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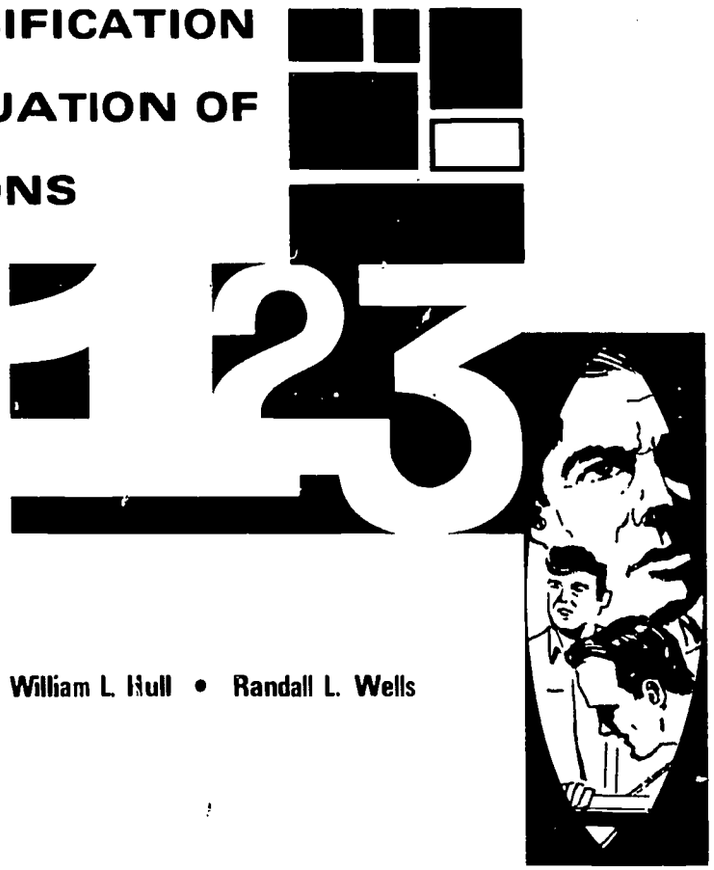
ABSTRACT

This study identified features of innovations which help decision-makers compare and select appropriate innovations for adoption, resulting in the development of guidelines for evaluating innovation characteristics. Following a comprehensive search of the literature for taxonomic dimensions of innovations, interviews were held with school superintendents and others in Ohio. In order to assess the characteristics gleaned from the literature search in the context of administrative needs. The Evaluation Guide was both pilot tested and field tested. Results of the study indicated the following items as most essential to administrators in evaluating innovations: (1) quantity of staff, (2) costs, (3) availability of dollars, (4) space (housing), (5) lead time, (6) source of dollars, (7) hardware, and (8) complexity of innovation. Items rated at least essential to teachers and administrators were: (1) rate of learning, (2) entry and advancement in an occupation, (3) new relationships among groups, (4) cyclical considerations, (5) economic and social efficiencies, (6) reliability, and (7) divisibility. Also, a taxonomy of innovations was not feasible at the present time, and innovations were difficult to define with few unique characteristics for vocational and technical education. (JS)

Research and Development
Series 71

THE CLASSIFICATION AND EVALUATION OF INNOVATIONS for Vocational and Technical Education



William L. Hull • Randall L. Wells

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RESEARCH AND DEVELOPMENT
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THE CLASSIFICATION AND EVALUATION OF INNOVATIONS IN VOCATIONAL AND TECHNICAL EDUCATION

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U.S. DEPARTMENT OF
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PREFACE

Exemplary innovations should be described in a manner which facilitates their evaluation by potential consumers. By focusing adopters' attention on benefits and costs of installing an innovation, a more realistic estimate of adoption desirability can be obtained. This report specifies some of the important conditions which should be considered when adopting an innovation.

We acknowledge the assistance of Richard O. Carlson at the University of Oregon, and Herbert Steffens, Coordinator of the Western States Small Schools Project, Carson City, Nevada who consulted with the researchers in the initial and formative stages of the study. The cooperation of Dr. Sidney High and the four local exemplary program directors is appreciated.

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SUMMARY

PROBLEM

This study identified features of innovations which help decision-makers compare and select appropriate innovations for adoption, thus resulting in the development of guidelines for evaluating innovation characteristics.

PROCEDURES

Following a comprehensive search of the literature for taxonomic dimensions which describe innovations, interviews were held with school superintendents and others in Ohio. The interviews provided an opportunity to assess the characteristics gleaned from the literature search in the context of administrative needs. A prototype of the Innovations Evaluation Guide was pilot tested in a junior high school and revised before the field test. Staff members of vocational education exemplary programs in four local sites in Georgia, Mississippi, Kentucky, and Tennessee evaluated the importance of the Guide items. In addition, state supervisors and local project directors of exemplary programs evaluated the Guide items. The 38 items in the Guide were revised based on the field test data.

RESULTS

Results of the study indicated the following items were perceived as most "essential" for evaluating innovations:

1) Quantity of staff,
2) Costs,
3) Availability of dollars,
4) Space (Housing),
5) Lead time,
6) Source of dollars,
7) Hardware,
8) Complexity of the innovation.

Many of these items were considered essential for the administrator only.

The items rated as least "essential":

1) Rate of learning,
2) Entry and advancement in an occupation,
3) New relationships among groups,
4) Cyclical considerations,
5) Economic and social efficiencies,
6) Reliability,
7) Divisibility.

These items were perceived most frequently to be decisions made by both teachers and administrators. No items were identified as "essential" for the decisions of the teacher only.

A taxonomy of innovations was deemed not possible with the present level of knowledge and technology. Innovations were difficult to define. When identified, they exhibited few unique characteristics for vocational and technical education.

State supervisors, local administrators, local project directors, and local teachers held similar perceptions of the importance of the Guide items. The involvement of local administrators and local teachers in school-related tasks had no effect on the perceived importance of Guide items.

The reader might find it helpful to scan the Innovations Evaluation Guide in Appendix B before reading the report. This will familiarize the reader with the terminology used in reporting the development of the Guide.

THE CLASSIFICATION AND EVALUATION OF INNOVATIONS IN VOCATIONAL AND TECHNICAL EDUCATION

CHAPTER I

BACKGROUND OF THE STUDY

INTRODUCTION

The need for renewal has long been recognized by taxpayers and school officials alike as a high priority in public education. Movements for change and redirection are confronted by the forces of tradition and stability; this confrontation has transformed the orderly search for knowledge and excellence into chaos and confusion for some school districts.

An alternative to change by revolution in public school systems is change through the evolution of tested new ideas for improving the education of the child. This education should be deliberate and programmatic for not all change is improvement; shortcutting the time required to evaluate prospective innovations risks mediocrity of new products in education. The federal government's move to create a network of research and development centers and regional laboratories facilitates the process of planned change in education. Products developed in the centers and engineered for school systems in the laboratories are designed to improve educational systems. Many millions of dollars are being invested in the education product development system. Since 1963, $81 million have been invested by the federal government in research and development for vocational education alone.

These dollars are in response to a need for innovation in vocational and technical education. A cursory review of the U.S. Office of Education annual report of State Research Coordinating Unit Activities (1971) will reveal a number of innovative ideas funded in local education agencies, state divisions of vocational and technical education, and teacher education agencies by the Research Coordinating Units. The extent and diversity of the funded ideas indicates a key problem associated with the diffusion of sound innovations in vocational and technical education: innovations are funded and developed on a rather small scale. In some cases, little attention is being given to the diffusion of the product after the funds have been spent. In other cases, the final product is being promulgated without evidence of its validity and/or reliability.

In an effort to encourage the development and dissemination of practical innovations, the Exemplary Programs and Services Branch of the Division of Vocational and Technical Education in the U.S. Office of Education in conjunction with the states administers funds for exemplary programs in vocational and technical

education. These are tested innovations in the process of being installed in education agencies. Presumably, these projects will result in information about the innovation which would be useful to other school district officials who are thinking about trying the new idea.

On a broader scale, the National Center for Educational Communication in the U.S. Office of Education in cooperation with Educational Testing Service (1971) has funded a search for comprehensive information on selected products of research and development for education. Consultants were employed from the Educational Products Information Exchange (EPIE)[1] and criteria were formulated for the selection of nine products for focused dissemination. This activity recognized the need for more adequate dissemination of bona fide products to education agencies.

The innovation classification scheme and evaluation guide reported in this publication is a systematic attempt to resolve a small part of the problem of knowledge utilization in vocational and technical education. Without a classification system and evaluative criteria for comparing innovations, potential adopters must rely on intuition and spontaneous advice from associates in their selection of an innovation for trial and adoption.

The first step in this study of innovations was the development of a classification scheme with the following characteristics: (1) mutually exclusive categories; (2) categories exhaustive of vocational and technical education innovations; and (3) taxonomic dimensions relevant to the adoption or rejection of an exemplary innovation.

Based on the recommendations of the consultants, the interviews with the superintendents, and the review of the literature, the scope of the taxonomy changed. Questions were raised about the usefulness of a classification scheme for innovations even if the taxonomy dimensions were fully developed. It seemed far more useful to generate questions which, when answered, could pinpoint the benefits of an innovation and its requirements for successful installation.

Dimensions of the Taxonomy

The task of constructing dimensions of the taxonomy proved to be a formidable one. The innovations identified through the

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[1]EPIE is a nonprofit organization that conducts studies of educational materials and systems in an effort to help decision-makers select appropriate innovations for school systems. The EPIE Institute is located at 386 Park Avenue South, New York City 10016.

literature search were compared for common characteristics. Mutually exclusive dimensions sufficiently broad to encompass all innovations were difficult to find. The Educational Programs for Innovative Curriculum (EPIC)[2] evaluation center developed an evaluation scheme for organizational structures affecting programs. It included the dimensions of instructional characteristics, behavioral characteristics and institutional characteristics. Each of these dimensions contained levels which formed cells for the classification of educational programs. Bhola (1965b) suggested two dimensions for classifying the context of innovation adoption situations, one is "costs" and the other "returns." He discusses the effect of visibility of characteristics of innovations on the likelihood of acceptance or rejection. A taxonomic classification of adult basic education programs (Pattison, 1968) includes the following dimensions: program operations, supervisor, coordinator, teachers, time schedule, physical facilities, preplanning, and teaching goals.

Most of the planning and development of the taxonomy occurred during Change Process Program Area meetings at The Center for Vocational and Technical Education.[3] The scheme which developed is tentative and heuristic. It represents a modest first step in the direction of a taxonomic classification. Figure 1 illustrates the taxonomy as it could be used to classify innovations appropriate for vocational and technical education. It is interesting to note that the "Types of Innovation" dimension of the taxonomy, which includes the categories of individual-behavioral, organizational-legislative and scientific-technological, corresponds well with the major categories listed under impediments to accountability by Hencley (1971): philosophical-ideological, political-legal, and technological-economic.

The taxonomy was reviewed by two consultants early in the history of the project. They suggested major revisions in the format of the classification scheme. One commented that a taxonomy would be interesting, but not as useful as a means of appraising characteristics of innovations. Other suggested revisions included the need for statements describing what the innovations can do, the incorporation of scanning devices to allow busy administrators to view tables of relationships quickly, an emphasis on questions as a guide for prospective adopters, the

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[2]The EPIC Evaluation Center in Tucson, Arizona functions as a regional center for the purpose of providing educational agencies with the technical assistance and facilities necessary for the development and maintenance of sound and continuous programs of evaluation.

[3]We wish to acknowledge the suggestions of our colleague, Frank Pratzner, who suggested the "Types of Innovation" dimension.

Level	Types of Innovation: Individual-Behavioral	Organizational-Legislative	Scientific-Technological
National	EPDA internships	Regional education R&D Labs	Program Planning and Budgeting
State	Cooperative research internship	Boards of Cooperative Education Services	Statewide computer science program
Local	Independent study	Differentiated staffing	8 mm. single concept film loops

Figure 1

Dimensions of the Taxonomy of Innovations

addition of a section on attitudes caused by the innovation, and the addition of a section on policy changes.

As a result of these suggestions, the decision was made to develop a guide for evaluating innovation which could be used by school administrators or other prospective adopters of new educational products.

