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A study of the effects of information sources utilized in the educational decision-making process: relative stages of adoption analyzed.

Brien William Anderson

University of Massachusetts Amherst

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A STUDY OF THE EFFECTS OF INFORMATION SOURCES UTILIZED IN THE EDUCATIONAL DECISION-MAKING PROCESS: RELATIVE STAGES OF ADOPTION ANALYZED

A Dissertation Presented
by
Brien W. Anderson

Submitted to the Graduate School of the University of Massachusetts in Partial Fulfillment of the Requirements for the Degree of DOCTOR OF EDUCATION Ed.D

May 19, 1971

Major Subject: Administration (Education)
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Approved as to style and content by:

[Signatures]

(Chairman of Committee)

(Head of Department)

(Member)

(Member)

(Member)

May 19, 1971

(Month) (Year)
ACKNOWLEDGEMENTS

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A most special thanks must go to my dedicated adviser of the past seven years, Dr. Ray Budde, and to Dr. Ovid Perody, Dr. David Flight, and Dr. Donald Hall who willingly gave of their time and wise council.

Sincere thanks also go to Dr. Joseph Cebula for his encouragement and fellowship, to Dr. Albert Anthony for his assistance, and to many others, too numerous to name here, who have freely given.

And, finally, to my wife, Marge, a thank you is totally inadequate for her understanding and support.
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Orientation

It has been suggested by a number of experts that we are in the advanced stages of a revolution in education. The tremendous increase in national projects, money spent by the federal government and private foundations provide evidence to support this case. Yet in spite of all this activity there is much pessimism about the ability of our public schools to make rapid adoptions of the innovations being disseminated. In support of this idea, the researcher, Paul Mort (1946), points out that it takes a full 50 years for the complete diffusion of an educational innovation (that is from the time the innovation is diffused until the innovation has become fully adopted).

Until recently the study of the diffusion of educational practices has been attributed to Paul Mort and his students almost exclusively with very few exceptions. Mort and his students at Columbia focused their investigations upon isolating variables that usually related to the economic base of the school district (ranging from expenditures per pupil to teacher salary) and then inserted these variables into various accounting schemes. There is probably little need to review the 150 educational studies at Columbia University in detail because this task has been completed by Ross (1958). Most of these studies at Columbia were published as doctoral theses or were summarized for inclusion in the Teachers' College Reports.
Ross (1958) reports that Mort and his researchers usually gathered their data by mailed questionnaires to school superintendents and principals. A number of central findings have emerged from these educational diffusion studies which may be summarized as follows:

1. A considerable "time lag" is required for the wide spread adoption of new educational ideas. The average school lags 25 years behind the best practice.

2. Although there are a great variety of factors related to innovativeness or, as Mort states, "adaptability" among schools, the best single predictor is educational cost per pupil.

In other words, Mort concluded that the school systems that are first to adopt educational innovations spend the most money per child and those last to adopt education innovations spend the least amount per child.

Mort's findings were, however, challenged by the emergence of new data concerning the money spent per pupil and the rate of adoption. In a study (Carlson, 1965) of such educational practices as team teaching, modern math, foreign language instruction in the elementary grades, programmed instruction, ungraded primary classes, and accelerated programs in high schools among school systems in a county in western Pennsylvania, it was found that the amount of money spent per child had a negative, insignificant correlation. That is, the amount of money spent per child has no predictive power in relation to the rate of adoption of these innovations.

Furthermore, this was not a single finding related to
one particular county but a general finding that was replicated in two ways. First, another research project was undertaken in the State of West Virginia and again the same findings were apparent. The rate of adoption of innovation was not significantly related to expenditures per child. And second, even though the expenditure level per child is considerably lower in West Virginia than it is in western Pennsylvania, there was found to be no material difference in the rate of adoption of these innovations between these two regions of the country.

Regardless of Carlson's findings, most educators will agree that the adoption of any major innovation in public education is a long and cautious process. Perhaps one of the reasons for this slowness when compared with other fields, such as rural sociology, medicine, industry and anthropology, is the absence of a scientific source of innovation. Chemical companies and agricultural experimental stations provide a vast network of continuous communications. (And as a result there has developed credibility for research as a source of innovation.) Education, on the other hand, has few reliable sources (ERIC has not matured sufficiently to calculate its effect) and only those schools willing to cooperate in experimentation are involved.

Other reasons are generated by Rogers (1962, p. 39) in his comments concerning the impact of the education diffusion tradition:

The education diffusion tradition is probably one of the largest in number of studies,...
but this tradition is probably one of lesser significance in terms of its contributions to understandings of the diffusion of ideas. The educational diffusion studies illustrate strong intercommunications within the tradition but no close attention to any other diffusion tradition. Ross, after his review of educational diffusion studies concluded, 'Seldom has dispersed research in some phase of education been so well articulated and formed such an integrated pattern as a whole.' It is interesting to note that neither the field of education nor educational sociology has paid much attention to the educational diffusion studies. There is no reference to any of these diffusion reports in the major sociology books.

In an attempt to provide some of the answers, the State of New York conducted a series of studies to develop a plan for improving the process of educational change in the elementary and secondary schools of that state. Under the directorship of Henry M. Brickell, Organizing New York State for Educational Change was published in 1961 by the New York State Department of Education. In essence the monograph suggests a plan to deal effectively with the problem of change in school practices. Brickell recommends three distinct and separate units to be established under the direction of the Commissioner of Education. One unit is a design unit where ideas are conceived, existing innovations reviewed, and modified to meet the needs of the target system. The second unit has the task of evaluating ideas flowing from the design unit. Here pilot studies are conducted, innovations are evaluated and field tested, and considered for future adoption. The third unit has as its function the development and dissemination of the practices which emanated from the
other two agencies. Whether or not the Brickell Plan will be successful still remains to be seen, but it would seem evident that an undertaking of this sort will improve existing adoption procedures.

The discipline that has produced the greatest number of publications and studies on the diffusion of new ideas is rural sociology. Most of these studies deal with the transmission of farm innovations from agricultural scientist to farmers.

The Hybrid corn study more than any other study influenced the methods, findings, and interpretations of interested students in the rural sociology tradition. This early study (1943) conducted by Professor Bryce Ryan and Neal Gross, a graduate student in rural sociology at Iowa State College, focused upon an investigation of the diffusion of hybrid seed corn. A total of 259 personal interviews were used by the researchers in the final data analysis. Among all of these farmers, only two had not adopted hybrid seed. (It should be mentioned here that the major advantage of hybrid seed was a 20% increase in yield.)

The major findings of Ryan and Gross, of particular interest to this proposal are:

1. Gross (1942) classified four adopter categories on the basis of their first use of hybrid seed. The social characteristics, such as age, social status and cosmopolitanness of both the earliest and the latest adopters were then determined.
(In fact, this study was one of the first to establish a relationship between innovativeness and cosmopoliteness.)

2. Three stages in the adoption process were recognized by the researchers:
   a. Awareness of first hearing about a new idea.
   b. Trial or first use.
   c. Adoption or 100% use.

3. Although the typical farmer first heard of hybrid seed from a salesman, neighbors were the best influential source in leading to adoption.

Regardless of the fact that some criticisms have been leveled at *The Hybrid Corn Study* (i.e., the researchers ignored the existing diffusion research in education in favor of early sociological and anthropological models) the study served to influence the design and strategies of future diffusion research.

