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ABSTRACT

This paper discusses factors pertaining to the adaptation of vocational-technical curriculums to local school systems. A major problem is that many available curriculum materials and programs have no evidence of their validation for learning effectiveness by field-testing and feedback. Such evidence is needed by local school personnel before sound judgments can be made to adapt curriculums. Problems of curriculum adaptation usually center around the lack of resources and materials required to develop a new curriculum component. Strategies to implement change, with relationships among personnel involved, are examined and topics that should be included in the instructor's manual are presented. A listing of curriculum materials sources in several categories is appended. (MF)

ADAPTING CURRICULUMS TO LOCAL NEEDS

by
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INTRODUCTION

This paper will discuss a brief rationale and important factors pertaining to the adaptation of vocational-technical curriculums to local schools. An education-oriented systems approach will be used to explicate these factors. The roles of instructors and the administration in adapting curriculums will be presented. The Instructor's Manual as a key document in adapting the instructional system to the needs of a local school will be described.

The major problems in adapting curriculums to local systems and their needs will vary greatly among individual schools. However, the broader problems encountered will probably pattern themselves around the following:

1. Failure of the administration to anticipate the problems which instructors will encounter, and the lack of feedback mechanisms, both of which make it impossible to cope with unanticipated problems as they arise during the adaptation period.

2. Failure to modify existing established practices which work against the requirements of the curriculum, e.g., failure to focus on the learning process instead of course content.

A paper presented at a Training Institute for Curriculum Personnel Development, sponsored by the Department of Vocational Education, Colorado State University, Fort Collins, Colorado.

3. Inability of instructors to carry out new roles because of lack of understanding and inadequately developed skills, or because instructional procedures and materials lack specificity and/or are not available.

4. Increasing frustration of the instructors following initial enthusiasm as they become aware of their inability to handle the learning situation in the prescribed manner.

Briefly, then, the larger problems of curriculum adaptation usually center around the lack of necessary resources and materials required to successfully implement a new curriculum component. Organizational norms, traditional role functions, vested interests, and sheer inertia are among the barriers to adapting curriculums to local needs.

More specifically, however, many problems incurred in adapting curriculums to local needs stem from the fact that available curriculums and their accompanying materials have not been subjected to rigorous field-testing or validation. The learning effectiveness of some materials has not been empirically established. This holds for many of those curriculums produced by both commercial concerns and publicly supported agencies. For instance, an investigation of textbooks in 1969 by the non-profit, Manhattan-based Educational Products Information Exchange Institute (EPIE) indicates that under one percent of the approximately 14,000 different textbooks being sold to schools today has been systematically tried out to see how much students actually learn from them. According to EPIE's data, less than ten percent of the current "best selling" school textbooks were field-tested before publication.

In some cases regarding commercially prepared materials, simply the reactions of salesmen in the field are viewed as the field-testing that is supposed to constitute so-called validation. When field-testing actually refers to tests of materials with students, it is usually done just prior to publication with no chance of using the results to revise and improve the product.

The same might be said about the reactions of over-zealous "change agents" who represent publicly supported curriculum development agencies. Their reactions to how rapidly schools are adopting and adapting curriculums do not constitute proper field-testing.

By far the most discouraging area is that of programmed instruction. EPIE's examination of 653 programmed instructional products now used in major curriculum areas, including vocational and technical education, revealed that evidence of effectiveness is available for only seven percent of these materials. Some "field-testing" was claimed for another eight percent. A cursory examination of the remaining 3,000 programs, less central to the school curriculum, indicated an even smaller percentage that appears to have been learner-verified.

Most schools, when selecting curriculums and curriculum materials, rely almost completely on examination and review of materials plus (in some cases) discussions with sales representatives. Only rarely do selection committees in local schools use the results of the student performance data obtained from field-tests of the materials conducted in local classrooms.

Fortunately, some research exists which has examined whether it is possible to infer the learning effectiveness of curriculum materials

simply by examining them. This research raises serious doubts about the reliability of judging the quality of learning effectiveness without the help of student feedback (verification).

One of these research studies examined the evaluation techniques of a group of teachers and a principal. They were asked to review and rank for effectiveness alternative versions of a set of materials on which evidence of effectiveness with learners had been gathered by the researchers, but was not made available to the educators. With no evidence of effectiveness available to them, the educators were strikingly unsuccessful in judging these materials accurately. The correlation between their judgments and the actual performance of the materials with learners was -.75! Despite this fact, most school people and members of the education industry continue to put their faith solely in examination and review rather than evidence of actual performance when judging educational materials.

Any responsible effort to create or select materials of proven learning effectiveness must use the tryout and revision process. These terms, or concepts, are the designer's way of saying that the learning effectiveness of an educational product will be improved if it is taken through a systematic cycle of tryouts with learners followed by revision based on beedback from those learners. Through appropriate sampling, a small group of "target" students can give the product developers ample opportunity to detect product weakness and revise accordingly.

Briefly, then, a major problem in adapting vocational-technical curriculums to the needs of local schools is that many available curriculum materials and programs simply do not have evidence of their learning

effectiveness explained in the user's or instructor's manual. Such evidence must be made available to local school personnel before sound decisions can be made to adopt and adapt curriculums.

STRATEGIC ROLE OF CURRICULUM PERSONNEL

Curriculum developers or designers, either as a group or staff in a laboratory or as an individual coordinator on a state staff, have a unique opportunity to play a strategic role in adapting curriculums to local needs. A "strategy" is referred to here because the single act of adapting an individual curriculum component or piece of material to a local school situation cannot be separated from the larger, more comprehensive process of innovation diffusion, or what some may call merely getting changes to take place.

The strategic role referred to here is that of establishing an interactional rapport between the curriculum designer(s) and the local school system personnel. This has been referred to by some individuals as a change agent -- client system relationship, where the curriculum designer(s) is the change agent and the local school and its personnel comprise the client system.

On the one hand, there is the change agent (individual or agency) who perceives the need for change. On the other hand, there is the client system (local school system) which needs changing. This statement in no way should be misconstrued as implying that change could not be initiated from within a school system. Change originating from within a school system is the very essence of planned, self-renewing change. Any strategy for effecting change in local programs of vocational and technical education must consider the effectiveness of communications

between the change agent and the client system. This is referred to as the deliberate and collaborative relationship between change agent and client system. The strategy should also include measures for determining the potential for more effective continuing communication if lasting change is to persist.