STATEMENT OF THE PROBLEM

Any educator faced with the task of appraising the desirability of an innovation before trying it in his school system needs a guide to assist him in analyzing essential benefits of the innovation and its requirements for successful installation. The prospective adopter should analyze the innovation into its component parts, understand the nature and extent of resources required for complete installation, and estimate the adjustment which would be required in the existing education system. The alleged benefits of the innovation should be readily apparent and documented with evidence from field trials with the product in realistic education settings. Once decision-makers have decided

to try the innovation, a description of the innovation's characteristics would be useful in convincing staff affected by the change of its desirability. At the present time, very limited information is available about most innovations in vocational and technical education.[4] Most developers are perfecting the technical aspects of their products, but they are not attending to questions posed by the installation of the product in an education system. A guideline and format are needed which will facilitate communication and understanding between the developer of the product and its consumer. Such guidelines would be useful to individuals such as change agents and potential adopters who are instrumental in the adoption of exemplary innovations.

OBJECTIVES

This study was designed as the first of a series to develop a frame of reference for the diffusion of exemplary innovations in vocational and technical education. This study was to classify innovations by their characteristics in a manner which would facilitate their evaluation by potential adopters. A second study of the adopting units (teacher education departments, state divisions of vocational and technical education, and local education agencies) in vocational and technical education is planned to precede the third study, the development of prescriptive diffusion strategies for innovations in vocational and technical education.

The purpose of this study is to identify features of innovations which will help decision-makers compare and select appropriate innovations as solutions to local problems. No attempt has been made to dwell on problem identification or need for the innovation. The objective of this study was to develop a Guide with items which would evaluate characteristics of exemplary innovations required for successful installation in an adopting unit.

LIMITATIONS OF THE STUDY

This study assumed each innovation which would be evaluated by the criteria in the Guide will have been field tested for technical proficiency. The items in the Guide were written from the innovation adopter's perspective; no attention was given to criteria necessary for maintaining the efficacy of the innovation.

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[4] A recent search for tested ideas in education conducted by the Far West Laboratory for project ALERT (Alternatives for Learning through Educational Research and Technology) discovered very few, if any, innovations in vocational and technical education. Documented in a phone conversation with C. L. Hutchins, February 23, 1971.

Except by implication, no criteria in the Guide were designed to assess the need for the innovation. Guide items relate to characteristics (or attributes) of the innovation only. Conditions impinging on the adoption of innovations are so varied and diverse that it becomes very difficult to describe situational characteristics in common terms.

The Guide places primary emphasis on judging the desirability of an innovation rather than the speed of an innovation's adoption.

PROCEDURES

The Search for Innovations. A search of ERIC microfiche and related literature was conducted to identify innovations in vocational and technical education. Of particular interest were publications identifying innovations in the service areas such as Cochran (1970). Some publications such as Von Haden and King (1971) discussed the advantages and disadvantages of particular innovations in education. Some of the research studies of perceived characteristics of innovations were useful in identifying questions of concern to potential adopters.

Interviews with Superintendents. Following the review of literature, questions were posed to innovative superintendents in Ohio. Professors of Educational Administration at The Ohio State University were asked to nominate superintendents whom they perceived as innovative. Ten names were suggested. Six superintendents were interviewed by the research team during May, 1971. The names of the superintendents are listed in Appendix E. The questions asked of each superintendent are listed in Appendix F. The interviews usually included members of their staffs and ranged from two to four hours. This activity served as a context evaluation for the Guide questions identified in the review of literature.

Development of the Instrument. In June of 1971, a supervisor of vocational education was employed on the project as a research associate. During the summer months, he used the information acquired through the literature search and the personal interviews to construct the first draft of the Guide. More interviews were held with members of the research staff of the Columbus public schools. The Guide was reviewed by the program officer for the Institute for the Development of Educational Activities (IDEA)[5] at the Dayton office. A consultant was employed to review the Guide and recommend changes in its design.

[5] IDEA is a nonprofit corporation engaged in educational improvement. It is an affiliate of the Charles F. Kettering Foundation.

The data collection instrument began to look like a checklist of innovation characteristics, rather than a classification scheme. The underlying dimensions of the Guide and the scope, magnitude, pervasiveness, etc. of the innovation were implied in the questions on the checklist.

The revised version, now called an Innovations Evaluation Guide, was pilot tested in a local junior high school for clarity and readability. Each of the research team members reviewed the instrument in detail with a teacher or administrator in the school system. Through the cooperation of the school personnel, several revisions were made in the Guide and its accompanying data collection instrument on role involvements of teachers and administrators. See Appendix C for a copy of the Guide used in the field tests and data collection instruments.

The Guide items could be perceived as criteria for successful installation of innovations although the criteria do not apply equally to all situations. Particular innovations were not suggested by the checklist. Any innovation could be indexed by the items, although some of the items may not apply to a particular innovation.

Data Collection. The next activity in the study was to identify qualified individuals to indicate the perceived importance of the items in the Guide for evaluating an innovation in vocational and technical education. The U.S. Office of Education staff in the Exemplary Programs and Services Branch of the Division of Vocational and Technical Education were asked to nominate sites of exemplary programs in vocational and technical education that have been involved in an exemplary project long enough to perceive some of the problems and benefits from its trial installation. Staff members engaged in implementing vocational and technical education exemplary projects appeared to be qualified judges of the importance of the items in the Guide for anticipating benefits and installation requirements of an innovation. Four sites were selected and visited by members of the research team in November, 1971. The names of the project directors and the four sites are listed in Appendix D.

Local project directors were asked to involve all members of their staffs who had responsibilities in the exemplary project in the data collection. In one case, three consultants from a nearby university, a professor and two graduate students, completed an appraisal of the Innovations Evaluation Guide but did not complete the index of their role tasks since they were not employed by a local school. This accounts for a three person discrepancy between the number of local administrators completing each instrument.

One of the projects was located in a major metropolitan area, one was in a rural area and the two other sites were county units adjacent to large cities. A majority of the responses from teachers came from individuals in elementary schools since the projects all involved career development activities at that level. Except for the metropolitan school district, nearly all of the teachers and administrators involved in the projects returned usable questionnaires. In the metropolitan district only administrators and coordinators (with some teaching duties) of the exemplary project responded to the data collection instrument. When individuals spent more than half of their time in teaching, they were classified as teachers. This same classification system applied to administrators. Four guidance counselors in the respondent group were judged to be administrators for the purposes of this study. Four of the individuals in this group were local directors of the exemplary project. They could have been classified with the local directors attending the national conference, but they were not reclassified.

The responses from the teachers and local administrators were collected after school or during their conference period in the school day. These situations represented widely varying conditions and should not be construed as a sample of any kind. The attempt was to collect perceptions of the "most important" item from individuals best qualified to make this judgment. Figure 2 shows the respondents by data collection sites.

Data Collection Site	Teachers	Administrators
County Unit #1	14	23
County Unit #2	10	3
Metropolitan District	2	6
Rural District	12	6
TOTAL	38	38

Figure 2

Number of Teachers and Administrators
by Data Collection Sites

In addition to local administrators and teachers, responses were obtained from state supervisors and local project directors of exemplary programs who were attending a national conference in

December, 1971. Sixty-five usable responses were obtained from the 88 people attending the conference. Some left the conference before the administration of the instrument. Six others failed to complete all of the information. The supervisors and project directors were not asked to complete the Role Definition Sheet.

Revision of the Guide. Following data collection, the responses were summarized and analyzed for information leading to changes in the Guide. Most of the responses were obtained via constructed responses which classified an item in the Guide as either "essential" or "helpful" for teachers, administrators, or both. Instructions were given for respondents to strike out, substitute, or delete any item which needed improvement. In order to remain in the Guide, each item had to receive at least 50 percent "essential" ratings. This was an arbitrary standard established by the research team prior to the data collection. Respondents also were asked to rate categories of items according to criteria of "most important" and "least important." The data collection instruments are in Appendix C with the Guide used during the field testing.

Analyses of Data. The data were summarized by frequency count according to respondent groups. Appendix Table A-1 lists frequencies for all items in the guide by respondent group and perceived degree of helpfulness for teachers, administrators, or both. Scores for degree of helpfulness for each item were computed by summing over all categories. The items in Table 1, page 28, represent extreme scores (items rated as most essential and least essential). The items were classified as essential for whom (teacher, administrator or both) by summing across respondent groups and locating the modal frequency as illustrated in Appendix Table A-1.

CHAPTER II

CONCEPTUALIZATION OF THE GUIDE

A means of classifying innovations could be useful for a number of different activities. Bhola (1965a) states that no worthwhile taxonomy of innovation is available for use. Even the term "innovation" is used synonymously with improvement, invention and other terms. He suggests:

> A taxonomy based on operations or processes would have been useful but as indicated earlier, it was impossible to suggest such a taxonomy with the present inadequacy of our knowledge of innovation processes. (p. 14)

Carlson (1968) would like to have a classification scheme to compare innovations in discrete studies of diffusion research. Another use for an innovation classification scheme for evaluating proposed new ideas is suggested by Stufflebeam and others (1966). They stress the need to eliminate unnecessary duplication of developmental effort. A descriptive taxonomy of innovation characteristics would be a step in this direction.

THE NEED FOR A CLASSIFICATION SCHEME

The need for a classification scheme for comparing one innovation with another is evident. When innovative projects are funded by Research Coordinating Units or other agencies in State Departments of Education, the justification for the proposal usually includes a description of the expected outcomes. For example, the guideline criteria for the evaluation of innovative program applications in the state of New York (1971) contain the following two items:

> The proposed project is based upon the ideas and practices that have shown promise of effectiveness in experiments or controlled studies. The project is designed to demonstrate its effectiveness and efficiency within the regular school setting and conducted in a reasonably wide range of school settings. (p. 27)

Most practitioners need help in interpreting the meaning of criteria such as these. In addition, it becomes important to know which characteristics of innovations are of value to potential adopters.

Orr (1964) notes the biomedical information complex is one system which attempts to assist practitioners in their selection

of innovations and prediction of successful performance. Another system, Project ALERT developed at the Far West Laboratory, provides objective, summarized information about tested innovative programs and projects in education. The information is placed on cards and sorted by grade level, subject area, ability level and target audience. This "recipe box" may be used by school administrators for information on curriculum decision-making, in-service training, community participation, and so forth. It appears reasonable to assume that certain rational information should accompany the promotion of any educational product. But, what is the essential information?

Information on the Context. It is unfortunate but true that innovations may work very well in one context and fail in another. Variations such as the number of teachers involved in the operation of the new idea may be just as important as objective evidence of increased pupil learning. Miles (1964) supports this notion when he states:

> . . . educational innovations are almost never installed on their merits. Characteristics of the local system, of the innovating person or group, and of other relevant groups often outweigh the impact of what the innovation is . . . (p. 635)

The researchers found a tendency on the part of the superintendents interviewed to consider innovations to be system specific. One interviewee went so far as to suggest that an idea could not be diffused from one school district to another. Ideas are never copied; they must be adapted to a school system. The need for data on the conditions under which the innovation was tested was emphasized. Information on the assessed evaluation and indebtedness of the district, for example, may determine the amount and nature of the finances available for innovation.

Becker (1970) states:

> The task of constructing a classification scheme for innovations is made more complicated by the need (largely ignored by typology-builders) to speculate on the possible affective connotations toward the innovations held by members of the system. (p. 271)

In a study of attributes of innovations as factors in diffusion, Clinton and House (1970) found complexity, relative advantage, divisibility, communicability and compatibility to be the best predictors for innovation acceptance from among a set of 16 factors. In all cases, efficiency was significant as a factor indicating concern over how well an innovation might work in a respondent's situation. They concluded that innovation is a mental process followed by a physical act of implementation.

In a benchmark study of differential perceptions of innovations, Kivlin and Fliegel (1966) found perception of innovations to be related to adoption. Factors related to cost attributes, efficiency, returns, risk and uncertainty, communicability, and congruence were examined among dairy farmers in a Pennsylvania county. They concluded that "additional attributes are needed to increase the explained variance . . . Complexity, for example was used as a single attribute but may refer to either complexity of use or complexity of understanding" (p. 245). A checklist of questions would be useful in explaining an innovation to a prospective adopter.

A Field Test No Guarantee of Success. Advocates may rely on personal experience or persuasion to "sell" an innovation rather than supplying potential consumers with field test data. Change agents may become overzealous in selling their product to potential users. Or, since the economics of marketing do not permit time for proper field testing, the direct results or the side effects of the products may not be known (Ward and others, 1971). Communication needs to be facilitated between the developer and the user.

Even educational products which are tested and proven in an ideal environment may fail to perform properly in a real-world situation. This was true of an educational device studied by Yens (1971). The lack of reliability of the prototypes was the major disruptive element. Some writers such as Helwig (1971) reject technical efficiency as a means of bringing school systems closer to innovation. "Describing the life cycle of a particular innovation . . . will not tell much about its effectiveness, social or otherwise" (p. 83). He argues for conceptualizing innovation as something intrinsic, related to the self-actualizing needs of the individual.