Following Ryan and Gross in a North Carolina study, Wilkening (1953) sought sources of first contact, contacts for most information, and most influential contacts. Here we find an expansion of the three-stage adoption model to four stages. They are as follows:

A. Initial knowledge.
B. Acceptance of the practice as a good idea.
C. Acceptance on a trial basis.
D. Adoption of a practice on one's own farm.
Later, a committee of rural sociologists added a fifth step to the sequence. Currently referred to (Lionberger, 1960) as the five-stage adoption process, this model consists of the following stages:

A. **Awareness** - At the awareness stage a person first learns about a new idea, practice or product.

B. **Interest** - More detailed information is sought out.

C. **Evaluation** - The information and evidence are weighed in terms of the individual's own setting. (The pro's and con's are considered.)

D. **Trial** - The change is actually put into practice on a pilot basis.

E. **Adoption** - The new practice, product or idea is good enough for full scale and continued use.

It should be noted that the individual stages of the adoption process are not distinctly separate, but rather represent a mode of describing a sequence of action. And we should further recognize that although there seems to be support for the validity of the adoption stage concept, the findings are not conclusive. There is very little evidence as to exactly how many stages there are in the adoption process. Nevertheless, until more evidence is available, it seems conceptually clear and practically sound to utilize the five-stage adoption process.

**Background of the Study**

Since this study will attempt to treat further and analyze the data gathered by the Charles F. Kettering Project (Wolf and Fiorino, 1969), this sub-section is intended to
provide background information concerning that study as well as to build the subsequent steps that lead to this proposal.

From 1966-1968 several teams of interviewers gathered data for the purpose of probing the following:

1. The extent to which teachers, supervisors, administrators and teacher educators
   a. have adopted innovations within the past year;
   b. plan to adopt innovations within the next year;
   c. tried but failed to adopt innovations within the past year in their personal practice.

2. Influences of recognized diffusion agents upon the adoption of innovations (i.e., practices, products, and ideas that are new to the practitioner) to the personal practice of teachers, supervisors, administrators and teacher educators.

3. Characteristics of selected target audience, teachers, supervisors, administrators, and teacher educators. Data generated pertained to level of experience, years of professional experience, and earned academic credits in relation to the adoption of innovation to personal practice.

4. Characteristics of selected diffusion strategies (style, duration, and audience size) in relation to the adoption of innovation to personal practice.

Diffusion agents which seem representative of those currently employed in the field of education were selected for the study. No formal criterion was structured as the basis for selection; rather, factors such as extent of impact, data accessibility, and level of education treated served as operating criteria.
Selected diffusion agents included publications, brief assemblages and extended assemblages. (See Figure 1, p. 10 for a complete listing of specific diffusion agents used.)

While the co-directors hoped to obtain a study sample that met the usual specifications of "randomness", several factors prevented such an outcome. First, the staff was not given access to the desired lists of names by the agencies themselves. And second, the reality of the project travel budget demanded that subjects residing in isolated geographic locations be excluded in several instances. The first limitation boils down to the fact that the researchers really do not know how the subjects were selected by several contacted agencies. They can only infer that the agencies honored their request to select "X" number of names at random from a given population. While many geographically isolated subjects are included in the sample, it is not unreasonable to believe that some will be deleted because of their isolation; hence, a second limitation -- namely, that the researcher is apt to bias the population slightly in favor of subjects residing in or close to urban centers -- must be recognized.

Subjects were selected as follows:

1. **ASCD Regional Research Institutes** (N = 60)

   Complete lists of participants who attended four recent ASCD Regional Research Institutes located in cities east of the Mississippi River were obtained. From these lists, 30 names and then 15 names from the 30 were randomly selected for each institute, after deleting participants residing west of the
Figure I. Subjects Contacted and Interviewed by Sub Sample

<table>
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<th>Name of Sub Sample</th>
<th>Total N Contacted*</th>
<th>Completed Interviews</th>
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<tbody>
<tr>
<td>1. ASCD Institute (Detroit)</td>
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<td>15</td>
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<td>2. ASCD Institute (Denver)</td>
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<td>13</td>
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<td>3. ASCD Institute (Washington, D.C.)</td>
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<td>4. ASCD Institute (Minneapolis, Minn.)</td>
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<tr>
<td>5. NDEA Summer Institute (Virginia)</td>
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</tr>
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<td>6. NDEA Summer Institute (Middlebury)</td>
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<td>7. NDEA Summer Institute (Howard)</td>
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<td>8. NDEA Summer Institute (Albright)</td>
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<td>16</td>
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<td>10. NDEA Academic Year Institute (Buffalo)</td>
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<td>11. NDEA Academic Year Institute (Bank Street)</td>
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<tr>
<td>12. NDEA Academic Year Institute (New York University)</td>
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<tr>
<td>13. School Science and Mathematics</td>
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<td>52</td>
</tr>
<tr>
<td>14. Instructor</td>
<td>72</td>
<td>37</td>
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<tr>
<td>15. Elementary English</td>
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<td>55</td>
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<td>16. National Elementary Principal</td>
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<td>40</td>
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<td>21. Annual Meeting (DESP)</td>
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<tr>
<td></td>
<td><strong>875</strong></td>
<td><strong>631</strong></td>
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*Negative or no response realities caused us to select additional names from a pool of random choice for each sub sample.
Mississippi River. (One exception was the Denver meeting. This institute was selected for recency; hence, participants west of the Mississippi were selected. This modification was made after the original four were considered.)

2. **NDEA Summer and Academic Year Institutes (N = 120)**

Complete lists of participants who attended six recent summer and six recent academic year institutes were obtained. The former were selected randomly from a list of completed institutes, whereas the latter constituted the complete range of choice offered by representatives of the Research Training and Dissemination Division of the U.S.O.E. From these selections the researchers arbitrarily selected four summer and four academic year institutes. Then, they randomly selected 30 names and then 15 names from the 30 per institute after deleting participants residing west of the Mississippi River.

3. **Professional Publications (N = 250)**

Complete lists of subscribers for *Elementary English* and *The Instructor* were obtained. From these lists 100 names and then 50 names from the 100 were randomly selected.

The editors of the *Saturday Review*, *School Science and Mathematics*, and the *National Elementary Principal*, at our direction, offered a randomly selected list of subscribers. From these lists 100 and then 50 names from the original 100 were randomly selected.

4. **Annual Professional Meetings (N = 200)**

Administrative officers of ASCD, NAESP, and ACEI made available complete lists of registered participants attending the organizations' last professional meeting. From these lists 100 names and then 50 names from the original 100 were randomly selected.

The Executive Secretary of IRA, at the researchers' direction, mailed a randomly selected list of conference participants. From this list 100 names and then 50 names from the original 100 were randomly selected.
A sample 100% larger than deemed necessary for the study was obtained initially. From this number, the desired subjects were randomly selected. The researchers anticipated subject apathy, negative reaction to an interview, change of address, death, and so forth; hence, the additional set of prospective subjects. As anticipated, many additional contacts were called for. The source of these additional contacts was the reserve set of study subjects.

There were 630 interviews possible, given a 100% positive reaction to the researchers' initial request for help. In fact, 875 contacts were made in all. These contacts yielded 631 completed interviews, for a 72% return for the energy expended. The quota set for five of the sub samples was not met, whereas in 13 instances an excess of interviews was completed. These variances were not considered to be deleterious to the study intentions. Figure I portrays the study population by sub sample.

The data acquisition process involved recruiting a project staff, evolving a survey inventory, validating the survey instrument, training selected interviewers for the task delimited, contacting the sampled individuals plus arranging details for face-to-face interviews with them, and compiling data obtained from the interviews for analytical purposes. Each of these components of the process is amplified in the following paragraphs.

The original project staff -- consisting of the co-directors, two full time interviewers, one combination
secretary/interviewer, an interview trainer, and a project advisory council -- was assembled during the summer of 1966. During February, 1967, another full time interviewer was employed. At the end of the summer of 1967, all four interviewers completed their appointments. They were replaced by two full time interviewers and a part time office manager at that time. The interviewers, with one exception, were experienced educators pursuing advanced degrees in school administration or guidance and counseling at the University of Massachusetts.