Certain relationships exist between the change agent and the client. These are: (1) the change agent (sender) and the client system (receiver) are interdependent in the sense of the one having no relevance without the other; (2) there should be a series of communications (links as in a chain) extending over a period of time between the change agent and the client system; (3) the series of communications between change agent and client system is not exclusively between these two entities; some communication is indirect and is mediated through other individuals (e.g., opinion leaders) and groups to which each belongs; (4) both the change agent and the client system have definite positions in the social structure and their communication roles are affected accordingly; and (5) communications between change agent and client system are interdependent acts of ongoing interaction; the "two-step" flow of information is part of this pattern. Havelock (1969) succinctly describes the linker role as a catalyst, as a resource linker, as a solution giver, and as a process helper.

The change agent, as an individual, may or may not be a member of a knowledge-producing (research and development) organization, but it is necessary that he have interactional relationships with such an organization. He may serve as a linkage between the knowledge-producing organization and the knowledge-applying organization. His influence and

consequential effect on a client system will not be better than his prestige or image, or that of the knowledge-producing organization with which he maintains interaction.

Individual change is a correlate of group change. Group rather than individual norms of values-beliefs are more representative of the wider culture. Hence, the group tends to influence the values and attitudes of an individual. However, individual changes in values tend to lag behind group changes. This lag may be accompanied by intra-personal tension and frustration which become the correlates of resistances to adoption of innovations. Here again, communication is the key to overcoming such problems. The internal communications of a client system tend to build uniformity of values and beliefs. This is an extremely important consideration in the building and maintenance of an environment that is conducive to lasting or planned change.

Another aspect of communication deserving attention here could be called external contacts. In general, the greater the number of lines of contact and communication that a school system has with other educational systems, knowledge-producing organizations, and the like, the greater will be the likelihood of acceptance of change by that school system. Diffusion research indicates that schools which are innovation-adoption prone are characterized by teachers who attend out-of-town conferences, meetings, institutes, and who read widely to find new ideas. Research has concluded that "innovativeness varies directly with cosmopoliteness (defined as the degree to which an individual's orientation is external to a particular social system)."

Effective communication requires that certain conditions must be met.

Members of the client system must: (1) be exposed to the message; (2) interpret or perceive correctly that action or attitude which is desired of them by the change agent; (3) remember or retain the content of the message the change agent transmits; and (4) decide whether or not they will be favorably disposed to or influenced by the communication. The change agent must be authoritative and sincere with the client system. He must represent a reliable source of information as perceived by the client system.

Just as nations are classified as having open or closed societies, so are school systems. Some of the determinants of "open-closedness" are the extent to which: (1) external contacts are initiated and maintained; (2) the quality of this interaction is established and maintained; (3) major decisions concerning changes that occur locally are made externally; and (4) local coordination exists between educational programs and other programs of community improvement.

To summarize, the strategic role of the curriculum designer/developer in adapting curriculums to local schools should be that of developing and maintaining communication and establishing an ongoing change agent-client system relationship. These relationships are vital in the curriculum development phase where field testing is conducted as part of the validation process.

A PROBLEM-SOLVING MODEL

The concept of problem-solving has been used by others as a basis for developing strategies and tactics for implementing change in schools. One of the most recent and comprehensive efforts has been that of Havelock (1970) in which he presents two ways of looking at stages of

innovation or change, one from the viewpoint of people who are being changed (client system), and the other from the viewpoint of someone (change agent) who is trying to bring about change. Havelock's premise is that a client system can follow a problem-solving model if they have help from a change agent. He then relates this premise to a six-stage model for innovation or change. Havelock's model also implies "action" in that he presents specific activities and techniques for use by change agents. In these respects his six-stage model for innovation is more closely akin to a strategy for implementing change than it is to a change process.

Havelock (1970) lists and discusses a number of strategies and tactics which are apropos to each of the six stages in his model for innovation. His "Guide" is designed for and directed specifically to the change agent who may be internal or external to the client system. A change agent may be any one of the following:

Some Examples of People Who Might Act as Change Agents

1) Curriculum and Research Coordinators
2) Directors or Coordinators of Federal Programs
3) State Department Program and Curriculum Consultants and other state staff personnel
4) Regional Laboratory Dissemination Staff
5) County and Intermediate School District Consultants
6) Supplementary Center Staff (e.g., those supported by Title III of ESEA)
7) Continuing Education and Extension Instructors
8) Professors in Schools of Education Who Do Field Consulting
9) Salesmen of Educational Products and Publications
10) Superintendents and Other Administrators (at least part of the time)
11) Teachers (at least part of the time)
12) Counselors (at least part of the time)
13) Board of Education Members (at least part of the time)
14) Students (at least some of them some of the time)
15) Concerned parents and other citizens

To help the reader gain a better grasp of these strategies, Havelock's six-stage model will be described here.

Stages of Havelock's Model for Innovation in Education

Havelock (1970) stresses that "the focus of innovation planning has to be the USER himself: his needs and his problems must be the primary concern of educational reform." The stages of his model are (1) building a relationship; (2) diagnosing the problem(s); (3) acquiring relevant resources; (4) choosing the solution; (5) gaining acceptance; and, (6) stabilizing the innovation and generating self-renewal. Each stage is presented below along with Havelock's description of how a change agent works in it.

1. Building a Relationship. Havelock indicates that this stage is perhaps the most important one for the change agent. The change agent must develop a strong, viable, helping relationship with the client or school system, as well as with other elements of the community. Maintenance of this relationship in a continuing fashion is also important. Havelock sets forth procedures for establishing the relationship and criteria for judging its viability.

2. Diagnosing the Problem(s). According to Havelock, diagnosis is a systematic attempt to understand the situation by both the change agent and the client system. The change agent helps the client system "articulate the need(s)" of the system. Delineation and definition of the problem(s) and underlying causes are focused on in this stage in order to establish goals and objectives. Goals and objectives should be made in terms of outputs and outcomes and these should be communicated to persons who are interested, concerned, and affected by them.

Havelock cautions against the use of too much time in diagnosing, but stresses the importance of determining and defining client needs before a solution(s) to problems is suggested.

3. Acquiring Relevant Resources. In this stage Havelock stresses that the focus is on "resource acquisition, not resource evaluation or utilization." Furthermore, acquisition may take place at any point in the planned change process. In order to innovate, resources are needed: (1) for diagnosing client system needs and problems; (2) for creating awareness within the system of possible solutions; (3) for comparing (or evaluation-before-trial) alternative solutions; (4) for trial of an innovation in the client's setting; (5) for evaluation-after-trial (which must be generated from within the client system); (6) for installation (including initial costs, new staff, training, readjustments, etc.); and (7) for maintenance (long-term costs, etc.). Havelock presents procedures for acquisition of resources in this stage.