Perhaps it is this critical activity of relating individuals to the process of innovation that influenced Lippitt (1968) to study internal resistance to innovations as legitimate problem-solving. Individuals have to cope with factors within themselves before they can commit themselves to new ways of doing things. He says, "Usually dissemination agents do an inadequate job of helping the potential adopter explore realistically the question: 'Well, how would this fit in my situation?'" (p. 42)

Two advocates of performance contracting (Martin and Blaschke, 1971) claim that research and demonstration results in education over the last few years have had little impact as they are diffused throughout the system. They stress the need for changes in the way people relate to each other. Staff capabilities become crucial to the success of an innovation endeavor.

This review has indicated a need for a classification scheme for comparing innovations based not only on the characteristics of the innovations, but also on their intended consequences in the proposed adopting units. The context in which the innovation was developed and tested is very much a part of the information to be communicated to a prospective adopter. Even then, evidence of prior success of the innovation is no guarantee of success in the new environment.

THE SEARCH FOR INNOVATION

The review of literature and discussions with superintendents disclosed a number of curious perceptions of "innovation." At least one person equated innovation with political gimmicks. Innovations such as voucher plans, performance contracting, and decentralization have nothing to do with educational improvement according to this source. There is a world of difference between "innovation" on the one hand, and what is actually expected of teachers in the classroom on the other hand.[6] This discrepancy between intended consequences and what actually happens is due, in part, to the difficulty in defining a concept of innovation.

The Problem of Definition. An "innovation" was defined by a study conducted by North Central Association of Colleges and Secondary Schools and the Institute for Development of Educational Activities as "any practice not generally in use in American high schools" (Cawelti, 1967, p. 57). In a Michigan study of communication networks among innovative schools, the schools were defined as ones in which an interest in new ideas and new developments exists (1967, p. 5). These definitions provide evidence of the elusive character of innovation. Trow (1967) captures the spirit of innovation with this brief description:

> An innovation is a break with routine and habit; it disrupts unreflective ways of thinking, feeling, and behaving; it requires a heightened measure of attention and interest in the matters at hand; it forces the participants, and especially the creators, to think in fresh ways about familiar subjects, to reconsider old assumptions. (p. 4)

One of the definitions of innovation which has persisted over time has been the notion of innovation as "an idea, practice, or object perceived as new by an individual" (Rogers and Shoemaker, 1971, p. 19). It matters little if an idea is objectively new. Presser (1969) points out that an innovation has a point of origin

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[6]Documented in *Education Daily*, March 29, 1971.

in place and time when it is properly considered an invention or a new development. An idea is an innovation at different places and at different times. Thus, a precise definition of the term should include the time and area of its use.[7]

It is not surprising that the search for examples of innovations in vocational and technical education revealed a number of ideas perceived as innovations in one situation, but not in another. Figure 3 lists some of the more frequent "innovations" identified in the literature review. The reader will note the wide range of diversity and degree of generality among items. A review of innovations in general education (Cawelti, 1967) reveals the same diversity of topics. A task force at a national institute on innovative curriculums in vocational and technical education (Nelson, 1969) recommended that innovation be viewed "as a systematic attempt to redesign educational approaches or practice to promote positive curriculum change" (p. 10). As they examined innovative programs, the groups found little evidence of uniqueness in any one program. It is understandable that many innovations aim at curriculum improvement as a motivation for planned change.

Innovation Desirability, Most Important. Research on the diffusion of innovations has focused much attention on the rate of adoption. The study of modern math by Carlson (1965) used the rate of adoption as the dependent variable to study the effects of certain variables such as social structure in school systems. The speed with which an innovation is adopted may have little to do with its desirability. Pafford (1968) indicated that the adoption of the modern math curriculum has weakened the curriculum in many districts. Modern math as an innovation is good, but the teachers were not qualified to present it effectively according to Pafford. This statement emphasized the need to evaluate the readiness of a target audience for an innovation.

"Evidence also indicates," according to Evans (1967), "that we should discard from the start any notion that the speed with which an innovation is adopted is necessarily related to its usefulness to society as a whole" (p. 16). In fact, an innovation which can be adopted easily probably lacks the capacity to make a difference in its target audience. An innovation with an ability to make a large amoung of change is likely to be adopted rather slowly. Such innovations are likely to be perceived as threats by individuals representing the existing system.

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[7]The reader may be interested in a formula for computing an innovation score for individuals developed by James E. Christiansen (1965, pp. 55-56).

1. Accountability
2. Area vocational schools
3. Behavioral objectives
4. Boards of Cooperative Educational Services
5. Cooperative education
6. Cooperative highway engineering technology
7. Cooperative research internship
8. Core vocational curriculum
9. Cost-benefit analysis
10. Curriculum clusters
11. Demonstration vocational education program for the blind
12. Differentiated staffing
13. Disadvantaged youth education
14. Educational T.V.
15. 8 mm single concept film loops
16. EPDA internships
17. Exploratory summer programs in vocational education
18. Extended school year
19. Independent study
20. Individualized instruction
21. K-14 career education
22. Management by objectives
23. Marine technology program
24. Micro-teaching
25. Modular scheduling
26. 1968 Vocational Education Amendments
27. Post-secondary education for the disadvantaged
28. Program Evaluation and Review Technique (PERT)
29. Program Planning and Budgeting System (PPBS)
30. Programmed instruction
31. R&D Centers
32. Research Coordination Units
33. Residential schools
34. Simulation
35. State Advisory Councils for Vocational Education
36. Statewide computer science program
37. Teacher aides
38. Teacher decision-making
39. Team teaching
40. Vocational education for youth in state correctional institute

Figure 3

Array of Innovations

CHARACTERISTICS OF INNOVATIONS

Rogers (1962) cautions that innovations' characteristics are not absolutes. They vary depending on the mind of the beholder. Consistent with this proposition and his definition of innovation, Rogers and Shoemaker (1971) have identified five "most important" characteristics of innovations which explain much of the variance in adoption research studies:

1. Relative advantage is the degree to which an innovation is perceived as better than the idea it superseded . . .

2. Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and the needs of the receivers . . .

3. Complexity is the degree to which an innovation is perceived as difficult to understand and use . . .

4. Trialability is the degree to which an innovation may be experimented with on a limited basis . . .

5. Observability is the degree to which the results of an innovation are visible to others. (pp. 22-23)

Each of these concepts describes a quality of the innovation as it is contrasted with an existing situation. These variables represent an interaction between the innovation and a prospective adopting unit.

Other characteristics relate only to the innovation itself: the costs of operating the innovation, the time required for planning, and so forth (Woods, 1967). Brickell (1969) lists a number of general and specific characteristics of innovations: magnitude, completeness, complexity, convenience, flexibility, distinctiveness, replicability, content, staff performance, staff background, staff roles, social setting, equipment and materials, time, and space. He perceives readiness, trial possibility and cost to be interaction variables.

Kivlin and Fliegel (1966) compared initial cost, continuing cost, the saving of discomfort and the saving of time, payoff, social approval, recovery of cost, divisibility for trial, regularity of reward, clarity of results, complexity, compatibility, pervasiveness of consequences, and mechanical attraction in their study of innovation characteristics. The reader will recall that the interaction variables of complexity, relative advantage, divisibility, communicability and compatibility accounted for the greatest variation in the Clinton and House (1970) study. There

appears to be a need for assessing the anticipated outcomes of an innovation in a specific environment.

Half of the superintendents interviewed by the authors wanted to know the probable consequences of adopting the innovation. Would it be acceptable to the teachers and the community? The power structure in the community has a lot to do with the implementation of an innovation. It can be a barrier or a facilitator of innovation depending on the norms which have been built up over time. Each superintendent indicated an interest in the cost of the innovation and the likelihood of the need for continued support. One man indicated that the single most important item which determines the acceptability of an innovation was the availability of space in which to house it! Funding current programs as well as innovations was a problem for all superintendents. The lack of local funds and how to get federal and state funds constituted high priority information. In other words, a good idea with a source of funds usually received more attention than a good idea without funds to implement it.

Most of the superintendents indicated the success of their innovations was due to the "initial" impression made on those affected by the innovation, usually the teachers. The involvement of the staff in the planning for an innovation contributed to acceptance. Evidence of student learning also helped the success of an innovation. Barriers to innovation in school systems seemed to be public apathy, the inability to measure the results of change, the lack of clear thinking in the planning of an innovation, the fears aroused by staff changes, and inadequate organization of the school system.

Both R. I. Miller (1970a) and Kowitz (1971) emphasized the importance of improved student learning as a benefit of innovation. Miller claims that organizational changes in a school system should not be viewed apart from instructional changes. Kowitz wants to know how the innovation views the student and the learning process. He says the moment of truth for nearly every innovation comes with the student's increased learning.

A cursory review of a few learning packages indicates that these products should indicate their level of difficulty, their use of resources such as teacher time, facilities and equipment, and the goals of the program. Hopefully, the research and development centers and the regional laboratories will begin to publish field test data of performance records as a means of providing rational information to prospective users. As these data become more readily available, potential adopters of education products will be more diligent in their search for exemplary innovations.

At the present time, many educators succumb to the tendency to lump all innovations into one basket which oversimplifies and

distorts the need for different installation strategies for different types of innovations (R.I. Miller, 1970b). The introduction of an innovation into a school system or other organization poses special problems (Gross, Giacquinta, and Bernstein, 1968):

> Another task of management is to assess the special types of problems that can be anticipated to arise when different types of innovations are introduced into their organizations. Many administrators assume that all innovations are cut from the same cloth and that the same general strategy will fit almost any change proposed. They need to give careful consideration to the unique qualities of a proposed change and its implications for planning its implementation. (p. 267)

Clinton and House (1970) argue for a special class of innovation characteristics related to the feasibility of adopting the innovation. Undoubtedly, these factors would be similar to the interaction variables mentioned earlier by Rogers; they would relate to the consequences of the innovation for the adopting unit.

One reason for the adoption of inappropriate innovations by target audiences is the inability of most educators to define the problem adequately. Geis (1968) wants to bring the school into a dynamic role with the process of innovation. To make an innovation work, asserts Geis, the school must spend an enormous amount of resources adapting the innovation to its own needs. Some of this energy could be spent on a renewal subsystem within the school. When a school is not aware of its own needs, innovative solutions may be endorsed for the wrong problems.

The process of assessing school system needs is an arduous and time consuming task. The Colorado Department of Education[8] is granting accreditation to local school districts that undergo grueling self-examination. This process, which involves the community, is taking two to three years to complete. The purpose of such accreditation procedures is to encourage schools to reach out for major improvements.

Assessing the context of an educational program is the subject of a publication from the U.S. Office of Education (1970) entitled *Preparing evaluation reports: A guide for authors*. This guide suggests several factors which should be evaluated such as density of the population, major occupations of people, pupil

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[8]Documented in *Report on Educational Research*, April 28, 1971, p. 6.

enrollment trends, per pupil cost of education, and so forth. This information would be useful in estimating the effects of a proposed innovation on school organization, and pupil growth indicators.

This overview of characteristics of innovations has described some of the more common considerations in the installation of new ideas in education systems. These innovation characteristics should communicate to potential adopters the benefits and requirements of the innovation. It appears necessary to take into consideration various strategies for installing innovations into systems. Some of the more potent innovation characteristics are, in reality, descriptors of the interaction between an innovation and its target audience. Hopefully, decision-makers in school systems are sufficiently aware of their existing situation to compare the proposed change with the status quo or other innovations competing for the same resources. The items in the Innovations Evaluation Guide in Appendix B represent a synthesis of those characteristics identified in the review of the literature.

Format of the Guide

The guide contains relatively discrete categories for innovation characteristics. It can be used by a prospective adopter of an innovation to raise questions with its developers or to anticipate how the new program will fit into the school system (Brickell, 1969). A decision-maker wanting a record of an innovation's costs and results could use the guide to keep such a record during tryout of the innovation. The Innovations Evaluation Guide, as it is now structured, places emphasis on the benefits and costs of the innovation itself, not the speed with which the innovation can be adopted. Some attention is given to installation considerations, particularly potential problem areas such as the reeducation of staff. The format and content of the Guide is subject to change. In fact, the version in Appendix B is a result of field tests with four different groups of vocational educators.

CHAPTER III

FIELD TEST OF THE INNOVATIONS EVALUATION GUIDE

The research team visited four exemplary project sites and attended a national meeting for exemplary project personnel. This provided an opportunity to get input from personnel in the field who were involved at different levels in exemplary innovations.