The interviewer trainer is a professor of guidance and counseling at the University of Massachusetts. He assumed prime responsibility for the interviewer training. The first group of interviewers spent six to eight weeks learning, practicing, studying video-tape recordings of their performance, and discussing problems to be encountered. At the point when they performed in a compatible manner in the opinion of the trainer, they initiated the required field work. Subsequent interviewers were able to benefit from the accumulated wisdom of the original group and also accompany the original interviewers during data-gathering trips. As a result, much time was conserved in raising their performance to a desirable level. Careful attention was placed upon interviewer compatibility in obtaining desired data.

The project advisory council consisted of the following individuals:

Henry Brickell Indiana University
David Clark
Herbert Lionberger
Matthew Miles
Robert M. W. Travers
Indiana University
University of Missouri
Columbia University
Western Michigan University

In addition, Egon Guba of Indiana University and William Gephpart of Phi Delta Kappa, served as interim members of the council.

A problem which the researchers faced pertained to the nature of the survey tool. Two alternatives seemed apparent: first, design a series of instruments, each geared to a particular diffusion agent; or, second, design a single instrument applicable to all diffusion agents. The former would yield intimate data, but only as a result of considerable preliminary work into the character of each selected diffusion agent. The latter would have to be regarded as quite open-ended; hence, data analysis would be difficult. After a series of trial and error experiences, the researchers evolved an inventory which was based upon the second alternative.

The first draft of a survey instrument was prepared by the end of the summer of 1966. It provided a point of departure for training the project inter-revisions and two subsequent pilot trials resulted in an instrument which seemed appropriate.

The instrument which emerged focused upon ideas and practices which are new to the interviewee and which have
been, are about to be, or were unable to be adopted in his work. The instrument is designed to delve into antecedent and causal events that are germane in the mind of the interviewee. It also is designed to obtain descriptive data about influential diffusion agents and earmarked target audiences. The instrument ultimately used is included in Appendix A.

Each subject was initially contacted by mail. He received a letter

(a) indicating the importance of his participation in the project;
(b) describing the project itself; and
(c) suggesting possible dates for a face-to-face interview.

A self-addressed, stamped postcard for his response accompanied each letter. Follow-up to this communique included two additional notes plus a telephone call, if necessary.

The interviewers arranged field trips based upon responses received from the subjects. Trips were usually arranged for five or more days, with at least three interviews scheduled each day. Often, the interviewers called a prospective subject in an area visited who had not responded to prior written communiques or who responded negatively. These telephone contacts resulted in a substantial number of face-to-face interviews.

Interviews consisted of a brief warm-up period to establish rapport (during which the interviewer obtained
permission to tape record the session), the interview itself (which required 15 to 80 or 90 minutes to complete), and follow-up conversation about the project. The subject was not alerted to the fact that his selection was based upon exposure to a given diffusion agent. Following the interview, information included on a tape was transferred to the survey instrument and then later to a standard codification sheet which was stored for later analysis.

Interviewing began during the late Fall of 1966 and it was completed during the Summer of 1968.

The codification scheme ultimately employed was built upon insight gained from four prior attempts to handle the data meaningfully. It met the criterion of openness, clarity, internal consistency, and external validity set forth by the researchers and it lent itself to key punch card storage and computer data processing.

Overview of the Study

Many research studies have attempted to determine the relative importance of various information sources at different stages in the adoption process (Copp and others, 1958; Mason, 1961). Two different generalizations are presented in this sub-section about the sources of information utilized at stages in the adoption process.

The first generalization pertains to personal and impersonal communication. Personal communication involved direct face-to-face contact between the communicator and the receiver (Rogers and Beal, 1958). The term "personal sources
of information" and "personal influence" are used somewhat interchangeably although it is recognized that this is not completely consistent with their meaning. Communication is the way in which influence is spread (Hovland, 1953, p. 182).

Impersonal communication does not involve direct face-to-face exchange between the communicator and the communicatee. Impersonal communications nearly always are spread via a mass communication medium. They function as rapid, one-way dispensers of information. Mass communications are most effective at calling various decision alternatives to the initial attention of individuals. Because of their "mass" nature, they cannot be beamed at a specialized or local audience. In short, impersonal information sources are best able to create awareness of an idea (Deutschman and Danielson, 1960).

A generalization supported by many studies in rural sociology is that impersonal information sources are most important at the awareness stage, and personal information sources are most important at the evaluation stage in the adoption process (Wilkening, 1956; Copp and others, 1958; Rogers and Beal, 1958). In short, people would rather believe people than facts (Boddewyn, 1961).

A second generalization about information sources by adoption stage involves the cosmopolitaness of information sources. Cosmopolitaness is the degree to which an individual's orientation is external to a particular social system. Not only do individuals range along a cosmopolitaness-
localiteness dimension, but information sources may be classified as to their degree of cosmopoliteness (Campbell, 1959). Cosmopolite information about innovations comes from outside the social system, while other information about new ideas reaches the individual from sources inside the system or in a localite fashion.

Cosmopolite information sources are most important at the awareness stage, and localite information sources are most important at the evaluation stage. This generalization is supported by the findings of Wilkening and others (1960). The findings of both Ryan and Gross (1943) and Katz (1961) suggest that cosmopolite communications are more important for the first members of a social system to learn of a new idea. Information about innovations usually emanates from sources external to the system. When the idea gains adherents in the system, localite sources are widely available to persons who are relatively later in hearing about an idea. The hybrid corn investigation also indicates that farmers who became aware of the idea relatively late were more likely to learn of the innovation from personal sources.

The Study

This study is descriptive in nature and is undertaken to determine the relative importance of various information sources at each stage of the educational adoption process (awareness, interest, etc., as defined by Lionberger, 1960).
The specific objectives of this study are:

1. To analyze the responses of selected educators in order to determine the relative importance of various information sources at different stages in the educational adoption process.

2. To systematically gather, organize and report relative relationships between two divergent groups, namely: the sample accounting for the most innovative subjects and the sample accounting for the least innovative subjects by stages in the adoption process.

The researcher will re-examine audio-taped interviews and the results will be codified in terms of the stated hypotheses of this study.

Definition of Terms

Several key terms are used in a sense peculiar to the substance of this study. These terms are as follows:

**Innovative idea, product, or practice.** Any idea, product or practice that is new to the educator's individual experience.

**Personal Information Source.** Any educational or non-educational associate mentioned by the subject of this study as an influential source for his knowledge of an innovative idea, product, or practice.

**Impersonal Information Source.** Any publication or other media specifically mentioned by a subject of this study as an influential source for his knowledge of an innovative idea, product, or practice.
**Cosmopolite Source.** Any assemblage mentioned by a subject of this study as an influential source for his knowledge of an innovative idea, product, or practice, which is external to the subject's social environment.

**Localite Source.** Any assemblage mentioned by a subject of this study as an influential source for his knowledge of an innovative idea, product, or practice, which is an integral part of the subject's social environment.

**Social Environment.** This term is used to denote the professional social system of the subject's of this study, *i.e.*, school, district, state or national professional circles.

It should be noted that there is probably a relationship between the cosmopoliteness-localiteness and personal-impersonal nature of information sources. Personal sources are often more localite than cosmopolite. Nevertheless, for the purposes of this study, the two classifications are conceptually distinct.

**The Hypotheses**

The stated hypotheses in this study are based upon models supported by many aforementioned studies in rural sociology. In essence, this study will test the applicability of these generalizations in the field of education.

Hypothesis Number One is stated as follows:

Impersonal information sources are most important at the awareness stage and personal sources are most important at the evaluation stage.
Hypothesis Number Two is stated as follows:

Cosmopolite information sources are most important at the awareness stage and localite information sources are most important at the evaluation stage.