4. Choosing the Solution. In delineating this stage, Havelock suggests a "four-step sequential process." These steps are: (1) deriving implications from research; (2) generating a range of solution ideas; (3) feasibility testing; and (4) adaptation.

In deriving implications from research, Havelock describes the manner in which a change agent retrieves summary statements from research reports, how these statements are reformulated and checked for understanding, how the statements relate to the client system, and how statements can be used to infer implications for action.

In generating a range of solution ideas, Havelock indicates that the ideas may come from research reports, other client systems, or

commercial sources. Some solutions may be suggested from the statement of objectives. However, Havelock stresses the desirability of generating solutions or ideas from within the system by using such techniques as brainstorming.

In feasibility testing, Havelock emphasizes application of testing, comparing, and judging. Measurement criteria include benefit to client system, workability of the solution, and diffusibility or acccptance by client.

5. Gaining Acceptance. The four previous stages were focused on how the change agent prepares for a program of change; they culminate in the choice of a tentative solution. Havelock states that the fifth stage "is the time for transforming intentions into actions." He summarizes many of the principles and factors of innovation diffusion in discussing this stage, some of which have been discussed earlier in this document.

In this stage, Havelock considers: (1) how individuals accept innovations; (2) how groups accept innovations; (3) how to choose a communication strategy which is effective for individuals and groups; and (4) how to maintain a flexible program for gaining acceptance. It is imperative that each individual involved in the change be allowed time to understand it, to learn how to use it, and to become accustomed to required changes in his own attitude and behavior. Peer group interactions usually reduce the time required in accomplishing these things. Because the school is a client system of interacting and interdependent persons and groups, time must be allowed for them to understand how an innovation is adopted by a social group. Not only must facts and

information be communicated to individuals, but indications of support and approval from the change agent must be conveyed. Constant review and assessment is necessary as implementation proceeds. There is a serendipitous dimension in the role of the change agent in this stage of the change program. Havelock sums up this stage by stating that "every attempt should be made to prepare a schedule which is both flexible and schematic--a difficult balance to strike, but a crucial one."

6. Stabilizing the Innovation and Generating Self-Renewal. Havelock stresses the fact that a change agent's task is not completed after traversing the first five stages. The sixth stage is important to a continuous change environment. Stabilization (some have referred to a similar stage as "institutionalization") and self-renewal are key concepts in long-term maintenance of innovations. This step is especially important when external sources of funds are used to support initial implementation of an innovation with the knowledge that such finds will terminate after a specific period. Actually, this factor should have been considered in previous stages.

Havelock indicates that continuance of an innovation can be insured by the change agent helping the client system: (1) to perceive continuing rewards from the innovation; (2) to become accustomed to the innovation; (3) to adjust it to his structure; (4) to continually evaluate the innovation over time; (5) to provide for continuing maintenance; and (6) to continue adaptation capability for the innovation.

Insofar as self-renewal is concerned, Havelock stresses that "the client should learn to be a change agent for himself." To do this there must be within the client system: (1) a positive attitude; (2) an internal

subsystem devoted to bringing about change; (3) an active inclination to seek external resources; and (4) a perspective on the future as something to plan for. The viable change agent-client system relationship established in the first stage should be maintained in effect throughout the sixth stage. This would enable the change agent to assess his approaches to the entire process.

ADAPTATION ROLES OF INSTRUCTORS AND ADMINISTRATORS

As indicated before, various kinds of school and non-school persons have roles to play in adapting curriculums to local needs. Specifically, instructors play a vital role in this process, especially in operationalizing and installing the curriculum. Administrators such as superintendents, principals, local directors of vocational education programs, etc., also play vital planning, supportive, and coordinative roles in the process. Curriculum change and adaptation efforts must always be focused on improving <u>what</u> the instructor does and <u>how</u> he does what he does. It must also be recognized that the local school system superintendent and building principal, as "gatekeepers," essentially set the climate or tone for curriculum adaptation and change.

The administrator's and instructor's roles in curriculum adaptation can be broken down into the following major parts: (1) readiness, (2) selection, (3) equipment/supplies procurement, (4) workshop, (5) inservice education, (6) assistance, (7) implementation, (8) assessment, (9) maintenance, and (10) demonstration. Each of these is presented below along with a few pertinent activities for each.

<u>Readiness</u>. <u>All</u> instructors should be involved in discussions about the curriculum that is to be adapted. District and state subject matter

specialists should be involved from the beginning. Help instructors to understand requirements of the new curriculum insofar as their shop, laboratory, or classroom style is concerned. Schedule inservice sessions to build faculty confidence. Collect and circulate curricular information, either from the source (design agency) or the Instructor's Manual. Identify instructor cliques and involve them. Allow time for faculty inspection and discussion. Use instructor input to determine need for new programs.

Selection. Along with instructors, analyze curriculum to be replaced if one already exists. With the staff, assess the vocational instruction program of the school. Construct a priority list of needed curriculum components. With the staff, prepare a descriptive statement of what each curriculum will be expected to produce in terms of student as well as instructor behavior. Provide time for curriculum review and selection by visiting other schools that have similar curriculums under way. Obtain outlines and portions of each curriculum's content, methods, and materials for the staff. Make sure there is space to house components of a potential new curriculum. Encourage instructors to try using a lesson from new curriculums.

Equipment/supplies procurement. Examine curricular hardware and software before ordering. All elements of the curriculum should be available to the instructor. Establish a procedure for instructors to document flaws in the new curriculum. Instructor reports should be sent to the curriculum designer. Make sure all instructors are aware of errors immediately. If the curriculum requires expendables, establish a petty cash fund for the instructors to use.

Workshop. Experiences for instructor workshops should be carefully balanced with the "hands-on" sessions included. Provide equipment for workshop sessions. Try to obtain collaboration with a local university to get college credit for the instructors participating in the workshop. Ask instructors what they want included in the workshop. Evaluate workshop experiences through personal involvement. Organize relevant workshop activities. Schedule summer workshop training for instructors which focus on the curriculum to be adapted.

Inservice education. Establish a series of inservice workshops on the new curriculum during the year. Provide consultants for inservice education. Establish a series of subject matter and/or grade level meetings with a consultant.

Assistance. Provide assistance from a variety of sources, such as R & D centers, regional or state curriculum labs, educational consultants, and commercial representatives. Determine assistance cost and degree of involvement. Provide assistance when the curriculum has been put into regular practice by obtaining either internal or external help. All external or consultant service should be made explicit by defining his role and responsibilities in detail.