RATING OF ITEMS IN THE INNOVATIONS EVALUATION GUIDE

One of the main activities in which all respondents were involved was the rating of all items in the Innovations Evaluation Guide. This involved some decision-making on the part of each respondent. Each respondent first decided to whom the item was perceived to be of most importance when an innovation is being considered. The categories of teacher, administrator, or both were offered as choices.

Selection of the teacher category would indicate that the respondent perceived the particular item to be of greatest importance for teacher consideration. A selection of the both category would indicate that the respondent perceived the item to be of equal importance to both the teacher and administrator. A choice of administrator indicated the particular item was perceived primarily as an administrative decision.

The second decision made by the respondent was an indication of the item's perceived importance. The item was rated as either "essential" or "helpful." Table A-1 in the Appendix contains the frequency counts for all items in the Guide by respondent groups along with the combined total ratings. A quick scan of the totals column in Table A-1 will point out that the highest rating in some instances does not represent a large number of the 141 respondents. Some items do, however, indicate strong agreement from all respondents.

Table A-1 shows no great variation among the respondent groups. It is possible to say that the respondent role did not reflect a difference in the overall perception of Guide items. Although overall ratings did not represent large variations among respondent groups, the following discussion cites examples which were outstanding for each of the four respondent groups.

State Supervisors. State supervisors indicated that 17 of the Guide items were not to be considered by the teacher alone.

Some rated these items as being of concern to both teacher and administrator, but the majority perceived them as being considerations for the administrator only. A list of the items indicates that all items except one are cost items. The one benefit item refers to program operations. It can be determined from these ratings that state supervisors did not perceive cost items to be as much a concern for teachers as they are for administrators. These items were:

1) Increased efficiency,
2) Costs,
3) Sources of dollars,
4) Availability of dollars,
5) Proportion of dollars available from different sources,
6) Limitations on use of other than local funds,
7) Acceptance,
8) Policy changes,
9) Feasibility,
10) Effect on staff organization,
11) New relationships among groups,
12) Quantity of staff,
13) Space (Housing),
14) Space (Land use),
15) Arrangement of space to other programs,
16) Acquisition of needed space,
17) Hardware.

Two Guide items did not receive any responses as consideration just for the administrator. These were increased rate of learning and increased scope of learning. The majority of state supervisors perceived these to be basically essential to both teacher and administrator.

Items which received the least number of essential responses were cyclical considerations, divisibility, and new relationships among groups. These ratings are probably due to the limited involvement in actual exemplary program operations by state supervisors. Neither would they be as concerned about group relationships since they are not involved directly in program operations.

State supervisors rated the following items most frequently as being essential:

1) Availability of dollars,
2) Quantity of staff,
3) Costs,
4) Complexity.

Local Administrators. Local administrators perceived seven of the items as not being considerations for the teacher only. These items were:

1) Sources of dollars,
2) Availability of dollars,
3) Proportion of dollars available from different sources,
4) Policy changes,
5) Quantity of staff,
6) Arrangement of space to other programs,
7) Acquisition of needed space.

In all cases, the majority felt these items were considerations for the administrator only. This reaction could have been predicted from local administrators since the items relate to cost and to responsibilities usually borne by administrators.

Items which received the least number of essential responses from local administrators were:

1) New relationships among groups,
2) Economic and social efficiencies,
3) Proportion of dollars available from different sources,
4) Entry and advancement in an occupation,
5) Cyclical considerations,
6) Divisibility.

The above list tends to indicate that local administrators are not always as concerned with aspects which would concern the director of the project or teachers involved in the project. This also might be due to being somewhat removed from the actual project operations.

The following items were rated essential most frequently by local administrators:

1) Availability of dollars,
2) Quantity of staff,
3) Policy changes.

Local Project Directors. Local project directors rated four of the Guide items as not being considerations for the teacher only. These were:

1) Installation time,
2) Policy changes,
3) Degree of development,
4) Feasibility.

The majority felt that policy changes were administrative considerations only. The other three items were rated as essential to both the teacher and administrator.

The items to which this group gave the least number of essential responses were:

1) Reliability,
2) Increased rate of learning,
3) Economic and social efficiency,
4) Divisibility.

One respondent admitted that reliability was not important to know if they were sold on trying out an innovation locally.

Local project directors rated the following items most frequently as being essential:

1) Personal human values,
2) New roles for individuals,
3) Teaching or other experience.

Local Teachers. Sources of dollars and proportion of dollars available were not perceived by this group to be considerations for the teacher only.

Items to which teachers gave the least number of essential responses were:

1) New relationships among groups,
2) Entry and advancement in an occupation,
3) Cyclical considerations,
4) Economic and social efficiencies,
5) Reliability,
6) Acceptance,
7) Divisibility.

A large number of respondents were elementary teachers. For this reason they might not be particularly concerned with such items as entry and advancement in an occupation or economic and social efficiencies. Divisibility again received the least number of essential responses. This item and cyclical considerations appear to be relatively unimportant considerations for exemplary projects.

Items which were rated essential most frequently by teachers were:

1) Costs,
2) Space (Housing),
3) Sources of dollars,
4) Complexity,
5) Disruption of routine,
6) Hardware.

Items Perceived as Most and Least Essential. It was possible to determine which Guide items were perceived as the most and least essential by analyzing the combined frequency counts for

all four respondent groups. Items were listed which appeared at either extreme according to high and low essential frequency counts. The natural break was used as a cut-off point in determining which items would be listed. For example, the items next to complexity, operation time and personnel development, had frequency counts of 113 and 112 respectively. Items next to increased rate of learning, degree of development and acquisition of needed space, had frequency counts of 93 and 94 respectively.

Table 1 includes only those Guide items which received the most and least frequent combined essential responses. These items are listed by individual respondent group as well as by the combined totals for all respondent groups. Table 1 allows a comparison of item perceptions among respondent groups. The proportion of respondents rating items as essential can be determined. For example, of the 30 state supervisors, all 30 rated availability of dollars essential. Twenty-nine rated quantity of staff essential. In the local administrator group, 33 of the 38 rated these same two items essential. Four items tied as first choice of the local project directors with an essential response from 30 out of 35. The highest essential ratings from teachers were 33 out of 38 for costs and housing space.

RANKING OF SUBHEADINGS IN THE INNOVATIONS EVALUATION GUIDE

The Innovations Evaluation Guide is composed of two main divisions, benefits and costs. Each division includes several subheadings. Under each subheading are the individual items which are presented for consideration when an innovation is being evaluated.

Upon completion of ratings for all the individual items, respondents were asked to rank order the subheadings. Each respondent ranked only six of the 11 subheadings. The instructions were to rank the three most important subheadings with "1" for the most important, "2" second most important, and "3" third most important. The least important subheadings were ranked "11" for the least important, "10" second least important, and "9" third least important. Those subheadings which were not ranked either most or least important were left blank. Table 2 includes the mean rankings for the Guide subheadings on a scale of +3 for the highest rank down to -3 for the lowest.

State Supervisors. Subheadings considered least important in order from high to low by this group were organization change, space requirements and equipment requirements. The items under these subheadings are not considerations of high priority to state supervisory personnel.

Table 1

Number of Persons Indicating an "Essential" Response for Most Frequent and Least Frequent Items

	Total # of Respondents (N=141)	State Supervisors (N=30)	LEA Administrators (N=38)	Local Project Directors (N=35)	LEA Teachers (N=38)
MOST ESSENTIAL ITEMS					
Quantity of staff	121	29	33	30	29
Costs	119	27	29	30	33
Availability of dollars	119	30	33	27	29
Space (Housing)	119	25	31	30	33
Lead Time	117	28	29	30	31
Sources of dollars	117	26	31	28	32
Hardware	116	25	31	28	32
Complexity	115	28	29	26	32
LEAST ESSENTIAL ITEMS					
Increased rate of learning	87	19	27	21	20
Entry and advancement in an occupation	86	21	21	24	20
New relationships among groups	83	15	22	28	18
Cyclical Considerations	83	16	19	26	22
Economic and social efficiencies	81	22	15	23	21
Reliability	79	22	21	16	20
Divisibility	72	15	21	17	19

Note: The above list represents those Guide items at either extreme separated at the natural breaks.

The subheadings which they considered most important were individual pupil growth, key indicators of innovation success, and funding. Items under these subheadings point to the concern of state supervisors for successful programs which serve the needs of students. Their position in vocational education is probably the reason for being the only respondent group ranking key indicators of innovation success in the top three.

Table 2 reveals that this was the only group giving a minus mean ranking to program operations. Limited involvement in actual program operations may account for this ranking.

Local Administrators. This group considered the least important subheadings to be space requirements, equipment requirements, and organization change. These items appear to be important considerations for local administrators to rank low, but many innovations do not require additional space and equipment nor a change in the organization. They chose other items to be more important than these items.

Their highest rankings of subheadings were individual pupil growth, funding, and personnel needs. We again see a concern for programs of benefit to students and a concern for funding. This group was concerned more with personnel needs than any other.

The local administrative group was the only group to give a minus ranking to the subheading of legitimacy of the innovation.

Local Project Directors. Space requirements, equipment requirements, and installation considerations were ranked least important in this order by project directors. Again, these might not be common considerations for many innovations. Of greatest concern to this group were individual pupil growth, funding, and program operations. It appears that this group differs from the others in their concern for program operations.

It is interesting to note that this was the only group to have a minus mean ranking for key indicators of innovation success. This could be due to the orientation of the respondents. Many of the local directors were involved in career education programs which were not directly concerned with such things as preparing students for entry and advancement in an occupation.

Local Teachers. Subheadings ranked as least important were installation considerations, equipment requirements, and organization change. Teachers considered these not to be of as great a concern as individual pupil growth, funding, and program operations. They seem to share the same concern as local project directors. This is probably due mainly to their involvement in operating the innovation.

Table 2

Mean Rankings for Guide Subheadings by Respondent Group

Guide Subheadings	State Supervisors (N=30)	Local Administrators (N=38)	Local Project Directors (N=35)	Local Teachers (N=38)
Individual Pupil Growth	2.077	1.743	2.393	2.314
Program Operations	-0.077	0.200	0.250	0.343
Key Indicators of Innovation Success	1.000	0.200	-0.179	0.171
Legitimacy of the Innovation	0.269	-0.200	0.036	0.200
Funding	0.808	1.229	1.357	0.400
Time Considerations	-0.538	-0.657	-0.393	-0.514
Installation Considerations	-0.462	-0.600	-0.607	-0.914
Organization Change	-1.423	-0.771	-0.393	-0.629
Personnel Needs	0.462	0.800	0.143	-0.314
Space Requirements	-1.423	-1.000	-1.393	-0.343
Equipment Requirements	-0.615	-0.943	-1.214	-0.714

Note: Subheadings were ranked +3, +2, +1 as highest values respectively, and -3, -2, -1 as lowest values respectively.

The personnel needs subheading received a positive mean ranking from all groups except local teachers. This points out their feeling that this is more of an administrative concern.

Comments on Overall Ranking of Subheadings. Individual pupil growth was ranked the most important subheading by all groups. Funding was ranked the second most important by all groups except the state supervisors who selected key indicators of innovation success. Program operations was third most important to local project directors and teachers whereas state supervisors selected funding and local administrators selected personnel needs.

There was also agreement among the respondent groups concerning those subheadings that were least important of the 11. These were space requirements, equipment requirements, organization change, and installation considerations.

The variation that exists in the ranking of the subheadings can be attributed to the role of the respondent groups. For example, state supervisors are not usually directly involved in program operations under their jurisdiction. Their concern for funding is not of the same nature or as the concern of local administrators or local project directors. An example of the unique priorities of the teacher group would be their low concern for funding and personnel needs as compared with local administrators and local project directors.

RELATIONSHIP BETWEEN RATING OF ITEMS AND RANKING OF SUBHEADINGS

The degree of difficulty involved in rating individual items and ranking subheadings of the Innovations Evaluation Guide was not the same. Guide items were considered and rated on an individual basis. After completing the individual item ratings, respondents were then asked to rank order the subheadings.

Of the 11 Guide subheadings, only the three most important and the three least important subheadings were ranked. This meant that a decision had to be made not to rank five subheadings.

Many respondents found this activity to be most difficult due to the need to consider collectively all the items which were contained in each subheading. In fact, some respondents would not rank order the items and recorded reasons for not doing so which appear later in this report.

Some relationship can be cited in the rating of items and the ranking of subheadings. These are as follows:

The high ranked subheading funding includes the most essentially rated items of costs, availability of dollars, and sources of dollars.

The high ranked subheading personnel needs includes the most essentially rated item quantity of staff.

The low ranked subheading organization includes the least essentially rated item of new relationships among groups.

The low ranked installation considerations subheading contains the least essentially rated item of cyclical considerations.