Hypothesis Number Three is stated as follows:

The five-stage adoption concept (awareness-interest - evaluation - trial - adoption) is valid in the field of education.

The Sample

The sample for this study was drawn from the original Kettering study sample in the following manner. A program was prepared by the University of Massachusetts computer center to accomplish the following:

Obtain and then rank the composite indices of innovativeness for each source of data (all subjects within each source of data) and then determine the five highest and the five lowest composite scores.

Hence, the data sources accounting for the most innovative subjects and the data sources accounting for the least innovative subjects were derived for this study. The sources accounting for the most innovative subjects included three ASCD Regional Institutes (at Detroit, Washington, D.C., and Minneapolis), one NDEA Academic Year Institute (at the University of Georgia), and a publication, The National Elementary Principal.

Conversely, three NDEA summer institutes (at the University of Virginia, Howard University, and Albright), and two publications (The Instructor and School Science and Mathematics) accounted for the least innovative subjects.
in the sample. These sources were selected from among the twenty actively considered (See Figure I, p. 10).

**Limitations**

Certain limitations inherent in the study are presented below:

1. This study was concerned with the importance of various information sources at each stage of the adoption process; hence, the focus of the study was on that process. The innovations mentioned in the interviews were used as a vehicle by which this process was studied. In no case did the researcher attempt to evaluate the worth of innovations mentioned or the contemporary nature of so-called "innovations" mentioned.

2. Only those individuals who had actually adopted an innovation were studied. In other words, those individuals who had at one stage or another of the process rejected an innovation were not included in the study sample.

3. Inaccuracies could exist when individuals were asked to recall particular information sources at particular adoption stages.

4. Only the first three stages of the adoption process were studied. It was determined that experiences with the innovation gained at the trial stage were the most important information sources.

5. The interview inventory questions directed responses mainly to external information sources. The implicit assumption of most past research on the topic is that information sources in the adoption process are external to the individual. The individual's own past experience or deductions from known information were not studied.

**Organization of Thesis**

This five-chapter thesis will be presented in conventional research format. The first chapter includes an introduction to the study; an explanation of the significance of the problem; a statement of the problem; a general
background of the study, explaining the source of the data used; an overview of the study; a section defining important terms used in the study; a description of the limitations of the study; and an explanation of the organization of the thesis.

The review of selected research and related literature comprises the second chapter. This review includes an introduction; a section generally reviewing work previously done on the characteristics of innovators in the field of rural sociology and education; and reviews of selected research pertaining to the three hypotheses involved in the study. This will include representative literature on sources of information in regard to degree of innovativeness in the fields of both rural sociology and education.

The design and procedures of the study are incorporated in Chapter III.

Chapter IV consists of the results of the study, and an analysis of the data.

Chapter V includes sections on conclusions drawn by the author, their implications for further study, and recommendations for further research in the area of this thesis.

The study includes an appendix containing copies of instruments used, and a formal bibliography. The style followed in the thesis is that outlined in the publication manual of the American Psychological Association, 1957 revised edition, as applicable under the guidelines set forth by the Graduate School of the University of Massachusetts in its publication entitled Graduate Degree Requirements, 1970-71.
CHAPTER II: REVIEW OF RESEARCH

Introduction

This chapter reviews the literature in regard to the general hypotheses set forth in this study, namely:

1. That impersonal information sources are most important at the awareness stage, and personal sources are most important at the evaluation stage in the adoption process.

2. That cosmopolite information sources are most important at the awareness stage, and localite information sources are most important at the evaluation stage.

3. That the five stage adoption model (awareness, interest, evaluation, trial, adoption) is valid in the field of education.

Generally the review of the literature was concerned with change processes in various research traditions as well as education. Research on the process of diffusion and innovation has been examined in such fields as anthropology, sociology, rural sociology, agriculture, medicine, industry and education. Each of these research traditions has produced some knowledge about change and appears to have some relationship to change in education. It should be cautioned, however, that there appears to be some problems concerning the applicability of the change models, methodology, and concepts from other research traditions to educational change. For example, public education is a bureaucratic structure with social motives and a relatively intangible product, but
fields such as agriculture comprise individual entrepreneurs with a profit motive who produce very tangible products.

With the above in mind, the central focus of this chapter will involve a review of the research in rural sociology and public education. Moreover, certain emphasis will be placed upon studies which have attempted to link the two fields.

Rogers, (1962, p. 54) claims that the rural sociological research tradition has produced over 300 studies, beginning with the Ryan and Gross (1943) study of the spread of hybrid corn seed in Iowa. Ross (1958) listed 150 educational research studies in the area of diffusion, and at the same time claimed that there was strong intracommunication within the tradition, but findings by Rogers (1962) proved that not until 1955 were the rural sociologists aware of the work being done in education on diffusion, seventeen years after both had been developing independently.

Rogers lays the blame for the lack of communication on a lack of awareness of one tradition for the other, while Katz (1961) placed the blame on what he called academic in-breeding, which served to isolate one research tradition from the other.

Compounding this communications problem were differences in the research traditions themselves. Most diffusion studies in the field of education in the early years seem to have been done at Teacher's College under the auspices of
Paul Mort (Mort and Cornell, 1938) and consisted of mailing questionnaires with the unit of analysis to the school system. Rural sociology, on the other hand, operated from a more diffused geographical base, tended to gather information by personal interview, and used as a unit of analysis the individual farmer.

Guba (1965) listed several reasons as to why the findings of research studies in other fields, including rural sociology, are not directly generalizable to education, pointing out, among other factors, that

1. In most reported research, the change or motivation in question is accepted or rejected by an individual entrepreneur (e.g., farmer); in education we are concerned about acceptance by an agent of a bureaucratic social system.

2. Decisions for change that have been studied are typically individual or family decisions; in education we are concerned with collective social systems.

3. Sources of information about innovations in many study areas are well institutionalized (e.g., agricultural extension); this is not true in education.

4. Most innovations in other fields are based on research evidence and are thoroughly tested before being made generally available (e.g., through the agricultural experimentation station); this is not true in education.

5. Most innovations in other areas are diffused through institutional change agents (e.g., the county extension agent); few institutionalized change agents exist in education.

6. The incentive for the adoption of most studied innovations is economic (e.g., more bushels per acre); the economic incentive, while not eliminated in education, is replaced to a certain degree by a social motive.
Eichholz and Rogers (1964) support the findings of Guba in their study concerning the ease of comparative analysis of rural sociology and educational studies on change. They particularly point out that while the rural sociologist has typically studied the individual farmer, most educational research done on innovation has dealt with the school or school system, rather than with the individual educator, a premise supported, and lamented, by Miles (1964, p. 642) as well as Guba. Eichholz and Rogers, as well as Miles, strongly advocate that educational research on innovation begins to deal more effectively with the individual educator as a unit of analysis, following the lead of other research traditions.

Eichholz and Rogers (1964) further support Guba's theories on reasons as to why studies in other fields in regard to innovation are not directly applicable to education by pointing out that there is a lack of change agents to promote new educational ideas in the field of education; that there is an absence of scientific sources of information that makes impossible the accurate and precise measurements under controlled conditions that are possible in the agricultural tradition; and that there is a lack of economic incentive to innovate, either on the part of school systems, due to a lack of easily measured positive results, or on the part of the individual educator, who is paid on the basis of longevity or personal education growth, rather than on the basis of success due to innovative practices.
Offsetting the divergent quality of the research done in education and that done in the field of rural sociology in regard to innovation, are commonalities found by researchers (Eichholz and Rogers, 1964) which the two disciplines share, and which make the present study feasible and of some significance. The researchers point out that both traditions share such common elements as:

1. The innovation, defined as an idea perceived as new by the individual.

2. The communication of the innovation from one individual to another.

3. The diffusion (defined as the process by which an idea spreads) of an innovation through a social system defined as a population of individuals. The social system may be comprised of farmers, aborigines, doctors or teachers.