Implementation. Extreme care must be exercised in implementing a sequential curriculum which spans several grades. Establish the identity of crucial prerequisites and discuss thoroughly with instructors the importance of teaching concepts in sequence. Give the new curriculum a fair trial by scheduling the necessary time for it to be taught. State department approval must be obtained to implement a new curriculum. Use the curriculum in the manner described by its designers. Ensure that

instructors understand the instructional goals of the curriculum. Instructors should keep careful records of the curriculum installation. Curriculum maintenance costs should be projected over a three- to five-year period.

Assessment. The ultimate question is: What did the students learn? Plan for continuous assessment. All instructors should be aware of student goals and objectives that should be explicit in any well-designed curriculum. Document successes and failures. Performance tests seem best to measure student achievement, but skill and knowledge tests also are needed. Establish with instructors the importance of periodic review and evaluation. Prepare a schedule of times when instructors will provide data on adaptation efforts. Get instructor's candid expressions of opinions.

Maintenance. Identify instructor-leaders as immediate and continuing source of support to fellow instructors. Hire new or replacement instructors for the new curriculum. Provide for replacement of expendables, repair of equipment, etc. Plan for activities, publicity, and dialogue that maintain much of the original enthusiasm for the new curriculum. Provide supportive assistance to new as well as old instructors of the curriculum. Distribute descriptive materials about the new curriculum to other teachers and administrators in the school. Provide workshop and/or inservice training for new instructors.

Demonstration. Allow the instructors to help other schools. This activity can be coordinated by the state and/or district supervisory staff. Share all financial and other information with others. Free instructors for informal discussion with observers. Organize a realistic

demonstration program. Keep visitor groups small and allow free discussions with both instructors and students. Publish a report on the curriculum adaptation, problems encountered, and successes achieved.

THE INSTRUCTOR'S MANUAL

Much of that which goes into the development of a curriculum is not readily apparent as one peruses the materials. The capabilities and limitations of an instructional system are not easily seen by the instructors who will use the system. Such information is vital for adapting the curriculum and should be contained in the Instructor's Manual. The manual should present relevant external information about properties which are not apparent on inspection.

Information in the manual must show the instructors and other school personnel how the curriculum was developed, what it teaches, how effective or valid it is, and how it can be implemented. Following are the major categories of topics that should be contained in the manual:

Course Description. The following information should be included in the course description:

1. The course title and the purpose and scope of the curriculum; e.g., what jobs or occupations the curriculum prepares the student for, and at what level in a career ladder it prepares him for. Briefly list the kinds of competence the curriculum has been designed to produce when it is used in the prescribed manner. The manual also should contain general interpretive information to help the nontechnical user determine the curriculum's relevance to his educational purposes.

2. A concise outline or brief overview of the contents of the curriculum. What textual or curriculum sources were used in the

selection and development of the content? How current were these sources?

3. A description of the format of the curriculum. State the number and length of lessons. List required student and instructor materials, instructional aids, equipment, and tools.

4. Instructional methods and techniques used in the curriculum. List size of student groups and physical arrangements of shops, laboratories, or classrooms. New instructional practices should be explained in detail since spuriously large temporary student achievement gains may result as a novelty effect when a new teaching device or procedure is first introduced.

Population Description. This information should describe the students for whom the curriculum has been designed. The population description should contain the following:

1. The age and/or grade level(s) of the learners, including reading and mathematics levels.

2. The prerequisite skills, abilities, vocational training, and related knowledge that also might serve as the base from which achievement gains may be measured. Limits, particularly the lower limits, of the student population for whom the curriculum is intended should be included.

3. Physical and personal characteristics of the job for which the curriculum is designed to prepare persons.

Performance Objectives. The manual should contain a complete list of all the interim (enabling) and terminal objectives.

Criterion-referenced Tests. The manual should contain copies of all criterion-referenced tests. Test answers should appear on the tests or on separate answer sheets. Items on the criterion-referenced tests should be cross-indexed with their respective behavioral objectives. The criterion-referenced tests should exemplify what the designer expects the student to learn in the way of knowledge, skills, and performance.

Curriculum System Performance Data. The manual should contain explicit information about the steps taken to verify the effectiveness of the curriculum. This section of the manual should include the following:

1. A description of the students used to validate the curriculum, i.e., number of students, method of selection, age, background.

2. The conditions under which the tests were given, i.e., individual, small-group, and large-group testing procedures. This section of the manual should also describe the physical and social conditions of the curriculum's use and effectiveness--testing procedures in sufficient detail so that their essential features could be reproduced or replicated by another investigator if desired.

3. The development--test--revise--retest procedures used, and the data on learner's responses to preliminary versions of the curriculum. Records of responses to preliminary versions can provide a basis for its progressive revision and improvement prior to finalization.

4. The criteria used to determine when the curriculum was ready for finalization and printing.

5. The assumptions made and principles used in constructing the program.

6. The evidence on the curriculum's effectiveness based on comparisons measurements of student performance on pre-tests and post-tests. A clear distinction should be made between this effectiveness-test data for the finalized curriculum and any test data obtained in earlier tryouts of preliminary versions used as a basis for revision. (Changes made in the curriculum after the latter effectiveness-test data are obtained could throw doubt on the validity of these data for a demonstration of the curriculum's effectiveness.)

7. Any further information which would seem helpful in evaluating the reported effects of the program or the adequacy of the evidence on which they are based. The manual should present evidence to document that the gains in achievement reported can rightly be attributed to the effect of the curriculum's use rather than to extraneous causes.

Administering the Curriculum System. The manual should contain information on how the curriculum can be most effectively and efficiently used. The following items are suggested:

1. The role of the instructor and manager and facilitator of learning; guidance of student experiences.

2. Motivation information and techniques relating to the curriculum and future job projections.

3. Recommendations for articulating learning activities in this curriculum with those the student experiences in other school curriculums. Suggestions should be presented for relating this training to basic education and realistic work projects.

4. Recommendations for recognizing and handling individual differences among students. Explain how the amount of time learners of different ability might be spent on various portions of the program; how this time can be distributed.

5. Instructions for test administration, keeping student records, and conducting summative evaluation and reporting.

6. Special instructions for training the instructors who will use the curriculum.

SOURCES OF CURRICULUM MATERIALS

Sources of curriculum materials are so diverse, scattered, and numerous that an exhaustive listing of them would be impossible in a small paper such as this. Also, before one could finish listing all sources, several new ones would have been developed. Nevertheless, an attempt will be made here to at least offer a number of categories of sources which may be of some benefit to curriculum designers. (Incidentally, some of the sources included here can be viewed as a list of REFERENCES for this paper.) Examples shown under each category are merely a sampling of what could be included. The categories themselves and many of the examples are taken from A Guide to Innovation in Education, authored by Ronald Havelock, University of Michigan, 1970.