DESCRIPTION OF LOCAL ADMINISTRATORS AND TEACHERS

Respondents were clustered according to how they spent their time during the school day. Three broad categories were listed in which each person provided the percent of time spent in each. These categories were teaching, administrative duties, and counseling students.

Four full-time guidance and counseling respondents, four university respondents, and one vocational cooperative teacher were included in the administrative category. This number did not merit setting up a separate category, and it was felt that these individuals would identify more with administrators than with teachers in decision-making.

Local Administrators. The 38 local administrators represented many positions within the local school district operating the exemplary project. Titles appearing on data forms were principal, specialist, counselor, director, coordinator, job developer, superintendent, supervisor, and vocational cooperative teacher.

The mean age for local administrators was 44.2 years with a mean of 15.5 years experience in the field of education. Sixteen of the 38 had been in their present position for four years or more.

Eight of the administrators indicated that a percentage of their day was spent in guidance and counseling activities.

Local Teachers. The most common title found on the 38 teacher response forms was that of classroom teacher. Other titles included career or occupations teacher, teacher coordinator, remedial teacher, team room teacher, and consumer education teacher.

Mean age for teachers was 36.8 years, and mean years experience was 14.3 years. Eleven of the 38 had less than three years of experience.

Fifteen teachers indicated a percentage of their time during the day was spent in counseling. Six teachers indicated a small percentage of their day was spent in administrative duties.

Professional Activities and Academic Preparation. All local administrators and 30 of the 38 teachers held membership in professional organizations. A majority of each group were members of state organizations. Local organizations claimed the second highest number of memberships followed by national organizations. Although membership in professional organizations was high, only nine teachers and nine administrators held an office.

All respondents indicated they held a degree of some type. Five teachers checked the master's degree and three the specialist. Twenty-six administrators had a master's degree, four were specialists, and one project director had a doctorate.

Description of Local Project Directors and State Supervisors. The mean age for project directors was 40.9 years. Mean years experience in education was 16.1 years with 2.8 years average tenure in their present position. State supervisors had less tenure in their present position than any other category. Twenty-seven of the 35 indicated less than three years. The mean age for this group was 38.3 years. The average years of experience in education was 14.3 years.

ROLE DEFINITION INFORMATION FOR LOCAL ADMINISTRATORS AND TEACHERS

It was anticipated that involvement in various school-related activities would influence teacher and administrator perceptions of Guide item importance. For this reason, an instrument was designed to define respondent role by categories of school and related activities. See sample form in Appendix C.

Respondents were asked to place a check on the Role Definition Sheet beside each item which defined their role in the school system. This information was used in two ways. First of all, it allowed a comparison of teachers who were involved in certain activities to those who were not involved. A comparison was also possible between the teacher and administrator groups.

The following discussion on local administrators and local teacher role definition is taken from Table A-2 in the Appendix.

Class Scheduling. Half of the 38 teachers and 22 of the 35 administrators checked that they were involved in this activity.

Purchasing. Twenty-one teachers and 27 administrators were involved in purchasing either items of equipment or expendables such as general supplies.

Extra Duties. Over half of the teachers indicated they had extra duties such as lunchroom, hall, bus, or some other. Less than half of the administrators checked involvement in this item.

Curriculum Planning. All of the administrators were involved in curriculum planning at some level. Twenty-six teachers indicated involvement. Teachers checked department planning most frequently. Administrators checked involvement at all levels with the greatest responses to total school and department planning.

Financing. Only three teachers, as compared to 19 administrators, were involved in such activities as setting up budgets. For teachers, involvement was on the department level; administrators checked total school and department levels most frequently.

Implementing Programs and/or Projects. All administrators and 21 teachers checked this item. The highest frequency for teachers was in the department category. A majority of administrators checked total school, followed by department and interschool.

Administrative Services. Almost half of the teachers checked involvement, with the largest number being in committee work. Twenty-nine administrators were involved, with 25 checking planning.

Hiring. Of the four teachers involved, two help make the hiring decision. All of the administrators at least make hiring recommendations. Of the 25 involved, 18 interview and 15 make the hiring decision.

Related School Tasks. Sixteen teachers and 11 administrators indicated involvement in such activities as yearbook committee, coaching, club sponsor, or other.

Formal Representative Of. Twenty-five teachers and all of the administrators checked that they were a formal representative of some group within their education system. Sixteen teachers represented their own position while 10 were representatives of teacher groups. Administrators checked all categories, with the largest number checking school, department and own position.

A majority of teachers and administrators indicated they were representatives to parents. Teachers also indicated representation to other teachers and professional organizations. Administrators also checked representation to central administration, teachers, community organizations, and the school board.

The teacher group felt its representation was mainly to report grades and explain school programs. Administrator representation was mainly for explaining school programs, coordinating

curriculum within the school, and gaining support for school programs.

EFFECT OF ROLE INVOLVEMENT ON ITEM RATINGS

Supervisors and local project directors did not complete the role involvement form. Table 3 shows teachers and administrators grouped together. They were divided on the basis of whether or not they were involved in a particular role definition category. In the first role category, an average of 29 respondents who were involved in class scheduling marked Guide items as essential. Those not involved in class scheduling numbered 35 with an average of 24 marking all Guide items essential.

The proportion of respondents who marked items as essential was calculated for those involved and not involved in each role category. The difference between these two proportions represents the difference in marking items essential based on role involvement.

A look at some of the proportion figures indicates no significant response pattern existed. Marking items essential was not always a characteristic of those who were involved. The greatest difference between those involved and not involved was in the purchasing role category. It should be noted that a greater proportion not involved in purchasing tended to rate Guide items essential than those involved. The categories of implementing programs and administrative services did not have a difference.

CHANGES MADE IN INNOVATIONS EVALUATION GUIDE

In addition to rating all the Guide items and ranking the Guide subheadings, all respondents were asked to make verbal and written comments. Instructions were given to mark out any item which they felt should not be included to change the wording of any item for easier understanding, or to write in any item which should be included but had been omitted.

All written and verbal responses were considered in revising the Guide items. Respondents offered written suggestions on the rating form or on the Guide itself. Verbal comments were not many in number since the circumstances under which the data were gathered did not allow the necessary time for individual contact with respondents.

Deletion of Items. Although instructions were given to mark off any item which should not be evaluated, none were deleted from the Guide in this manner.

Table 3

The Effect of Teachers' and Administrators' Role Involvement on the Rating of the Items

Role Involvement	N*	Average Frequency for all items marked as essential**	Proportion of Respondents who marked items as essential	Difference
Class Scheduling				
Involved	41	29.10	.71	.03
Not Involved	35	23.68	.68	
Purchasing				
Involved	48	32.57	.67	.05
Not Involved	28	20.21	.72	
Extra Duties				
Involved	38	25.76	.67	.04
Not Involved	38	27.02	.71	
Curriculum Planning				
Involved	59	41.31	.70	.03
Not Involved	17	11.47	.67	
Financing				
Involved	22	15.92	.72	.04
Not Involved	54	36.86	.68	
Implementing Programs				
Involved	53	36.76	.69	.00
Not Involved	23	16.02	.69	
Administration Services				
Involved	46	31.97	.69	.00
Not Involved	30	20.81	.69	
Hiring				
Involved	29	19.89	.68	.01
Not Involved	47	32.89	.69	

*Only local administrators and teachers are included in this analysis of role involvement.
**This column includes all items in the Innovations Evaluation Guide.

The following comments were written by respondents:

"It is difficult to rate - all are necessary - I answered to the best of my feelings."

"I feel that each element listed is of critical importance at some time in the planning and implementing stages of the specific innovation. I cannot, in proper context, consider any of the above items to be 'least' important."

"I disliked the chore of ranking the three least important items. They are all critical."

An arbitrary figure of 50 percent was set as a point at which the deletion of items would be made. This meant that any Guide item rated as essential by 50 percent or less would be deleted. Total responses indicated that all items were rated as "essential" by at least 50 percent of the respondents.

Addition of Items. The following items were added to the Guide:

1) Community involvement,
2) Warranty,
3) Operational assistance,
4) Planning time,
5) Adaptability.

Most of the original benefit items related to the student. It was pointed out that benefits could accrue to the school and community as well as to the student. Warranty and operational assistance were added under the new subheading Beneficial Characteristics of the Innovation. These items focus on such questions as who is responsible for assuming success and what services are provided in the installation of an innovation. Planning time was added as a separate item in order to allow consideration for planning prior to and after installation. Adaptability was felt to be another separate item since the item degree of development did not clearly include this consideration.

Changing of Items. After considering the suggestions which had been offered by respondents and other persons interested in this Guide, the research team made additional corrections to the Guide.

Most of the changes involved rewording for clarification of the meaning of the item. Other changes involved two Guide subheadings which did not clearly identify the items they contained.

The revised Innovations Evaluation Guide is in Appendix B.

CHAPTER IV

FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS

This study of innovation diffusion focuses on the process of accepting or rejecting innovations. A scheme for classifying innovations was attempted, which led to the development of a guide for evaluating innovation characteristics. The Guide contains questions which explain each evaluative criterion. The items in the revised Guide were perceived to be "most essential" for evaluating innovations.

After a comprehensive search of the literature for taxonomic dimensions which describe innovations, interviews were held with six superintendents of school districts and others in the state of Ohio. The interviews assessed the context of administrative needs and "tested" the validity of Guide items gleaned from the literature. A prototype of the Innovations Evaluation Guide was pilot tested in a junior high school and revised before the field test. Staff members of vocational education exemplary programs in four local sites evaluated the helpfulness of the Guide's items for assessing innovation. In addition, state supervisors and local project directors of exemplary programs evaluated the Guide items. The appended Innovations Evaluation Guide was revised based on the field test data and other suggestions from respondents.

FINDINGS

1. A comprehensive taxonomy which classifies discrete vocational-technical innovations into mutually exclusive categories was not possible with our present level of knowledge and technology.

2. It was possible to develop a guide with logical intradependent categories which were perceived as essential to the evaluation of innovations.

Items Most Essential[9]

2.1 Items rated as most essential by all respondents were the following: Quantity of staff, Costs, Availability of dollars,

[9]Finding's 2.1 and 2.2 refer to data in Table 1. These items are the ones rated "essential" most frequently and least frequently by all respondents.

Space (Housing), Lead time, Sources of dollars, Hardware, and Complexity.

2.2 Items rated as least essential by all respondents were the following: Rate of learning, Entry and advancement in an occupation, New relationships among groups, Cyclical considerations, Economic and social efficiencies, Reliability, and Divisibility.

Person to Make Decisions[10]

2.3 Except for the item on efficiency, all items classified as a benefit in the Guide were rated most frequently as "essential" for both teachers and administrators. The items are Rate of learning, Scope of learning, Attitude, Effectiveness, Entry and advancement in an occupation, Economic and social efficiencies, Personal human values, Validity, and Reliability.

2.4 The following cost items were rated most frequently as "essential" for both teachers and administrators: Lead time, Installation time, Operation time, Cyclical considerations, Acceptance, Complexity, Divisibility, Degree of development, Feasibility, Disruption of routine, New roles for individuals, New relationships among groups, Teaching or other experience, Personnel development, Hardware, and Software.

2.5 The following items were rated most frequently as "essential" for administrators only: Costs, Sources of dollars, Availability of dollars, Proportion of dollars available, Limitations on uses of dollars, Policy changes, Effect of innovation on staff organization, Quantity of staff, Space (Housing), Space (Land Use), Arrangement of space to other programs, and Acquisition of needed space.

2.6 No items were rated most frequently as "essential" for teachers only. One item, "Time allocated for operation of the innovation," received a large number of "essential" ratings for teachers only.

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[10]The clarification of a Guide item as "essential" for a particular role (e.g., teacher, administrator, or both) was based on the modal response of the particular sample group as illustrated in Appendix Table A-1.

Respondents' Perceptions

2.7 Of the items rated as most essential, teachers tended to give the "Quantity of staff" item lower ratings than supervisors, local administrators, or project directors.

2.8 State supervisors, local administrators, local project directors, and local teachers held similar perceptions of the importance of the Guide items.

2.9 Involvement in school-related tasks had no effect on perceived importance of Guide items.

IMPLICATIONS

1. The large number of items in the Guide perceived to be important for the administrator only or the administrator in concert with teachers suggest the need for change agents to clear decisions with the administrator of the program. The administrator should be perceived as the point of entry for external change agents into an educational agency. In most cases, the administrator more likely to be a decision-maker in the selection of the innovation than a teacher.

2. The almost unique concern of the administrator for costs and sources of final support suggests that innovations with financial benefits to the school system are more likely to be of interest to administrators than innovations with increased costs.

