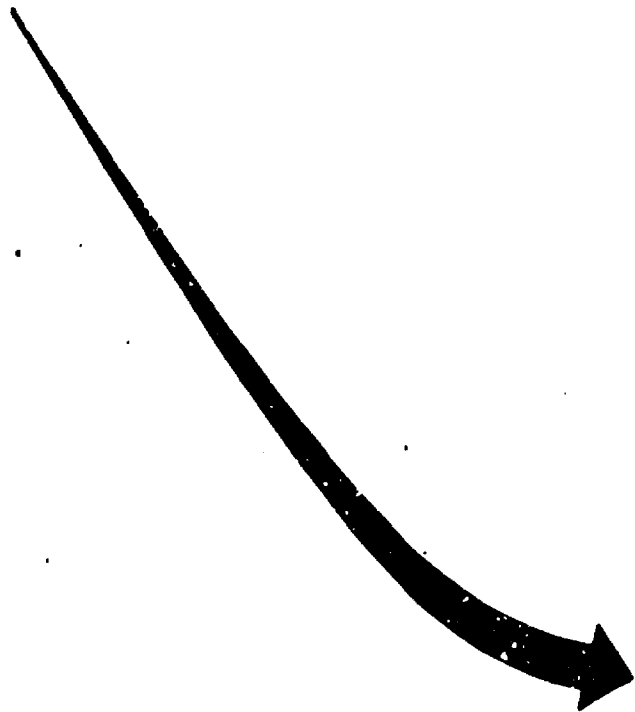
PRE-POST

criterion assessments

SET I   RESEARCH

For this report the desired
responses have been included
on the sheet opposite each
question.

CRITERION ASSESSMENT

SET _____ I _____   PACKAGE _____ RESEARCH _____

DATE _____   NAME _____

STIMULUS	RESPONSE
1. What is the role of the Science Supervisor in relation to teachers, students, and administration because of the knowledge explosion and the status-quo characteristics of institutions?	a) Agent of change toward teacher. b) Provide curriculum that provides <u>scientific</u> /15! <u>literacy for students</u>. c) Educate upward (to administration) in order to secure money; permission for innovation. (Any two acceptable. May be similarily stated.)
2. Science Supervisors should be involved in applied research, pure research, or NO research? Choose one or more and give rational for choice(s).	Any answer acceptable. Rationale must include the idea of consideration of all factors of the system in making the decision. (Must fit into total philosophy of science program)

CRITERION ASSESSMENT

SET ___1___   PACKAGE _____RESEARCH_____

DATE _____   NAME _____

STIMULUS	RESPONSE
3. Upon what basis should packaged science material be chosen for use in your school?	Choice made on basis of how it will fit in with the integrated science program /15 that will produce scientific literacy and meet the need of the student population.

4. Name at least four infor- mation sources of science education research.	a) ERIC
	    1) Research in Education
	    2) Research (monthly report)
	b) International Clearing-house on Science & Math Curricular Developments.
	c) Journal of Research in Science & Math
	d) Nature and Science
	e) School Science & Math
	f) Science
	g) Science & Children
	h) The Science Teacher

CRITERION ASSESSMENT

SET ___I___   PACKAGE____   RESEARCH_____

DATE _____   NAME _____

STIMULUS	RESPONSE
5. How would you as a Science Supervisor utilize in the most effective way, the plethora of research material available?	a) Evaluate b) Modify c) Interpret d) Implement /15 e) Initiate research based on reading in the research field. f) Encourage teachers to undertake a science research project. (Any 4 of the above)
6. After reading and evaluating the most recent research on hematology and hemophilia, you have decided to cooperate with Walter Reed Hospital in a small research project. In order to participate in this project what roles will you have to play in terms of your school system?	a) Develop an adequate research <u>design</u> to meet the requirements. b) <u>Exercise</u> considerable <u>leadership</u> to see that the teaching staff carries out the project. (Must incorporate both of the underlined ideas)

3

CRITERION ASSESSMENT

SET ____I____   PACKAGE _____RESEARCH_____

DATE _____   NAME _____

STIMULUS	RESPONSE
7. What is your function as a Science Supervisor in relation to the continuing challenge to science education?	a) Research awareness and utilization. b) Catalyst /158 c) Leader d) Determine direction science education should take.
8. Are there differences between Science Research and Science Education Research? What are they? What are the similarities?	Yes. Science Education Research specifically oriented toward content and approaches to the learning of science. Science Research is a far more general area not limited to education activity. Alike - Both employ Scientific Research Processes. Different - Area covered (content) differs.

4