A. News Reports

1. Commission on Science Education Newsletter
   American Association for the Advancement of Science
   1515 Massachusetts Avenue, N.W.
   Washington, D. C. 20005

2. Croft Newsletter Services
   Croft Educational Services, Inc.
   100 Garfield Avenue
   New London, Connecticut 06320

3. Department of Classroom Teachers News Bulletin
   National Education Association
   1201 Sixteenth Street, N.W.
   Washington, D. C. 20036

   Reports on current educational problems to help teachers strengthen their work.

4. Education Daily
   Capital Publications, Inc.
   Suite G-12
   2430 Pennsylvania Ave., N. W.
   Washington, D. C. 20037

   A daily news service to American education.

5. Education Recaps
   Educational Testing Service
   Rosedale Road
   Princeton, New Jersey 08540

   Brief, pithy descriptions of the latest developments in education, educational technology programs and related issues and areas of interest.

6. Education U.S.A.
   National School Public Relations Association
   1201 Sixteenth Street, N.W.
   Washington, D. C. 20036

   Notes latest developments in educational affairs including related political issues.

7. Education Product Report
   Educational Products Information Exchange Institute (EPIE)
   386 Park Avenue, South
   New York, New York 10016

   Provides the educational consumer with unbiased information and evaluations of materials related to educational technology (both hardware and software). Non-profit, non-biased professional cooperative serving the educational community.

8. Educational Research
American Educational Research Association (AERA)
1126 Sixteenth Street, N.W.
Washington, D. C. 20036

Publishes news of federal projects and funding in educational research, news of activities of foundations, institutions of higher education, and federal agencies, as well as association news, placement services, reviews of new publications and professional activities of members of AERA.

9. Educational Technology Magazine
Educational Technology Publications
140 Sylvan Avenue
Englewood Cliffs, New Jersey 07632

10. Evaluation Comment
Center for the Study of Evaluation
University of California at Los Angeles
145 Moore Hall
Los Angeles, California 90024

Provides a forum for the discussion of significant ideas and issues in the study of evaluation of educational programs and systems.

11. Measurement in Education
National Council on Measurement in Education (NCME)
Office of Evaluation Service
Michigan State University
East Lansing, Michigan 48823

Consists of special reports concerned with the practical implications of measurement and related research and their application to educational problems of individuals, institutions, and systems. Emphasis is upon uses of measurement rather than technical or theoretical issues.

12. School and Society
Society for the Advancement of Education
1860 Broadway
New York, New York 10023

B. Information Services

1. ERIC (Educational Resources Information Center)

ERIC is a national information system of the Office of Education, dedicated to the progress of education through the dissemination of educational research results, research-related materials, and other resource information that can be used in developing more effective educational programs. Through a network of 20 specialized centers,

or clearinghouses, each of which is responsible for a particular educational area, the information is acquired, evaluated, abstracted, indexed, and listed in Research in Education, the monthly abstract journal of the ERIC system.

All the documents cited in the "Document Resume" section of the journal, except as noted, are available from:

ERIC Document Reproduction Service
National Cash Register Company
4936 Fairmont Avenue
Bethesda, Maryland 20014

Documents are produced in microfiche (MF) and in hard copy (HC). MF is a 4 x 6-inch sheet of film with up to 70 images, each representing an 8 1/2 x 11-inch sheet of paper. Microfiche readers, available from many manufacturers, are required to enlarge the images for reading purposes. Hard copy (HC) is a reproduction on paper in easy-to-read form.

The process of getting at the material that is collected and stored in the ERIC system is explained in "How to Use ERIC," a pamphlet available through:

The Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

ERIC Clearinghouses are listed below, but individuals desiring additional information concerning ERIC and its functions can contact:

ERIC Central
Room 3013
400 Maryland Avenue, S.W.
Washington, D. C. 20202

ERIC Clearinghouses:

Adult Education
Syracuse University
Syracuse, New York 13210

Counseling and Personnel Services
University of Michigan
Ann Arbor, Michigan 48104

Disadvantaged
Teachers College
Columbia University
New York, New York 10027

Exceptional Children
The Council for Exceptional Children
Arlington, Virginia 22202

Higher Education
George Washington University
Washington, D. C. 20006

Junior Colleges
University of California at Los Angeles
Los Angeles, California 90024

Early Childhood Education
University of Illinois
Urbana, Illinois 61801

Educational Administration
University of Oregon
Eugene, Oregon 97403

Educational Media and Technology
Institute for Communication Research
Stanford University
Stanford, California 94305

Rural Education and Small Schools
New Mexico State University
Las Cruces, New Mexico 88001

Science and Mathematics Education
Ohio State University
Columbus, Ohio 43221

Social Science Education
University of Colorado
Boulder, Colorado 80903

Teacher Education
American Association of Colleges for Teacher Education
Washington, D. C. 20005

Library and Information Sciences
American Society for Information Science
Washington, D. C. 20036

Linguistics
Center for Applied Linguistics
Washington, D. C. 20036

Reading
Indiana University
Bloomington, Indiana 47401

Teaching of English
National Council of Teachers of English
Champaign, Illinois 61820

Teaching of Foreign Languages
Modern Language Association of America
New York, New York 10011

Tests, Measurement, and Evaluation
Educational Testing Service
Princeton, New Jersey 08540

Vocational and Technical Education
Ohio State University
Columbus, Ohio 43210

2. RIS (Regional Information System)

RIS is a concept or model for a regional information linkage system. It is intended to be a "one-stop" tool providing current awareness and reference services for all of the Michigan-Ohio Regional Educational Laboratory (MOREL) projects. This concept was developed at MOREL and the ASSIST Centers (see below).

a. MOREL (Michigan-Ohio Regional Educational Laboratory)

MOREL, whose funding has now been terminated, was originally set up to determine the regional needs as expressed by local public school educators, college and university personnel, state departments of education, research organizations and people from the business community, and to service such needs. While MOREL is no longer in operation, inquiries can be addressed to:

Laboratory Branch
U. S. Office of Education
Department of Health, Education, and Welfare
Washington, D. C. 20202

b. ARIS (Association Referral Information Service)

ARIS, through its Referral Library, makes available printed materials which contain indices, directories, bibliographies, documents, abstracts, materials on specialized information systems, and current periodicals.