3. The desirability of an innovation should be based on the value added to the educational system by its adoption, not on its ease of installation.

RECOMMENDATIONS

1. Change agents, both internal and external to the organization, should use the Guide to evaluate innovations being proposed or tried by the organization.

2. The Guide should be validated with documentary studies of specific products to determine the effectiveness of the guide in practice.

3. Assistance should be provided to local administrators for assessing school system needs in a manner and format which will facilitate the comparison of potential solutions to identified problems.

APPENDIX A

SUMMARY TABLES

Table A-1

Summary of Essential and Helpful Responses to All Guide Items by Respondent Group

Respondent Groups

Guide Items	State Supervisors (N=30)						LEA Administrators (N=38)						Local Project Directors (N=35)						LEA Teachers (N=38)						Totals (N=141)					
*	T		B		A		T		B		A		T		B		A		T		B		A		T		B		A	
**	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H
BENEFITS																														
Increased rate of learning	4	2	15	8	0	0	5	2	22	8	0	1	3	2	18	10	0	1	6	6	14	11	0	1	18	12	69	37	0	3
Increased scope of learning	4	1	21	3	0	0	1	2	27	6	1	1	5	1	23	5	0	1	8	4	17	8	0	1	18	8	88	22	1	3
Attitude Improvement	4	1	18	4	1	0	3	6	18	9	0	2	2	2	26	4	1	0	5	2	20	10	1	0	13	11	82	27	3	2
Increased efficiency	0	0	9	3	12	5	3	3	8	8	10	6	3	2	14	1	12	3	7	1	12	5	9	3	13	6	43	17	43	17
Increased effectiveness	3	0	21	3	2	1	2	1	14	9	7	5	2	3	19	2	7	2	5	3	17	8	3	1	12	7	71	22	19	9
Entry and Advancement in an occupation	5	5	16	3	0	1	5	5	14	11	2	1	4	1	18	8	2	2	4	4	14	14	2	0	14	15	62	36	6	4
Economic and Social efficiency	4	3	12	4	6	1	1	4	12	13	2	6	4	0	17	10	2	2	3	3	15	12	3	2	12	10	55	39	13	11
Personal human values	0	1	11	7	4	7	7	3	16	9	3	0	5	1	25	3	1	0	11	5	13	6	2	1	23	10	65	25	10	8
Validity	1	0	18	4	6	1	3	4	16	9	6	0	0	2	18	7	6	1	4	2	21	5	3	2	8	8	73	23	21	4
Reliability	3	1	13	6	6	1	3	2	14	10	4	4	0	2	15	13	1	2	4	1	13	12	3	5	10	6	55	41	14	12
COSTS																														
Costs	0	0	1	2	26	1	0	1	6	3	23	5	2	1	7	2	21	2	0	1	6	3	27	1	2	3	20	10	97	9
Sources of dollars	0	0	1	1	25	3	0	0	4	2	27	5	0	1	5	1	23	5	0	0	5	4	27	2	0	1	15	8	102	15
Availability of dollars	0	0	5	0	25	0	0	0	6	1	27	4	0	1	6	2	21	5	0	1	6	2	23	4	0	2	23	5	96	13
Proportion of dollars available	0	0	2	2	22	3	0	0	3	6	17	12	0	1	4	3	21	6	0	0	6	4	25	3	0	1	15	15	85	24
Limitations on use	0	0	4	2	21	2	1	0	9	4	15	9	0	1	12	3	14	5	1	0	11	6	14	5	3	1	36	15	64	21
Lead time	3	0	20	2	5	0	7	1	14	5	8	3	3	0	20	4	7	1	9	3	20	2	2	2	22	4	74	13	22	6
Installation time	1	0	19	6	4	0	6	1	15	9	6	1	0	0	21	5	5	4	6	4	15	7	3	3	13	5	70	27	13	8
Operation time	10	2	13	2	2	0	11	1	13	6	7	0	5	0	18	7	5	0	16	4	12	4	1	1	42	7	44	13	15	1
Cyclical Considerations	2	0	8	10	6	4	3	3	7	11	9	5	1	0	22	7	3	2	7	3	9	13	6	0	13	6	46	41	24	11
Acceptance	0	0	16	5	4	5	5	0	16	9	7	1	1	0	21	7	6	0	2	1	21	12	2	0	8	1	74	33	19	6
Complexity	1	1	14	0	13	1	2	2	14	6	13	1	0	2	17	6	9	1	5	0	18	4	9	1	8	5	63	16	44	4
Divisibility	0	1	11	7	4	7	3	2	12	11	6	4	0	2	11	10	6	6	4	2	9	12	6	4	7	7	43	40	22	21
Policy Changes	0	0	8	3	15	4	0	0	11	5	21	1	0	0	10	4	16	5	0	1	14	8	12	2	0	1	43	20	64	12
Degree of development	2	0	14	9	5	0	3	0	19	9	4	3	0	0	15	7	10	2	6	4	13	11	2	1	11	4	61	36	30	6
Feasibility	0	0	15	7	4	3	2	0	17	10	7	2	0	0	19	3	10	2	4	2	19	8	3	2	6	2	70	28	24	9
Disruption of routine	1	2	11	4	8	4	3	2	18	8	6	1	5	1	20	5	3	1	7	1	16	5	9	0	16	6	65	22	26	6
Effect on staff organization	0	0	5	2	19	4	2	0	12	5	17	2	2	0	18	7	7	1	1	2	15	5	10	5	5	2	50	19	53	12
New roles for individuals	2	0	15	9	4	0	3	0	20	9	6	0	3	0	26	4	2	0	2	0	19	13	2	1	10	0	80	35	14	1
New relationships among groups	0	0	10	12	5	3	2	0	14	14	6	2	1	0	24	3	3	4	3	3	9	16	6	0	6	3	57	45	20	9
Quantity of staff	0	0	6	0	23	1	0	0	6	1	27	4	1	0	11	2	18	2	2	2	6	6	21	1	3	2	29	9	89	8
Teaching or other experience	2	0	9	4	11	3	1	1	12	9	11	3	4	0	16	3	11	0	2	4	17	5	8	2	9	5	54	21	41	8
Personnel development	2	1	17	4	5	1	1	1	14	1	13	5	1	2	22	2	6	2	2	1	22	5	7	1	6	5	75	12	31	9
Space (housing)	0	0	5	2	20	3	0	1	6	3	25	3	0	1	12	3	18	1	1	1	17	2	15	2	1	3	40	10	78	9

Table A-1 (Con't)

Respondent Groups

	State Supervisors (N=30)						LEA Administrators (N=38)						Local Project Directors (N=35)						LEA Teachers (N=38)						Totals (N=141)					
*	T		B		A		T		B		A		T		B		A		T		B		A		T		B		A	
**	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H
COSTS (con't)																														
Space (land use)	0	0	4	1	18	7	0	1	4	3	25	4	0	1	5	3	22	3	1	0	7	5	20	5	1	2	20	12	85	19
Arrangement of space to other programs	0	0	7	0	15	8	0	0	9	5	20	4	0	1	12	5	13	4	1	1	13	10	8	5	1	2	42	20	56	21
Acquisition of needed space	0	0	3	0	14	8	0	0	5	5	24	4	1	1	5	3	19	5	0	1	9	7	14	7	1	2	22	15	71	24
Hardware	0	0	18	1	7	4	1	0	16	5	14	2	1	1	18	5	9	1	7	0	19	5	6	1	9	1	71	16	36	8
Software	2	0	16	3	6	3	2	0	19	7	8	2	1	0	19	8	5	1	7	1	16	6	7	1	12	1	70	24	26	7

*T = Teacher
B = Both
A = Administrator

**E = Essential
H = Helpful

Table A-2

Role Definition Sheet

Categories	LEA Teachers (N=38) Not Involved	LEA Teachers (N=38) Involved	LEA Administrators (N=35) Not Involved	LEA Administrators (N=35) Involved
In School Role Duties				
a. Class Scheduling (i.e., determining number of students in class and time/place of class)	19	19	13	22
b. Purchasing	17	21	8	27
1. Equipment (i.e., overheads, tape recorders, etc.)	21	17	9	26
2. Expendables (i.e., general supplies, text books)	22	16	8	27
c. Extra Duties (i.e., bus, lunch room, hall, etc.)	15	23	20	15
d. Curriculum Planning	12	26	2	33
1. Department	13	25	15	20
2. Interdisciplinary	34	4	21	14
3. School (total)	35	3	12	23
4. Inter-school	37	1	21	14
5. District	38	0	27	8
6. State	38	0	31	4
7. National	38	0	34	1
8. Other (specify)	37	1	32	3
e. Financing (setting up budgets)	35	3	16	19
1. Department	36	2	25	10
2. School (total)	38	0	23	12
3. District	38	0	33	2
4. Other (specify)	37	1	34	1
f. Implementing Programs and/or Projects	17	21	3	32
1. Department	20	18	19	16
2. Interdisciplinary	35	3	26	9
3. School (total)	33	5	13	22
4. Inter-school	36	2	20	15
5. District	38	0	29	6
6. State	38	0	32	3
7. National	38	0	33	2
8. Other (specify)	38	0	35	0
g. Administration Services	21	17	6	29
1. Planning (specify)	36	2	10	25
2. Committee Work	22	16	11	14
h. Hiring	34	4	10	25
1. Interviewing	36	2	17	18
2. Recommending	36	2	10	25
3. Decision-Making	36	2	20	15

Note: Three university respondents were included in the administrator category. These three did not complete the Role Definition Sheet but are listed as not involved in the role categories.

Table A-2 (Con't)

Categories	LEA Teachers (N=38) Not Involved	LEA Teachers (N=38) Involved	LEA Administrators (N=35) Not Involved	LEA Administrators (N=35) Involved
Related School Tasks	22	16	24	11
a. Yearbook Committee	38	0	31	4
b. Coaching (specify)	37	1	32	3
c. Club Sponsor (specify)	33	5	31	4
d. Other (specify)	28	10	31	4
Formal Representative Of:				
a. Who	13	25	3	32
1. Teacher group (specify)	28	10	27	8
2. School	33	5	20	15
3. Department (specify)	33	5	23	12
4. Students	35	3	27	8
5. Own Position	22	16	25	10
6. School District	37	1	28	7
b. To Whom	15	23	4	31
1. Other teachers	29	9	22	13
2. Central Administration	32	6	18	17
3. Other principals	37	1	27	8
4. Parents	21	17	14	21
5. Business	36	2	24	11
6. Community Organizations	35	3	23	12
7. School Board	37	1	23	12
8. Professional Organizations (specify)	30	8	29	6
c. For What Purpose	11	27	5	30
1. Reporting grades	19	19	27	8
2. Explaining school programs (Information)	24	14	9	26
3. Gaining support for school programs	33	5	17	18
4. Curricular Coordination within the school	31	7	13	22
5. Curricular Coordination between schools within the district	33	5	22	13
6. Representation Purposes (i.e., voting, discussion, etc.)	36	2	31	4
Professional Activities - Give names of organizations. You may abbreviate.				
a. Membership	8	30	3	32
(local)	10	28	10	25
(state)	9	29	4	31
(national)	17	21	15	20
b. Activity Offices Held	29	9	26	9
Academic Preparation	4	34	1	34
a. No degree	28	0	35	0
b. Bachelors (specify areas)	5	33	11	24
c. Master (specify areas)	33	5	9	26
d. Specialist (specify areas)	35	3	31	4
e. Doctorate (specify areas)	38	0	34	1
f. Certification (specify areas and types)	20	18	17	18

APPENDIX B

REVISED INNOVATIONS EVALUATION GUIDE

WHAT IT IS

The Innovations Evaluation Guide is an instrument to help improve the decision-making ability of educators who evaluate innovations. The Guide classifies innovations by their characteristics in a manner which facilitates their evaluation by potential adopters.

WHY IT WAS DEVELOPED

Educators often lack pertinent information upon which to base their decisions. Use of this Guide will reduce the risk of failure due to an oversight in considering essential information. This aid to making a more rational decision suggests evaluative criteria for assessing an innovation.

HOW IT WORKS

The format of the Guide allows the evaluator to do a step-by-step analysis of the benefits and costs of an innovation. By providing information for the applicable characteristics, the evaluator can gain support and approval from those who are affected by his decision. Developers and promoters of exemplary innovations can use the categories in the Guide to supply consumer information on their products.

WHO CAN USE IT

The Guide can be used by any educator who has the task of evaluating innovations. Potential users include such people as classroom teachers, school administrators, state supervisors of exemplary programs, local educational agency project directors, state department personnel, teacher-educators, research and development center personnel, and research coordinating unit personnel.