4. Diffusion occurs over time. Not all individuals adopt an innovation at the same time, and can therefore be categorized according to the rate they adopt an innovation. Adopter categories are innovators, early adopters, early majority, late majority, and laggards or non-users.

5. The time at which any given individual becomes an actual adopter depends upon two factors: (1) how quickly he passes through the forms of adoption and rejection (ignorance, suspended judgement, situational, personal, and experimental) and (2) the pre-disposition of the individual to either the adoption or the rejection process.

Lionberger's (1968) findings support these premises. Lionberger finds that the decision to adopt usually takes time, since one of the variables in the time process is that all people do not adopt at the same time. Lionberger generalizes about the reasons for different persons adopting at different rates, including the observation that "some people
are more prone to change than others." He admits that "just why this is so is not known" but continues to list some hypotheses that have come from his work in rural sociology, including the indication that older farmers tend to make fewer changes in farming than younger men; that the farmer must perceive a need for the new practice in his own work; that cost is an important factor in adopting innovation; that an easily demonstrable practice may be more quickly adopted; that social groups influence adoption rates; that unsatisfied farmers are more prone to change than satisfied farmers; that people are influenced by groups of which they are not members; that personal values speed or retard change; that value changes result from widened horizons; and that farmers with more formal education are more innovative than farmers with less formal education.

It would seem, then, that while there are differences in the research tradition of education and the tradition of rural sociology in regard to the work done on change, there are enough commonalities in certain respects to justify further attempts of educators to build upon the more empirical data of the rural sociologists. That there is a need for such efforts is made clear by the statements of both educators such as Miles and Cuba, and rural sociologists, such as Eichholz, Rogers and Liongerger. Particular emphasis is put upon the need for further information concerning individuals and their relation to the change process, rather than the change process as it applies to systems.
Studies by Rural Sociologists on Innovation and Innovators

In 1950, after a decade of research by the rural sociologists, the Rural Sociological Committee (1952) summarized research findings as follows:

1. The functional acceptance of farm practices as a function of status, role, and motivation.

2. The differential acceptance of farm practices as a function of socio-cultural systems.

3. Diffusion as the study of cultural change.

4. Diffusion as a problem of communication of information.

Herbert Lionberger (1964), thirteen years later, claimed that rural sociologists, through their studies of the adoption of farm practices by individuals, had recognized the following as important in understanding change:

1. Personal characteristics of the acceptor, such as age, education, income, socioeconomic status, prestige, mental flexibility, managerial ability, capacity to discriminate, ability to deal with abstraction, rationality, and attitudes toward farming, science, and change in general.

2. Position of the individual in the social and communicative structure, with particular reference to his being mentioned as associate and best friend and as a source of farm information.

3. Identification with or membership in various types of formal, locality, kinship, reference and clique groups, and clique-like social arrangements.

4. Group norms relative to the acceptance of changes in farm practices, the value placed upon security, the assumption of risks, remaining free of debt, farming as a way of life, etc.

5. The inherent characteristic of the innovation itself as, for example, cost, complexity, divisibility, or compatibility with existing modes of behavior, thought, feeling; also, the individual's perception of such characteristics as opposed to actual situation.
6. Exposure to various types of mass media, personal and institutional sources of farm information through interpersonal communicative methods.

7. Situational factors relating to the farming unit, such as size and kind of operation, the role of the family members in farm management decisions, the locus of authority for making decisions, the degree to which authority is shared by members of the family, and the collective goals of the families involved.

8. In the recognition that the adoption of improved farm practices is ordinarily a part of an organized effort to implement change and that people respond to change agents as well as to the idea presented, the role of such change agents in the adoption process, and their personal characteristics relevant to adoption behavior.

The following overview of the concerns of the rural sociological tradition is a sampling of hundreds of research studies done in these traditions beginning with the study on the adoption of hybrid seed corn done by Ryan and Gross in 1943.

The Ryan and Gross study is considered a classic in the rural sociological tradition, reflecting in its methods the characteristics of most of the studies that have followed in the past thirty years. The researchers used the technique of personal interview, contacting 345 farmers in two small Iowa communities. Attempts were made to control the sample by limiting the interviews to those farmers who had more than 20 acres and who had adopted hybrid seed corn before any attempt had been made to diffuse the innovation. The unit of study was the farmer, and the criterion used in the study of the individual farmer's degree of innovativeness was whether or not he was actually using the hybrid seed corn, and when such use was initiated.
The major findings of the Ryan and Gross study led to:

1. Information about the time differential in adoption of the innovation, leading to theories regarding adopter categories.

2. Information regarding the social characteristics of the farmers, such as age, social status, and cosmopolitanism, in regard to innovativeness.

3. Theories regarding stages of the adoption process, i.e., awareness, trial, and adoption.

4. Information regarding the time which elapsed from awareness to adoption.

5. Information regarding the courses of information which the various categories of adopters used in learning about the innovation.

Using the Ryan and Gross study as a basis, rural sociology generated studies involving research into the individual adoption process, information sources and media as change agents, the roles of special functionaries in the diffusion process, and inquiries into the social factors in diffusion, the cultural factors in diffusion, and the situational factors in diffusion. While these studies are too numerous to list in detail, and because some of them are not pertinent to the limitations of this study, a brief overview will be used, with particular emphasis on those areas pertaining to this study, to give the reader a general idea of the literature that is related to this study.

The individual adoption process.

The rural sociologists have developed various models to identify the levels of adoption by individuals. Lionberger (1968) lists these stages as (1) awareness, (2) interest,
(3) evaluation, (4) trial, and (5) adoption. This model was derived from the work of Ryan and Gross (1943) who found that first use of hybrid seed corn followed a bell-shaped curve when plotted over time. Wilkening (1952) in a study dealing with sources of information, hypothesized four stages labeled as (1) initial knowledge, (2) acceptance of the practice as a good idea, (c) acceptance on a trial basis and (d) adoption of practice on own farm. Further work in this area (Beal and Rogers, 1960) found that most farmers were aware of stages as they moved from awareness to adoption, but other studies (Hassinger, 1959) have been critical of the adoption stage model on the grounds that the first level awareness is too passive a term to describe the individual's initial steps toward innovation, and that the stages are too distinct to imply that they are universally followed in the individual adoption process. Nevertheless, rural sociologists commonly hold with the five stage adoption process described by the Sub-committee for the Study of Diffusion Farm Practices (1955).

Numerous studies have evolved to determine the individual and social factors (including the sources and kinds of information used by the adopter at the various levels), which operate at each of the four stages in the adoption process. Such sources can be generally divided into either personal or impersona, cosmopolite or localite, types of communication (Rogers, 1964, pp. 98-103). Numerous studies in this area have supported the contention that impersonal information sources are most important at the awareness stage (Beal and
Bohlen, 1954), (Copp, Sill, and Brown, 1958) and that personal sources are most important at the awareness stage (Katz, 1961), and localite information sources are most important at the evaluation stage (Beal and Rogers, 1957). Leary (1969) has charted the most influential information sources by stages as follows:

Table 1

<table>
<thead>
<tr>
<th>Stage</th>
<th>Most Influential Information Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>Mass media</td>
</tr>
<tr>
<td>Interest</td>
<td>Mass media and other farmers</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Well regarded farmers</td>
</tr>
<tr>
<td>Trial</td>
<td>Salesmen</td>
</tr>
<tr>
<td>Adoption</td>
<td>Peers</td>
</tr>
</tbody>
</table>

In a study typical of those which lead to conclusions about sources of information in regard to the five stage adoption process (Beal and Rogers, 1957), 148 farm housewives were interviewed in a mid-western community regarding their sources of information for certain types of fabrics. The researchers found that data supported previous hypotheses regarding information sources in the five stage adoption process, and that most adopters recognized the stages in their own adoption process. Cosmopolite sources were found to be most important at the awareness stage and localite sources most important at the evaluation stage.