Association Referral Information Service
Ohio Education Association
225 East Broad Street
Columbus, Ohio 43215

c. ASSIST (Activities to Support and Stimulate Innovation in Schools Today)

ASSIST's Center Information Service has been recognized as a national prototype using the concept of being a Regional Information System (RIS). It is intended to be a "one-stop" tool providing current awareness and reference services for Wayne County and the State of Michigan.

Activities to Support and Stimulate
Innovation in Schools Today - ASSIST Center
Wayne County Intermediate School District
33030 Van Born Road
Wayne, Michigan 48184

3. RISE (Research and Information Services for Education)

RISE is a regional information agency. Its services are available without charge to a specified group of Pennsylvania educational agencies. Additional agencies in Pennsylvania and other states are served on a contract basis.

Research and Information Services for Education
443 South Gulph Road
King of Prussia, Pennsylvania 19406

4. SRIS (School Research Information Service)

SRIS is an information service sponsored by Phi Delta Kappa to serve its members and any other interested educators or educational institutions.

School Research Information Service
Phi Delta Kappa Research Service Center
Eighth and Union Streets
Bloomington, Indiana 47401

5. Clearinghouse for Federal Scientific and Technical Information

The Clearinghouse serves as a focal point for the collection, announcement, and dissemination of 600,000 unclassified U. S. Government-sponsored research and development reports and translations of foreign technical literature to the scientific, technical, and industrial communities.

Clearinghouse for Federal Scientific
and Technical Information
National Bureau of Standards
U. S. Department of Commerce
Springfield, Virginia 22151

6. National Audiovisual Center

The National Audiovisual Center serves government, industry, educational institutions, and the general public as a central information, sales, and distribution point for most government motion pictures, filmstrips, audio and video tapes, and other audiovisual materials.

National Audiovisual Center
National Archives and Records Service (GSA)
Washington, D. C. 20409

C. Libraries

Havelock stresses that most individuals are able to avail themselves of professional or curriculum libraries in their district, county, or local university. These resources have the advantage of being familiar and in close proximity to the working environment of the practitioner.

Unfortunately, the organization of library collections does not allow them to be responsive to specific user needs. Information is organized by title and topic, author, and, sometimes, by source (e.g., journals) which means that the library user may have to sift through a substantial quantity of irrelevant material when he is searching for information appropriate to a specific need. The assistance of a good librarian can be particularly valuable at this point.

D. Directories and Indices

Directories and indices of relevance to the field of education are published by governmental, professional, and commercial agencies. There is, unfortunately, no single index that lists all the types of written material or all the resource agencies one might want to use (e.g., some include only government publications or agencies; others exclude government resources). Most of the larger directories can be found in any public, university, or ERIC library and, probably, in the professional library of the local system.

1. Directory of Educational Information Centers. Published by the Division of Information Technology and Dissemination, Bureau of Research, U. S. Office of Education, 1969.

   Available from:

   The Superintendent of Documents
   U. S. Government Printing Office
   Washington, D. C. 20402

   This directory, prepared for the U. S. Office of Education by the System Development Corporation, lists a wide range of information centers offering services to educators in communities throughout the United States.

2. Directory of Federally Supported Information Analysis Centers. Published by the Committee on Scientific and Technical Information (COSATI) of the Federal Council of Science and Technology.

   Available from:

   Clearinghouse for Federal Scientific
   and Technical Information
   National Bureau of Standards
   U. S. Department of Commerce
   Springfield, Virginia 22151

   This directory will be useful to educators when the specific topic area they are researching transcends the limits of strictly educational sources.

3. A Directory of Individuals, Programs, and Agencies Engaged in the Study of Change. Compiled by Elizabeth Mullins and edited by Richard I. Miller, 1967.

   Available from:

   Associate Dean
   School of Education
   Indiana University
   Bloomington, Indiana 47401

   This directory should be of great value to the practitioner who is unfamiliar with the use of other more general directories mentioned in this Appendix because it limits its focus specifically to change in education.

4. A Directory of Information Resources in the United States: Social Sciences. Published by the National Referral Center for Science and Technology, 1965.

   Available from:

   The Superintendent of Documents
   U. S. Government Printing Office
   Washington, D. C. 20402

   This book lists information resources in the United States which will accept and answer questions.

5. Directory of Special Libraries and Information Centers. Edited by Anthony T. Kruzas.

Available from:

Gale Research Company
The Book Tower
Detroit, Michigan 48226

6. Educational Directory.

Available from:

The Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

This annual directory consists of five volumes: (1) officers of education programs, by state; (2) all public school systems enrolling 300 or more students, by state; (3) accredited institutions of higher education, by state; (4) educational associations; and (5) educational agencies and personnel within the federal government.

7. The Education Index.

Available from:

The H. W. Wilson Company
950 University Avenue
Bronx, New York 10452

This index is a cumulative author and subject index to a selected list of educational periodicals, books, and pamphlets. It presents a list of indexed periodicals and a directory of publishers.

8. Encyclopedia of Associations, Volume 1. Published by the National Organizations of the United States.

Available from:

Gale Research Company
The Book Tower
Detroit, Michigan 48226

The encyclopedia is concerned with information about non-profit American organizations of national scope covering topics of trade and business, education, religion, agriculture, social welfare, public affairs, health, athletics, veterans, labor, etc.

9. ERIC Publications

a. Current Index to Journals in Education (CIJE).

Available from:

CCM Information Corporation
909 Third Avenue
New York, New York 10022

This monthly journal provides indexing and annotations for articles in over 500 educational periodicals.

b. Research in Education (RIE).

Available from:

The Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

This is an index, compiled monthly by ERIC, of all U. S. Office of Education research projects and other documents of educational significance. Abstracts are provided, as are subject, author or investigator, and institution indices.

10. National Directory of Newsletters.

Available from:

Gale Research Company
The Book Tower
Detroit, Michigan 48226

This directory contains information about 1500 newsletters and publications in agriculture, conservation, business and industry, education, humanities, public affairs, religion, etc.

11. Research Centers Directory. Edited by Archie M. Palmer, 1968.

Available from:

Gale Research Company
The Book Tower
Detroit, Michigan 48226

This is a guide to university-sponsored and other non-profit, permanent organizations which have continuing research programs in agriculture, business, conservation, education, engineering and technology, government, law, life science, mathematics, area studies, physical and earth sciences, or social sciences and humanities.

12. The Vocational-Technical Library Collection. Edited by Bruce Reinhart, 1970.

Available from:

Bro-Dart Publishing Co.
Williamsport, Pennsylvania 17701

E. Reference Books

1. Dictionary of Education. Second edition, Carter V. Good (ed.), New York: McGraw-Hill Book Co., 1959. This edition, financed by Phi Delta Kappa, provides definitions of the terminology used in education and related disciplines.