WHEN TO USE IT

Educators should find the Guide most helpful when an innovation needs to be considered for adoption. It can also be useful as an evaluation tool to assess an innovation which is in the trial stage of adoption.

WHAT IT IS NOT

This Guide does not attempt to assess community or organization needs for innovations. The identification of problems and the mobilization of resources are the prerogatives of decision-makers in educational agencies.

Since the purpose of this Guide is to assess innovations rather than local situations, the educator must know his needs and be able to identify problems which exist. At this point, the Guide is useful in evaluating innovations as possible solutions to the perceived problems.

Information on the development of the Innovations Evaluation Guide can be obtained from the Final Report, *The Classification and Evaluation of Innovations in Vocational and Technical Education*, Research Series No. 71. This research was conducted at The Center for Vocational and Technical Education, The Ohio State University, by William L. Hull, principal investigator, and Randall L. Wells, research associate.

A limited number of single copies are available upon request from the Product Utilization Specialist at The Center. Permission to duplicate this Guide will be granted by The Center upon request.

BENEFITS

INDIVIDUAL PUPIL GROWTH

Rate of learning.
What effect will the innovation have on the rate of student learning?

Scope of learning.
How does the innovation affect the number and type of learning experiences and/or skills to which the students will be exposed?

Attitude.
What effect on attitudes can be attributed to the innovation (i.e., community, students, teachers, administrators)? Are there any experiences which assist the students in the development of their self-concepts and their abilities to relate to other individuals?

PROGRAM OPERATIONS

Efficiency.
What information is available which will allow a cost/benefit analysis of the innovation? How does this analysis compare to the present status or other alternatives?

Effectiveness.
What evidence indicates the innovation can achieve the required objectives to our satisfaction?

SOCIETY AND THE ECONOMY

Entry and advancement in an occupation.
What effect does the innovation have on increasing the opportunities to acquire job entry skills? Does the innovation include activities which will contribute to promotion and satisfaction on the job?

Economic and social efficiencies.
What effect will the innovation have on productivity and costs to society in relation to such items as wages, occupational mobility, and school dropout rate?

Social values.
What attempts will be made to create an awareness of society in the students through the teaching of concepts concerning institutions, laws, cultures and social problems?

Community involvement.
What benefits will accrue to the school and community after installing the innovation? What effect will the innovation have on such items as school and community relations, and the public image of the school?

CREDIBILITY

Validity.
What evidence indicates that the innovation can achieve its objectives?

Reliability.
Where has the innovation been tested previously? How similar are these settings to our situation?

ASSURANCE CONTRACT

Warranty.
To what extent does the developer and/or promoter warrant the soundness of the innovation? Who is responsible for assuring the services of the innovation?

Operational assistance.
What types of consultation and services are provided by the sponsoring agency to warrant the product?

COSTS

FUNDING

Costs.
What is the cost per unit over time? Will the innovation involve a saving?

Sources of dollars.
How can the innovation be funded? Must the cost be borne locally, or is assistance available wholly or in part from state, federal, or public sources such as foundations? What are the possibilities of reallocating present budget items to accommodate installation?

Availability of dollars.
What processes and/or procedures must be followed to acquire the necessary funding? Is the local educational agency in a position to expend its own money and be reimbursed later, or are funds from other sources available prior to expenditure?

Proportion of dollars available from different sources.
In what proportion are funds available from other sources? Do matching funds have to be local funds?

Limitations of use of other than local funds.
What limitations are placed on the use of other funds? Can funds be used for instruction only, equipment and instruction, or equipment, supplies and instruction? Can funds be used for items such as construction, food, transportation or consultants?

TIME CONSIDERATIONS

Installation time.
How much time does it take to get the innovation working?

Lead time.
What deadlines are placed on activities prior to the operating date? How much time is necessary to order and receive items such as texts and materials? How much time is necessary to order, receive, and install equipment? Will the innovation require teacher orientation or advanced teacher planning time?

Planning time.
How much time must be devoted to planning by a teacher, coordinator or administrator during each week?

Operation time.
What amount of time is required by the innovation in daily preparation, classroom activities, meetings, etc.?

Cyclical considerations.
What characteristics of the innovation dictate that it be installed at a particular time during the calendar or academic year?

INSTALLATION CONSIDERATIONS

Acceptance.
What barriers can be anticipated from the community, school personnel, or students concerning the installation of the innovation?

Complexity.
What is the extent of involvement necessary to install the innovation? How many staff members, students, schedules, classrooms, laboratories, or schools are involved?

Divisibility.
What are the requirements concerning extent of installation? Can it be trial tested by the adopting unit before complete installation of the total product?

Policy changes.
What changes in policy on the state and local level are necessary in order for the innovation to be successful (i.e., procedure for a field trip on local level; certification changes on state level)?

Degree of development.
Is the innovation in an installable form or does it require more development? Are additional materials or training activities necessary?

Feasibility.
What evidence is there to indicate that the innovation will work in our situation?

Adaptability.
What adjustments can be made to meet local conditions without damaging the authenticity of the innovation?

ORGANIZATIONAL CHANGE

Disruption of routine.
What interruption of routine is required by the innovation due to rescheduling of classes, retraining of teachers, sharing of facilities, etc.?

Effect on staff organization.
What effect will the innovation have on the present structure? Does it create a need for a separate division or department?

Role change for individuals.
What changes in duties and/or responsibilities are necessary for successful operation of the innovation?

New relationships among groups.
What new kinds of relationships among departments or grade levels will be necessary for successful operation of the innovation?

PERSONNEL NEEDS

Quantity of staff.
What additions to the staff are required? How many part-time or full-time people per unit are needed?

Teaching or other experiences.
What staff experiences are necessary for successful operation of the innovation? Do leaders need to have a knowledge of the community?

Personnel development required by the innovation.
What requirements are necessary for the development of certain role attitudes, skills, and competencies not presently possessed by personnel? Is the present staff capable of, and willing to handle the personnel development necessary for the success of the innovation? Are consultants available?

SPACE REQUIREMENTS

Space (Housing).
Are present facilities sufficient? If not, what physical facilities are necessary to house the innovation?

Space (Land Use).
What acreage is necessary for installing the innovation?

Arrangement of space to other programs.
Does the success of the innovation require close proximity to ongoing programs or present facilities? On the other hand, is a separate location desirable?

Acquisition of needed space.
What are the options to acquiring needed space for the innovation (i.e., donation, purchase, lease, rent, build)?

EQUIPMENT REQUIREMENTS

Hardware.
What are the major items of equipment or their components necessary for the operation and success of the innovation?

Software.
What supplies are necessary for the operation of the innovation?

WORKSHEET FOR MAJOR COST ITEMS

Types of Costs		PHASES: Planning – Innovation	Planning – Alternative	Installing – Innovation	Installing – Alternative	Continuing – Innovation	Continuing – Alternative
Personnel:	Administrative						
	Instructional						
	Clerical						
	Consultant						
	(Other)						
Facilities:	Building Space						
	Equipment						
	Supplies and Materials						
	(Other)						
Operating Expenses:	Travel						
	Printing and Communications						
	Repairs and Maintenance						
	Overhead						
	(Other)						
	Sub-totals						

	Total Cost
*Per Unit (i.e., cost per pupil, cost per school, or cost per state, etc.) Per Time (i.e., per instructional hour, per year, etc.)	*Per Unit/Per Time

CHECK LIST

The Innovation will benefit:

_____ Students
_____ Teachers
_____ Administrators
_____ The School
_____ The Community
_____ The State
_____ The Economy
_____ Society
_____ Program Operations
_____ (Other) _____

The Innovation is:

_____ Acceptable
_____ Feasible
_____ Adaptable
_____ Divisible
_____ Valid
_____ Reliable
_____ Warranted
_____ (Other) _____

The installation requirements are:

_____ Funding
_____ Staffing
_____ Housing
_____ Equipping
_____ Organizational Change
_____ Policy Change
_____ (Other) _____

The objectives for this Innovation are:

APPENDIX C

DATA COLLECTION INSTRUMENTS

INSTRUCTION SHEET

"INNOVATIONS' EVALUATION: A CONSUMER GUIDE"

You are being asked to respond to a series of questions which evaluate the benefits and requirements of an innovation.

Because of your involvement in installing an exemplary innovation, we believe you are qualified to judge the appropriateness of information for evaluating prospective innovations.

INTRODUCTION TO THE GUIDE

The Innovations' Evaluation Guide is designed as an aid to administrators, supervisors, and teachers who evaluate proposed innovations.

A step-by-step analysis is made of an innovation's characteristics. This is an attempt to improve the decision-making ability of an adopter by reducing the risk of failure due to oversight of essential information.

DEFINITION OF INNOVATION

Since the word "innovation" is used quite frequently, we offer the following as our definition: Something new which has never been tried in your school before.

EXAMPLE OF AN INNOVATION

Educators become aware of innovations in many ways. One common way is the promotion and sale of educational products by a commercial concern. Most of you have probably experienced contact with a sales representative with something new for the classroom. Suppose your school were approached with the idea of adopting an innovation such as programmed instructional materials for vocational education programs. The school has never used anything like this before. What information is necessary for you to know in order to make a decision to adopt or reject this new method?

The Guide lists characteristics to consider when evaluating an innovation. As you rate these characteristics later, it will be helpful to keep in mind different kinds of innovations as frames of reference. Other innovations might be new equipment such as an overhead projector, "open-school" concept (e.g., one which uses flexible spacing patterns for large and small group activities), and so forth.

RESPONDENT INFORMATION FORMS

Both teachers and administrators are serving as respondents for this project, and their perceived responses will vary according to their various past and present roles and responsibilities in the school systems. Therefore, we would like to get some information from you, the respondent, regarding your present role(s) and responsibilities in your school system.

1. Please supply information on the Respondent Identification Sheet. (Pink)

2. Please check or supply information for each category which applies to your responsibilities on the Role Definition Sheet. (Yellow)

CODE NUMBERS

All response forms bear a code number. Data gathered on these forms will be analyzed by code numbers rather than by your name.

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RESPONDENT IDENTIFICATION SHEET

Name _____

Title _____

How do you spend your time at school? (% of time — must total 100%)

Teaching _____

Administrative duties _____

Counseling students _____

Tenure in Present School (in years) _____

Total Experience in School Work (in years) _____

Please identify other educational occupations you have been in:

_____

_____

_____

_____

_____

Age (in years) _____

Sex _____

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Code Number _____

ROLE DEFINITION SHEET

*Check categories that define your role

(✓)*	CATEGORIES	COMMENTS
	In School Role Duties	
	a. Class Scheduling (i.e., determining number of students in class and time/place of class)	
	b. Purchasing 1. Equipment (i.e., overheads, tape recorders, etc.)	Recommending Only
	2. Expendables (i.e., general supplies, text books)	Recommending Only
	c. Extra Duties (i.e., bus, lunch room, hall, etc.)	
	d. Curriculum Planning 1. Department	
	2. Interdisciplinary	
	3. School (total)	
	4. Inter—school	
	5. District	
	6. State	
	7. National	
	8. Other (specify)	
	e. Financing (setting up budgets) 1. Department	
	2. School (total)	
	3. District	
	4. Other (specify)	
	f. Implementing Programs and/or Projects 1. Department	
	2. Interdisciplinary	
	3. School (total	
	4. Inter—school	

(✔)*	CATEGORIES	COMMENTS
	5. District	
	6. State	
	7. National	
	8. Other (specify)	
	g. Administration Services 1. Planning (specify)	
	2. Committee Work	
	h. Hiring 1. Interviewing	
	2. Recommending	
	3. Decision-Making	
	Related School Tasks a. Yearbook Committee	
	b. Coaching (specify)	
	c. Club Sponsor (specify)	
	d. Other (specify)	
	Formal Representative Of: a. Who 1. Teacher group (specify)	
	2. School	
	3. Department (specify)	
	4. Students	
	5. Own Position	
	6. School District	
	b. To Whom 1. Other teachers	
	2. Central Administration	
	3. Other principals	

(✔)*	CATEGORIES	COMMENTS
	4. Parents	
	5. Business	
	6. Community Organizations	
	7. School Board	
	8. Professional Organizations (specify)	
	c. For What Purpose 1. Reporting grades	
	2. Explaining school programs (Information)	
	3. Gaining support for school programs	
	4. Curricular Coordination within the school	
	5. Curricular Coordination Between schools within the district	
	6. Representation Purposes (i.e., voting, discussion, etc.)	
	Professional Activities — Give names of organizations. You may abbreviate.) a. Membership (local) _____ (state) _____ (national) _____ b. Activity Offices Held _____	

(✔)*	CATEGORIES	COMMENTS
	Academic Preparation a. No degree	
	b. Bachelors (specify areas)	
	c. Master (specify areas)	
	d. Specialist (specify areas)	
	e. Doctorate (specify areas)	
	f. Certification (specify areas and types)	

Rating Sheet Instructions

The Innovations' Evaluation Guide (Blue) is the focus of this project. Please give us your perceived response for each item in the Guide by using the Rating Sheet (Green). Look at the Guide and Rating Sheet.