In conclusion, the rural sociologists have developed
a five stage model to describe the process of adoption of innovations in regard to the individual. Research has supported such a model and has further described the types of information sources critical to each stage.

The Community adoption process.

Rural sociologists, beginning with Ryan and Gross (1943) have found that not everybody adopts new ideas or practices in the same amount of time. Studies in rural sociology using adoption patterns of hybrid seed corn as compared to the time of initial information of the farmer concerning hybrid seed corn (Ryan, 1948), as well as other studies using improved farm practices (Wilkening, 1952, 1953), have proven the existence of a growth curve in regard to the adoption of any given innovation. Studies in education by Cocking (1951), Mort and Cornell (1941) and Ross (1958) have supported this theory. Ross' study, which gained fame from the statistic that it took on the average of fifty years from recognition for a need for change to the time something was done about it, and another fifty years to get a new practice adopted, also found that three per cent adoption often took 15 years, while the next three per cent was obtained in about one fifth the time.

Further research has investigated the rate of adoption in regard to the particular innovation itself and the circumstances accompanying the innovation. The rural sociologists have developed a system which differentiates among people who
adopt innovations. Lionberger (1968) classes adopters into early adopters, late adopters, and majority, while Rogers uses a slightly more sophisticated scale, rating individual adopters as innovators, early adopters, early majority, late majority, laggards.

Rogers (1962) laments the lack of standardization of terms in regard to degrees of innovativeness, listing eight synonyms for innovators, including advance scouts, lighthouses, and cultural avant garde; six synonyms for the term early adopters; four synonyms for the term early majority; eight synonyms for the term late majority; and seven synonyms for what he calls laggards. His point, that such a lack of standardization causes confusion seems well taken, since imprecise definition of what the adopter categories are makes cross-discipline exchange of research findings most difficult.

Information sources in regard to adopter categories.

Rogers categorizes information sources as follows: personal vs. impersonal; cosmopolite vs. localite; close contact sources; numbers of different sources. Lionberger differentiates among sources as follows: mass media; agricultural agencies; and commercial sources, including local dealers and salesmen. Numerous studies have been undertaken investigating the impact of these sources in regard to the five stage adoption process and the five stage adoption scale. Several representative studies of this type of rural
sociological study will be examined here in the light of information pertinent to this study.

Research in rural sociology has shown that information sources vary on the basis of adoption categories. Marsh and Coleman, in a 1955 study of 393 farm operators, grouped their subjects into a three category scale: low, medium and high adoption rates. Through personal interview, they determined that there were differences in the use of type of source according to adopter category as follows:

Table 2

<table>
<thead>
<tr>
<th>Source of Information by Type of Neighborhood</th>
<th>Low Adoption (N=156)</th>
<th>High Adoption (N=139)</th>
<th>High Adoption (N=98)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm Papers and Magazines</td>
<td>70%</td>
<td>88%</td>
<td>93%</td>
</tr>
<tr>
<td>Newspapers</td>
<td>52%</td>
<td>71%</td>
<td>85%</td>
</tr>
<tr>
<td>Radio</td>
<td>82%</td>
<td>88%</td>
<td>89%</td>
</tr>
<tr>
<td>Farm Meetings</td>
<td>19%</td>
<td>36%</td>
<td>53%</td>
</tr>
<tr>
<td>Talking with professional agricultural advisors</td>
<td>34%</td>
<td>66%</td>
<td>82%</td>
</tr>
<tr>
<td>Farm Bulletins</td>
<td>28%</td>
<td>50%</td>
<td>69%</td>
</tr>
<tr>
<td>County Agent Letters</td>
<td>63%</td>
<td>84%</td>
<td>86%</td>
</tr>
<tr>
<td>Dealers and Salesmen</td>
<td>27%</td>
<td>29%</td>
<td>49%</td>
</tr>
<tr>
<td>Friends, Neighbors, Relatives</td>
<td>88%</td>
<td>82%</td>
<td>97%</td>
</tr>
</tbody>
</table>

It would appear that farmers in the high adoption category reported more extensive contact with and use of sources, particularly as regards those sources that take some extra
effort to come into contact with. Thus, while all three adopter categories use the radio as a source of information to a high degree, when it comes to going to farm meetings, 53% of those in the high adoption category rate such meetings as a source of information, whereas only 19% of those in the low adoption category use such meetings as information sources.

Fliegal (1956), in a study to determine the significance of the relation between adoption rate and sources of information, used data gathered by Wilkening in respect to 170 farm owner-operators with children of high school age living at home. Information was available on the use or non-use of certain farm practices (both methods and materials) as well as on sources of information, formal and informal social participation, and other variables.

Data were used to construct indexes of a range of variables hypothesized to have an effect on the adoption of new farm practices. Variables included status and role of operator, size of farming operation, authority to make decisions on farm matters, familiarism, sources of information on farm matters, level of living, and attitude toward new farm practices.

Fliegal found that size of operation and authority were not significantly related to adoption. He did find significant relationships between adoption and sources for information, and found that sources for information accounted for a significant proportion of variation in adoption when other
independent variables were taken into consideration.

Copp, Sill and Brown (1958) found that while they could not determine the key information source for any stage of the adoption process, they could determine that sources of information external to the adopter's social system are more important than local courses for early adopters, and that farmers who relied upon neighbors and friends for information had lower adoption rates than farmers who did not cite such peer influences. This study involved 175 dairy farmers in a western Pennsylvania county, each of whom was asked to relate his experience with three recommended dairy practices, and each of whom was then asked questions regarding the information source exposure for the three practices. The farm operators were then classed according to the stage of the adoption process they had achieved, and the data obtained on information sources was listed according to stage. The researchers specifically mention the difficulty in categorizing information sources, and relate they arbitrarily chose magazines, radio, printed extension circulars and bulletins, oral extension (office calls, meetings, visit), peer influence, commercial media, classroom, and a general category of "other". Such categories, upon extensive review of the research in this field, seem representative.

Beal and Rogers (1960) in their study of weed control and antibiotic feed use support Copp, Sill, and Brown in concluding that information sources vary on the basis of adopter categories, and that later adopters depend more on personal
sources of information than do early adopters. Beal and Rogers categorized information sources on two bases: mass media, agricultural agency, informal and commercial; and personal and impersonal. They then investigated each adopter category in regard to source. They found that:

1. Impersonal sources (bulletins, research publications) are most important to innovators and early adopters in the early stages of the adoption process.

2. Informal sources are more important for later adopters at the early stages of the adoption process.

3. There is more dependence on personal sources by later adopters than by earlier adopters.

These further studies by Beal using the five stage adoption process framework in regard to new types of fibres and new types of insecticides support the previous work of Beal and of Rogers in this area.

Copp (1956) learned that while farmers who failed to adopt recommended practices had full accessibility to technical farm information, none exploited available media for farm information to the degree that farmers who adopted farm practices exploited media. Farmers who adopted recommended practices were those who used information media requiring more effort in reception, such as bulletins, the county agent, and college events. This would tend to support the findings of Copp, Sill and Brown regarding cosmopolitanism of innovators, as well as of Marsh and Coleman, and to support the theories of Beal and Rogers in regard to the use of information sources by innovators and laggards.
Copp also found that the more the farmer relied on technical information sources, rather than local or mass media, the higher the adoption score, and that the same farmers admitted to the influence of a greater number of information sources.