2. Digest of Educational Statistics. Washington, D. C.: U. S. Government Printing Office, 1966. This is a kind of statistical abstract of American education. It stresses quantities, i.e., number of institutions, number of programs, students, dollars spent, etc.

3. Documentation in Education. Fifth edition, Arvid J. and Mary A. Burke (eds.), New York: Teachers College Press, 1967. In addition to showing how to locate information or data, this book provides guidance for more sophisticated documentary or bibliographic work in education.

4. The Educational Information Center: An Introduction. Los Angeles: Tinnon-Brown, 1969. Prepared by the System Development Corporation with support from the U. S. Office of Education, this is a guide to the establishment and operation of a local information center.

5. Encyclopedia of Educational Research. Fourth edition, Robert L. Ebel (ed.), New York: Macmillan Company, 1969. Offered by the American Educational Research Association, the Encyclopedia cites references for and describes research findings on topics in education ranging from academic freedom to vocational and technical education.

6. Information Retrieval Thesaurus of Education Terms. Center for Documentation and Communication Research, Case Western Reserve University. An alphabetical and classified display of approximately 2,100 terms in the education field is provided.

7. International Encyclopedia of the Social Sciences. David L. Sills (ed.), New York: Macmillan and the Free Press, 1968, Index in Vol. 17. This is possibly the best of the general encyclopedias dealing with the whole scope of the social sciences. It does not cover raw data.

8. National Society for the Study of Education Yearbook. The University of Chicago Press. This is an annual volume on current thought and practice in important fields of education. A list of all yearbooks may be obtained by writing to the NSSE, 5835 Kimbark Avenue, Chicago, Illinois 60639.

F. Consulting Organizations

Each consulting organization has its own orientation toward working with client school systems. Details about the extent of their operations and procedures can be obtained by inquiring directly with such an organization.

Basically, they can offer a client system the following: an enlarged research data base for organizational planning and decision-making; assistance in research and in implementing change; and assistance in diagnosis or evaluation of the client's present state.

1. RELs (Regional Educational Laboratories)

The regional educational labs are private, non-profit corporations which are funded, in whole or in part, under Title IV of the Elementary and Secondary Education Act of 1965. Each lab operates under a contract with the Division of Educational Laboratories, Bureau of Research, U. S. Office of Education. The labs are organized geographically, dividing the nation into several regions. They are designed to take the product of basic research and develop programs that will link this research with practice in the schools of their respective regions. At this time, most of the laboratories supply direct services only to "demonstration" or project participant schools. However, all will answer specific requests for information about programs which they have under development.

The laboratories differ from research and development centers in focus, competition and activities. Centers emphasize research and development while laboratories stress developmental design and implementation strategies.

a. Appalachia Educational Laboratory (AEL)
P. O. Box 1348
1031 Quarrier Street
Charleston, West Virginia 25325

Region: West Virginia, parts of Ohio, Pennsylvania, Virginia, Tennessee and Kentucky

This lab is developing a model education cooperative for rurally isolated schools through the application of a variety of communications media.

b. Center for Urban Education (CUE)
105 Madison Avenue
New York, New York 10016

Region: Metropolitan New York and some neighboring cities

c. Central Midwestern Regional
Educational Laboratory (CEMREL)
19646 St. Charles Rock Road
St. Ann, Missouri 63074

Region: Eastern Missouri, southern Illinois, central and western Tennessee, and Kentucky

d. Far West Laboratory for Educational Research
and Development (FWLERD)
1 Garden Circle
Hotel Claremont
Berkeley, California 94705

Region: Northern California, Utah, and Nevada (with the exception of Clark County)

e. Northwest Regional Educational
Laboratory (NWREL)
400 Lindsay Building
710 Southwest Second Avenue
Portland, Oregon 97204

Region: Alaska, Idaho, Montana, Washington, and Oregon

f. Regional Educational Laboratory for the Carolinas
and Virginia (RELCV)
411 West Chapel Hill Street
Mutual Plaza
Durham, North Carolina 27701

Region: North Carolina, South Carolina, and southern Virginia

g. Research for Better Schools, Inc. (RBS)
1700 Market Street, Suite 1700
Philadelphia, Pennsylvania 19103

Region: Delaware, New Jersey, and eastern Pennsylvania

h. Southwest Educational Development Laboratory (SEDL)
800 Brazos Street
Austin, Texas 78701

Region: Texas and Louisiana

i. Southwestern Cooperative Educational
Laboratory (SWCEL)
117 Richmond Drive, N. E.
Albuquerque, New Mexico 87106

Region: Portions of Arizona, Oklahoma, Texas, and all of
New Mexico

j. Southwest Regional Laboratory for Educational Research
and Development (SWRL)
11300 LaCienega Blvd.
Inglewood, California 90304

Region: Southern California, southern Nevada, and western
Arizona

2. IDEA (Institute for the Development of Educational Activities, Inc.)

IDEA is an affiliate of the Charles F. Kettering Foundation. Information about IDEA and its specialized programs can be obtained by contacting:

IDEA
Suite 300, 5335 Far Hills Avenue
Dayton, Ohio 45492

Innovative Programs Division
IDEA
Suite 300, 5335 Far Hills Avenue
Dayton, Ohio 45429

Research and Development Division
IDEA
Suite 950, 1100 Glendon Avenue
Los Angeles, California 90024

Information and Services Division
IDEA
Box 446
Melbourne, Florida 32901

3. AED (Academy for Educational Development)

437 Madison Avenue
New York, New York 10022

Embassy Building
1424 Sixteenth St., N.W.
Washington, D. C. 20036

505 Symes Bldg.
820 Sixteenth Street
Denver, Colorado 80202

4. IRS (Information Retrieval System)

Wisconsin Department of
Public Instruction
126 Langdon Street
Madison, Wisconsin 53702

IRS provides a collection and dissemination bank on current practices and programs in education, giving access to information about projects and programs in school districts, publications, and current research.

5. National Referral Center for Science and Technology

Library of Congress
First and Independence Avenues, S.E.
Washington, D. C. 20540

This national center functions as an intermediary, directing those who have questions about specific areas to individuals or organizations with expertise and specialized knowledge of the particular subject or area. Services are available without charge, by telephone, correspondence, or personal visit.

6. National Center for Educational Statistics

400 Maryland Avenue, S.W.
Room 1077A
Washington, D. C.

This center will answer inquiries on most aspects of education that can be summarized in a statistical fashion. However, caution is exercised in releasing information about individual schools, school systems, etc.