1. Read each item in the Guide beginning with Item A.1.a., "Increased rate of learning." Find the corresponding item on the Rating Sheet.

2. Determine the value of each item to *you* as a decision–maker by *first* deciding the primary users of the information: teachers, administrators, or both; then. . .

   secondly, deciding if the information gained from the question is "essential" or just "helpful."

3. Circle ONLY ONE X to indicate your choice.

   Example: John Jones is involved in evaluating an innovation. Upon considering the item below he decides that (1) the primary user of this information would be *both,* and (2) it is *essential* in considering the innovation. His response would be as follows:

Item	Primary User					
	Teacher		Both		Administrator	
	Ess.	Help	Ess.	Help	Ess.	Help
Accuracy of information in new textbook.	X	X	(X)	X	X	X

4. There is a box on the left of the rating sheet for each sub–heading. After all individual items have been rated, rank the three sub–headings you consider *most* important as considerations in adopting an innovation. (Place number in appropriate box)

   1 – most important
   2 – second most important
   3 – third most important

   Next, rank the three *least* important sub–headings as follows: (Place number in box)

   11 – least important
   10 – second least important
   9 – third least important

5. Feel free to make verbal or written comments on the Guide while you are rating items. We will revise the guide based on your responses. Please save some time to recommend additional items, or the deletion of existing items.

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INNOVATIONS' EVALUATION: A CONSUMER GUIDE

This document is designed for administrators, supervisors, and teachers who evaluate proposed innovations. It is an attempt to improve the decision-making ability of an adopter by reducing the risk of failure due to oversight of essential information.

By analyzing the innovation and examining its major components, the reader can evaluate its utility in relation to his needs and other new ideas.

The guide will serve to make the adopter aware of the preliminary requirements necessary for an effective implementation of an innovation.

November 1971

INNOVATIONS' EVALUATION: A CONSUMER GUIDE

A. BENEFITS

1. INDIVIDUAL PUPIL GROWTH

a. Increased rate of learning
What effect will the innovation have on the rate of student growth?

b. Increased scope of learning
Does the innovation increase the number and type of learning experiences and/or skills to which students will be exposed?

c. Attitude improvement
What effect on attitudes can be attributed to the innovation? (i.e., community, students, teachers, administrators)

2. PROGRAM OPERATIONS

a. Increased efficiency
Is the innovation worth the money? Does it provide more benefits per dollar than other ideas?

b. Increased effectiveness
To what extent will the innovation improve the present program?

3. KEY INDICATORS OF INNOVATION SUCCESS

a. Entry and advancement in an occupation
What effect does the innovation have on increasing the opportunities to acquire job entry skills? Will the innovation contribute to job satisfaction? Does the innovation include activities which will contribute to promotion on the job?

b. Economic and social efficiencies
What effect will the innovation have on productivity and costs to society in relation to such items as wages, occupational mobility, and school dropout rate?

c. Personal human values
Are there any experiences provided which assist the students in the development of their self–concepts? Is an opportunity provided, and are concepts used to facilitate the students' skills in relating to other individuals? Is there an attempt to create an awareness of society in the students through the teaching of concepts concerning institutions, laws, cultures and social problems?

4. LEGITIMACY OF THE INNOVATION

a. Validity
Is there evidence to show that the innovation does achieve its objectives?

b. Reliability
Has the innovation been tested in schools similar to ours?

B. COSTS

1. FUNDING

a. Costs
What amount is necessary to get the innovation into operation? What is the cost per unit over time? What additional costs are involved? Will the innovation involve a saving? Can present budget be reallocated to accommodate installation?

b. Sources of dollars
How can the innovation be funded? Must the cost be borne locally, or is assistance available wholly or in part from state, federal, or public sources such as foundations?

c. Availability of dollars
What processes and/or procedures must be followed to acquire the necessary funding? Is the local educational agency in a position to expend its own money and be reimbursed later, or are funds from other sources available prior to expenditure? Is advanced funding necessary in order to adopt the innovation?

d. Proportion of dollars available from different sources
In what proportion are funds available from other sources? Do matching funds have to be local funds?

e. Limitations on use of other than local funds
What limitations are placed on the use of other funds? Can funds be used for instruction only, equipment and instruction, or equipment, supplies, and instruction? Can funds be used for items such as construction, food, transportation or consultants?

2. TIME CONSIDERATIONS

a. Lead time
What deadlines are placed on activities prior to the operating date? How much time is necessary to order and receive items such as texts and materials? How much time is necessary to order, receive, and install equipment? Will the innovation require teacher orientation?

b. Installation time
How much time does it take to get the innovation working?

c. Operation time
What amount of time is required by the innovation in daily preparation, classroom activities, meetings, etc.?

d. Cyclical considerations
Does the nature of the innovation dictate that it be installed at a particular time during the calendar or academic year?

3. INSTALLATION CONSIDERATIONS

a. Acceptance
What barriers can be anticipated from the community, school personnel, or students concerning the installation of the innovation?

b. Complexity
What is the extent of involvement necessary to install the innovation? How many staff members, students, schedules, classrooms, laboratories, or schools are involved?

c. Divisibility
Does the innovation lend itself to stages of installation?

d. Policy changes
What changes in policy on the state and local level are necessary in order for the innovation to be successful? (i.e., procedure for a field trip on local level; certification changes on state level)

e. Degree of development
Is the innovation in an installable form or does it require more development? Are additional materials or training activities necessary?

f. Feasibility
Is there a good chance that the innovation will work in this school and/or district?

4. ORGANIZATIONAL CHANGE

a. Disruption of routine
What interruption of routine is required by the innovation due to rescheduling of classes, retraining of teachers, sharing of facilities, etc.?

b. Effect on staff organization
Does the innovation fit into the present structure, or does it create a need for a separate division or department?

c. New roles for individuals
What changes in duties and/or responsibilities are necessary for successful operation of the innovation?

d. New relationships among groups
What new kinds of relationships among departments or grade levels will be necessary for successful operation of the innovation?

5. PERSONNEL NEEDS

a. Quantity of staff
What additions to the staff are required? How many part—time of full—time people per unit are needed?

b. Teaching or other experience
What staff experiences are necessary for successful operation of the innovation? Do leaders need to have a knowledge of the community?

c. Personnel development required by the innovation
What new roles are created for present administrators and teaching personnel? Does the nature of the innovation require the development of certain attitudes, skills, and competencies not presently possessed by personnel? Is the present staff capable of, and willing to handle the personnel development necessary for the success of the innovation? Are consultants available?

6. SPACE REQUIREMENTS

a. Space (Housing)
Are present facilities sufficient? If not, what physical facilities are necessary to house the innovation?

b. Space (Land Use)
What acreage is necessary for installing the innovation?

c. Arrangement of space to other programs
Does the success of the innovation require close proximity to ongoing programs or present facilities? On the other hand, is a separate location desirable?

d. Acquisition of needed space
What are the options to acquiring needed space for the innovation? (i.e., donation, purchase, lease, rent, build)

7. EQUIPMENT REQUIREMENTS

a. Hardware
Are major items of equipment or their components necessary for the operation and success of the innovation?

b. Software
What supplies are necessary for the operation of the innovation?

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INNOVATIONS' EVALUATION: A CONSUMER GUIDE

CODE NUMBER _____

Rating Sheet

PRIMARY USER

		TEACHER		BOTH		ADMINISTRATOR	
		Essential	Helpful	Essential	Helpful	Essential	Helpful
A. BENEFITS							
☐ 1. Individual Pupil Growth:	a. Increased rate of learning	X	X	X	X	X	X
	b. Increased scope of learning	X	X	X	X	X	X
	c. Attitude improvement	X	X	X	X	X	X
☐ 2. Program Operations:	a. Increased efficiency	X	X	X	X	X	X
	b. Increased effectiveness	X	X	X	X	X	X
☐ 3. Key Indicators of Innovation Success:	a. Entry and advancement in an occupation	X	X	X	X	X	X
	b. Economic and social efficiencies	X	X	X	X	X	X
	c. Personal human values	X	X	X	X	X	X
☐ 4. Legitimacy of the Innovation:	a. Validity	X	X	X	X	X	X
	b. Reliability	X	X	X	X	X	X
B. COSTS							
☐ 1. Funding:	a. Costs	X	X	X	X	X	X
	b. Sources of dollars	X	X	X	X	X	X
	c. Availability of dollars	X	X	X	X	X	X
	d. Proportion of dollars available from different sources	X	X	X	X	X	X
	e. Limitations on use of other than local funds	X	X	X	X	X	X

		Category Label Items Cont.	TEACHER		BOTH		ADMINISTRATOR	
			Essential	Helpful	Essential	Helpful	Essential	Helpful
☐	2.	Time Considerations: a. Lead time	X	X	X	X	X	X
		b. Installation time	X	X	X	X	X	X
		c. Operation time	X	X	X	X	X	X
		d. Cyclical Considerations	X	X	X	X	X	X
☐	3.	Installation Considerations: a. Acceptance	X	X	X	X	X	X
		b. Complexity	X	X	X	X	X	X
		c. Divisibility	X	X	X	X	X	X
		d. Policy changes	X	X	X	X	X	X
		e. Degree of development	X	X	X	X	X	X
		f. Feasibility	X	X	X	X	X	X
☐	4.	Organization Change: a. Disruption of routine	X	X	X	X	X	X
		b. Effect on staff organization	X	X	X	X	X	X
		c. New roles for individuals	X	X	X	X	X	X
		d. New relationships among groups	X	X	X	X	X	X
☐	5.	Personnel Needs: a. Quantity of staff	X	X	X	X	X	X
		b. Teaching or other experience	X	X	X	X	X	X
		c. Personnel development required by innovation	X	X	X	X	X	X
☐	6.	Space Requirements: a. Space (Housing)	X	X	X	X	X	X
		b. Space (Land Use)	X	X	X	X	X	X
		c. Arrangement of space to other programs	X	X	X	X	X	X

Category Label Items Cont.

		TEACHER		BOTH		ADMINISTRATOR	
		Essential	Helpful	Essential	Helpful	Essential	Helpful
	d. Acquisition of needed space	X	X	X	X	X	X
☐ 7. Equipment Requirements:	a. Hardware	X	X	X	X	X	X
	b. Software	X	X	X	X	X	X

Rank Items: most important: 1, 2, 3

least important: 11, 10, 9

APPENDIX D

EXEMPLARY PROJECT DIRECTORS AND SITES

Director	Site
Mr. James Hugueley	Project SPAN 1212 Vollentien Street Memphis, Tennessee 38104
Mr. R. T. Ishee	Exemplary Projects Jones County Schools Laurel, Mississippi 39440
Dr. John Jenkins	Pikeville Exemplary Career Education Project Pikeville, Kentucky 41501
Mr. Joel Smith	Cobb County Occupational and Career Development Program P.O. Drawer R Marietta, Georgia 30060

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APPENDIX E

LIST OF SUPERINTENDENTS INTERVIEWED, MAY 1971

Paul W. Briggs, Superintendent
Cleveland City Schools
1380 East 6th Street
Cleveland, Ohio 44114
(216) 696-2929

John Ellis, Superintendent
Lakewood City Schools
1470 Warren Road
Lakewood, Ohio 44107
(216) 579-4092

Paul C. Hayes (previously superintendent of the Southwestern City Schools)
Professor of Educational Administration
University of Akron
Akron, Ohio 44300

Robert E. Lucas, Superintendent
Princeton City Schools
10428 Reading Road
Cincinnati, Ohio 45241
(513) 563-1240

Thomas C. Porter, Superintendent
Tri-County Joint Vocational School
Route #1
Kimberly Road
Nelsonville, Ohio 45764
(614) 753-3511

Richard L. Preston, Superintendent
Centerville City Schools
111 Virginia Avenue
Centerville, Ohio 45459
(513) 885-5841

APPENDIX F

QUESTIONS ASKED OF EACH SUPERINTENDENT

Questions asked of each superintendent

1. What sources of information do you seek before adopting specific innovations?

2. What do you need to know about an innovation before deciding to try it?

3. What are the most persistent problems or barriers to the implementation of innovations in your school system?

4. What factors account for your school's success in implementing innovations?

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