Other research supports the theory that sources of information external to the adopters social system, called cosmopolite sources, are more important than local sources for early adopters. Copp (1956) claims that the tendency to adopt recommended farm practices increases to the extent that the operators reference group ceases to be local neighbors and becomes one of technical and professional specialists. Wilkening (1952) in a study of 107 North Carolina farm operators found that the fourteen who were classified as innovators had many more contacts outside the community, read many more magazines and farm bulletins from the state agricultural college, and almost always gave agricultural agencies or other extra-community sources for information about improved farm practices. Rogers and Leuthold (1962) and Rogers and Burdige (1961 and 1962) give further support to this theory.

Other studies have shown that early acceptors have closer contact with sources of innovation. Wilkening (1952) showed that those identified in his sample of farmers as innovators had much more contact with the state agricultural agencies than the other farmers. Rogers (1961) showed that in a sample of 200 Ohio farmers, 42% of the innovators had
had contact with agricultural scientists during the preceding year, compared to 10% for the other adopter categories. Beal and Bohlen (1957) claim that innovators get their ideas directly from colleges or the research worker. Copp, Sill and Brown (1958) support these findings, as do Marsh and Coleman.

The rural sociologists, claiming that early adopters tend actively to seek new ideas, while later adopters have a more passive or even negative approach to the new, have also theorized that the aggressiveness of early adopters would result in not only more cosmopolite sources of information, but in greater numbers of sources of information. Rogers (1959) found that Ohio innovators, in addition to being more highly educated, earning higher gross incomes and forming larger farms, discovered that they participated more in extension service activities, traveled directly to agricultural scientists to secure information, traveled widely to observe new practices on older farms and were more dependent on extension and research bulletins of information, less dependent on neighbors and relatives.

A study by Copp (1956) bears out this theory. Beal and Rogers (1960) found that earlier adopter categories read more farm magazines and newspapers, listened to more radio shows, but found that laggards viewed more farm T.V. shows than did innovators. Beal and Bohlen (1957) found that innovators subscribed to the most farm magazines, papers, and specialized publications, while non-adopters took the fewest farm papers.
and magazines and read the fewest farm bulletins. Studies by Fliegel (1956), Marsh and Coleman (1955) and Coughenour (1960) support the theory that innovators use greater numbers of sources of information than laggards.

Research on social relationships in regard to adopter categories done by the rural sociologists.

Paralleling the work done by the rural sociologists on personal characteristics and sources of information of early and late adopters is a series of studies which concerned themselves with the social relationships of early and late adopters. Lionberger (1968) has divided the social groups with which a farmer has contact into locality groups (neighborhood and community): family; social cliques and reference groups; and formal groups. If locality groups, family, social cliques and reference groups are classified as local social systems, and formal groups are classified as cosmopolite, then Rogers contention that earlier adopters are more cosmopolite than late adopters is borne out.

Rogers and Beal (1958) evidenced conclusive proof that neighborhoods are one of the most important influences in regard to adoption behavior, and that such social systems were more important to late adopters than to early adopters. Wilkening (1953), however, found that when labor from outside the family was used in farming, adoption rates were much higher than when there was no influence present on the farm from outside the family. Additionally, a study (Duncan and
Kreitlow, 1954) found that farmers who lived in neighborhoods that had different kinds of religious and ethnic groups had much higher adoption rates than persons living in homogeneous neighborhoods.

Ryan and Gross (1943) found that those farmers who were using hybrid corn traveled more often to urban centers than did the average farmers, a finding later substantiated by Gross and Taves (1952) in a re-analysis of the 1943 study. Lionberger and Cougheneour (1957) and Rogers and Burdige (1962) support these findings.

Lionberger and Cougheneour (1957) in a long study of the social structure and diffusion of farm information investigated the relationships of a number of status characteristics to technological competence (improved practice) of farm operators. Included for consideration among status characteristics were participation of the farm operator in formal organizations. They found that the correlation coefficient between improved farm practice and formal social participation was extremely high, and they concluded that participation in formal social organizations is more closely associated with improved practice than any other single factor, except income of the farmer. Further, the study demonstrated that participation in organizations oriented to the provision of useful farm information is more highly associated with improved farm practice than participation in all formal organizations.
In addition, Wilkening (1952) found that those farmers who are members of formal groups (groups that elect officers, appoint committees and plan programs) show a significant positive correlation to the adoption of new practices, while other studies (Sub-committee, 1955), (Beal and Behlen, 1957) have shown that late adopters are not likely to be members of any formal group, other than a church.

In summary, the work done in rural sociology has enabled the rural sociologists to evolve a number of generalizations concerning the personal characteristics, sources of information, and social contacts of early and late adopters. Such generalizations include the following:

1. Earlier adopters have different characteristics than later adopters in that the former tend to be younger, or have higher social status, or be more financially well off, of a different mental ability, and more specialized in their operation than the latter.

2. Earlier adopters utilize different sources of information than later adopters, in that sources of information are more cosmopolite; more impersonal; in close contact with origin of ideas; and in greater numbers.

3. Earlier adopters are more cosmopolite than later adopters, in that they rely on formal groups to a greater extent and in that they travel outside their immediate social system to a greater extent.

Studies on Characteristics of Innovators Done in Education

Studies reviewed in this section are those which, in recent years, have dealt with attempts to determine specific characteristics of persons identified as innovators. Several of these have used rural sociological models in part or in whole.
A number of studies have been made in an attempt to identify the most influential participants in the change process within the field of education. Cawelti (1967), in a study of 27 innovations in 7,237 high schools, claimed that the literature on change in education showed an abundance of materials of an innovative nature were available in the areas of curriculum, technology and organization, but noticed that there were high abandonment rates for some innovations and laid part of the blame for this on the lack of effort on the part of school administrators to clarify the change process and to introduce change in some systematic manner.

These claims for the administrator as the most influential participant in the adoption process can probably be traced to the work of Carlson (1965) who found that the superintendent, because of his decision-making power, is the determining factor in the adoption process. Mackenzie (1964) and Miles (1965) support this conclusion, although Hayes (1966) went a step further and claimed that superintendents tended to act only under pressure from the public and legal authorities.

Other research has shown the building principal to be effective in bringing about change. Mackenzie (1964) reported that because principals controlled teacher assignments, time allotments, allocation of human and non-human resources, classroom grouping, outside pressure by parents on teachers and in-service education of teachers, the principal was in
control of innovation. In another study, Demeter (1965) found that where principals were sympathetic toward an innovation, it prospered, while when they were hostile to an innovation, the opposite was true. Brickell (1961) supports the above in his study of educational change in New York State by finding that administrators can use their authority to promote innovation if they wish.

Further research which has shown the administrator to be the key determiner in the adoption process has been done by Bushnell (1964) and Kimbrough (1967) who found that the superintendent "has more authority than anyone else at the local level in making decisions."

An opposite view was taken by Gallaher (1965) who disagreed with Hayes and claimed that because superintendents had to balance between the conflicting demands of public and outside interest groups on the one hand, and professional education groups inside the system, his role in bringing about change could only be minor.

Unfortunately, the study of innovative persons is now just beginning to include the teacher. While the organizational reality present in every school system identifies the administrator as a key figure in the acceptance or rejection of innovations, Bridges and Reynolds (1968) point out that the fate of any innovation often lies with the classroom teacher, whose enthusiasm and reaction are vital in the process of accepting or rejecting any innovation. Because of what Miles (1965, p. 11) calls the "invisibility" of the
classroom teacher, and because much of what goes on in the classroom is isolated and autonomous, the reality of what happens to an innovation is often dependent upon the innovativeness of the teacher. The important decisions regarding innovation take place, like politics, in the back rooms of the organization.