7. Office of Information

U. S. Office of Education
400 Maryland Avenue, S.W.
Washington, D. C.

The Office of Information answers educational questions from the press and the public.

G. Academic Institutions

State universities and teachers' colleges often provide resource services for school systems in their region. The range of service provided varies greatly among the institutions, but one might explore the offerings of a local institution in terms of the following general areas:

1. Bureaus of School Services - information and consultants on specified topics.

2. Extension Services - inservice training through classes conducted in the local community.

3. Continuing Education - inservice training through on-campus courses and workshops.

4. Educational Research and Development - may be conducted in a department of education, but also in other academic departments or university-related research bureaus (R & D centers are all based in universities). The Directory of Individuals, Programs, and Agencies Engaged in the Study of Change lists many of these university-based research centers.

5. Consulting Services - may be organized with the staff of the department of education or education-related research bureaus.

6. R & D (Research and Development) Centers

   Each research and development center concentrates on a significant problem area in education and conducts activities ranging from basic research through dissemination. The centers are interdisciplinary in organization and maintain cooperative relationships with regional laboratories, state departments of education, local school systems, universities and teacher training colleges, and relevant professional and non-profit organizations.

   The following list is from the Directory of Individuals, Programs, and Agencies Engaged in the Study of Change.

   a. Center for the Advanced Study of
      Educational Administration
      Institute for Community Studies
      1478 Hendricks Hall
      University of Oregon
      Eugene, Oregon 97403

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b. Center for the Study of Evaluation
Graduate School of Education
144 Hilgard Avenue
Los Angeles, California 90024

c. Center for Research and Leadership Development
in Vocational and Technical Education
1900 Kenny Road
Ohio State University
Columbus, Ohio 43210

d. Center for Research, Development and
Training in Occupational Education
North Carolina State University
Raleigh, North Carolina 27607

e. Center for Research and Development in
Higher Education
University of California
4606 Tolmen Hall
Berkeley, California 94720

f. Center for the Study of Social Organization of
Schools and the Learning Process
The Johns Hopkins University
3505 North Charles Street
Baltimore, Maryland 21218

g. Learning Research and Development
Center
208 Mineral Industries Building
University of Pittsburgh
Pittsburgh, Pennsylvania 15213

h. National Coordination Center
The National Laboratory on
Early Childhood Education
805 West Pennsylvania Avenue
University of Illinois
Urbana, Illinois 61801

i. Research and Development Center in
Educational Stimulation
Fain Hall
University of Georgia
Athens, Georgia 30602

j. Stanford Center for Research and
Development in Teaching
Stanford University
770 Welch Road
Palo Alto, California 94304

k. Research and Development Center
in Teacher Education
University Junior High School Building
Univeristy of Texas
Austin, Texas 78712

l. Wisconsin Research and Development Center
for Cognitive Learning
The University of Wisconsin
1404 Regent Street
Madison, Wisconsin 53706

7. Educational Policy Research Centers

a. Stanford
Research Institute
Menlo Park, California 94025

b. The Policy Institute
Syracuse University Research
Corporation (SURC)
723 University Avenue
Syracuse, New York 13210

(1) Educational Policy Research Center
at Syracuse (EPRC)
Syracuse University Research Corporation
1206 Harrison Street
Syracuse, New York 13210

H. Human Resources

People can be very valuable to the resource retriever. They can serve directly, as sources of information, and also as effective guides to other sources of information. The use of "people" resources can help avoid problems resulting from the arbitrariness in the selection and categorization of information in "non-human" resources (libraries, hardbound collections, information services, etc.). The unique contributions that people can provide are their ad hoc evaluations of the probable adaptability of an innovation to the particular needs of the client and the quick referral they can give to other resources. They can be found both inside and outside of the client system, through a phone call, a special visit, a convention or meeting, or through serendipitous means.

I. Government Agencies

1. State Government

The departments of education or of public instruction in the various states provide consultants for their school systems on most topics of pertinence to the educational practitioner, e.g., curriculum, special services, federal programs, and administration. The state departments can also serve as clearinghouses on the progress of educational innovations in systems throughout the state. Research coordinating units and curriculum laboratories are normally in this category.

2. Federal Government

The contributions of the federal government to the development and diffusion of education information are substantial as reflected by involvement in many of the "source" agencies listed. The United States Office of Education, as a result of the provisions of the National Defense Education Act, the Elementary and Secondary Education Act, and the Vocational Education Act, is involved in a vast number of programs - many of them innovative - on an operational level. It also sponsors a great deal or research in education and can provide information about or access to relevant projects, completed or ongoing. The numerous publications of the Office of Education and other agencies are only one means of gaining access to this vast information source. Most federal agencies have information services of their own; e.g., the Defense Department's Defense Documentation Center; HEW's Children's Bureau; Office of Research and Development, Manpower Administration at 1111 20th St., N.W., Washington, D. C. 20210; National Referral Center at the Science and Technology Division of the Library of Congress, Washington, D. C. 20540; and the National Technical Information Service, Operations Div., 5285 Port Royal Road, Springfield, Virginia 22151. Probably no other federal department has as much training materials and the Department of Defense.

J. Professional Organizations

Most professional organizations publish newsletters, conference proceedings, documents, and journals containing educational information. The validity and concreteness of such information varies and it may be difficult to obtain, especially if one is not a member of the organization. A good technique is to get on their mailing list for newsletters, which announce recent or impending publications. Libraries and information services also collect certain kinds of publications from these organizations (usually their journal).

1. American Educational Research Association (AERA)

AERA
1126 Sixteenth Street, N.W.
Washington, D. C. 20036

2. National Education Association (NEA)

NEA Records Division
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

3. American Vocational Association (AVA)

AVA
1510 H St., N.W.
Washington, D. C. 20005

AVA also has a number of affiliated organizations, such as:

American Vocational Education Research Association
American Association for Vocational Instructional Materials
etc.

K. Other School Systems

Often valuable help can be given by other school systems. Because of their personal experience, other teachers and administrators can be the best sources of information about the practicability of an innovation.

REFERENCES

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Havelock, Ronald G. Planning for Innovation Through Dissemination and Utilization of Knowledge. Ann Arbor, Michigan: Institute for Social Research, Center for Research on Utilization of Scientific Knowledge, The University of Michigan, 1969.

Havelock, Ronald G. A Guide to Innovation in Education. Ann Arbor, Michigan: Institute for Social Research, Center for Research on Utilization of Scientific Knowledge, The University of Michigan, 1970.

Wall, James E. Review and Synthesis of Strategies for Effecting Change in Vocational and Technical Education. Information Series 59. Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, April, 1972. 59 pp.