Jenkins (1967), in a study entitled "A Study of the Characteristics Associated with Innovative Behavior in Teachers", attempted to determine whether creativity was a measure of innovativeness. Teachers and administrators from two high schools were asked to rate one another according to nine characteristics related to innovativeness. Fifteen of the most innovative and fifteen designated least innovative were then rated according to the National Teachers Examination; undergraduate quality point average, overall; undergraduate quality point average, teaching field; total number of college credits; and total years of teaching experience. In addition, participants were rated by several test instruments designed to identify creativity, including the Sixteen Personality Factor Questionnaire, the Edwards Personal Preference Schedule, The Guilford Battery, and the Tennessee Department of Mental Health Self Concept Scale. Conclusions drawn by the researchers were as follows:

Innovative teachers differed from non-innovative teachers in terms of certain personality and intellectual characteristics. Innovative teachers were more original and displayed
more idealization fluency, as well as a more thorough grounding in a diverse selection of academic disciplines. Innovative teachers tended to be more dominant, adventurous, disorderly, radical, more self-confident, more flexible, and more complex. However, neither undergraduate grades nor the total number of years of teaching seemed to discriminate significantly between innovative and non-innovative teachers.

Another study designed to test the innovative characteristics of teachers was done by Bridges and Reynolds (1968) who theorized that receptivity to change indicated potential innovative behavior using one personality characteristic, level of dogmatism, and three demographic variables: experience, age, and length of tenure. The researchers tested the hypothesis that elementary teachers with open belief systems will be more receptive to the trial of innovation than elementary teachers with closed belief systems. Questionnaires administered to 307 elementary teachers in urban, suburban, and rural school systems confirmed the major hypothesis, and resulted in the discovery that experience, age, and length of tenure were not significantly related to receptivity to change. Bridges and Reynolds (1968) point out that who you are and where you got your experience may be the determining factor. This would tend to support Jenkin's (1967) findings which found the characteristics of creativity, originality, dominance, etc., were significantly different in innovative and non-innovative teachers.

A most interesting study (Wygal, 1966) used the Rogers
model to determine the personal characteristics of junior college instructors as related to innovativeness. Using a sample of 52 junior college instructors who were rated by their deans as either innovators or traditionalists, Wygal found that only one of his hypotheses, that innovators tend to be younger than traditionalists, proved tenable. The other six hypotheses were not substantiated by data: (1) men are more innovative than women, (2) innovators possess more formal education than traditionalists, (3) innovators possess broader experience backgrounds than traditionalists, (4) instructors teaching fields are related to their innovativeness, (5) innovators have been present in their teaching positions for shorter periods of time than traditionalists, and (6) innovators are more cosmopolite than traditionalists.

While Wygal's results tend to substantiate the findings of Bridges and Reynolds (1968) in relation to experience and length of tenure, they are at odds regarding the variable of age. However, the procedure for determining innovativeness of the subjects used for the sample is open to question, since only the opinion of the deans was used to determine innovative behavior. The basic differences between research done in rural sociology and that done in education is apparent in this study of educators which is based upon Rogers' rural sociological model as well as in the Bridges and Reynolds study. No attempt was made to discover if those termed "innovators" were actually innovative by an attempt to measure their "good works." Obviously, different deans
have different views of what "innovative" and "traditional" might mean.

An earlier study (Leas, 1962) which compared the characteristics of innovative and traditional high school teachers in Indiana, using a Personal Data questionnaire, a Conservative Liberal Scale, a Flexibility Scale and an Innovative Scale led the researcher to conclude the following:

1. There was no significant difference between the social economic backgrounds of innovators and traditionalists.

2. The innovators tended to be younger than the traditionalists.

3. The traditionalists were found to have a greater number of years teaching experience than innovators.

4. There were no significant differences found regarding the sex of traditionalists and innovators.

5. Innovators reported traveling more extensively than traditionalists.

6. There was no significant difference in the incomes of traditionalists and innovators.

7. Innovators perceived themselves as leaders more frequently than did traditionalists.

8. Innovators were more concerned with clarifying the aims of education than were traditionalists.

9. The innovators scored a significantly higher mean score on the flexibility scale than did traditionalists.

10. The innovators scored a significantly higher mean score on the Innovative score than did the traditionalists.

11. Innovators were significantly less conservative than traditionalists.

In a 1968 study of administrators, Henderson (1968) found that administrators in the schools he found to be innovative
were younger in age, had had more jobs, and had travelled outside their state more than had those administrators who he found to be traditional. His data confirmed findings that younger age and cosmopolitaness were functions of innovativeness and supported Jenkins' (1967) contention regarding innovators being aggressive, radical, and independent.

A related study of interest is that done on the Psychological Characteristics of Innovators by Paul (1965). It is of interest because, although it deals with neither rural sociology or education, it does exemplify a procedure often missing in educational studies; namely, there is an attempt to make a concrete determination regarding the problem of who is an innovator and who is not. In this study, only those persons using a particular product, the Ericphone, were designated as innovators, while non-innovators were those who did not use the Ericphone. Unfortunately, the results of the study contradict almost every hypothesis held by the rural sociologists: The researchers found no age difference, no schooling difference, and no difference in social status between the two groups under study. He also found no difference in the types of sources used by the two groups or the number of formal groups to which innovators and non-innovators belonged. The researcher attributes these discrepancies to a faulty research design.

In summary, educational studies regarding innovative persons have, until recently, concentrated upon those who seem to be in leadership roles; namely, superintendents, and
principals. While such studies generally bear out that administrators are influential in the decision to adopt an innovation because of the control exerted over resources such as money and time, and because of their visibility with the community, such studies may have little to say, as do administrators themselves, in regard to what happens to innovative ideas and practices once they are introduced into the classroom. While high abandonment rates can be traced in part to those in leadership roles, the ultimate success or failure of an innovation lies with those task it is to implement innovations, i.e., the classroom teacher.

Recent studies on the innovativeness of the classroom teacher have investigated innovativeness in regard to such characteristics as age, level of experience, intellectual and professional background, level of dogmatism, and cosmopolitaness. Very little agreement can be found among researchers, perhaps because of the quality of the studies, and most assuredly because the research done has been too global in nature.

The glaring weakness in most educational studies of innovation, and the basic difference in such studies from those in rural sociology, is the frequent absence of any proof that those persons who are labelled as innovators really are innovators. Innovative farmers are chosen on the strength of their "good works." They have usually demonstrated their innovative behavior by the actual adoption of a new practice or idea, such as irrigation, or a new product, such as hybrid
seed corn. The effects of the innovative practices are concrete and demonstrably more effective, such as larger crops or higher income. Educational studies frequently rely on someone claiming to be innovative, or someone claiming someone else is innovative, without any demonstration of how what is being done is different, or what impact what they are doing has had on people or programs. Such a lack of control is undoubtedly inherent to the field of education and, to some extent, will always be a factor in research which studies innovation in education, particularly when such research is based in actual educational situations.

Summary

A review of the research related to this study leaves the impression that the rural sociologists are far ahead of education in investigating the process of change both in regard to amount and sophistication of research done. While educators have recently begun to investigate the process of change, particularly as applied to the classroom teacher, the work in this area still is far from that done by the rural sociologists. Educators, for example, deal in gross categories of adopters, such as innovative and non-innovative, while rural sociologists have pioneered a five-stage adoption process and have long been conducting research along the lines of such an adoption process.

There is ample proof that the difficulty in measuring educational change, and its effect on its target audience,
has contributed to the slowness of the study of change. A second factor is the proclivity of educational researchers for the study which investigates change in systems, rather than the study which investigates change in regard to the individual. Little has been done in education to build upon the discoveries regarding the change process that have been made by rural sociologists.

It appears that innovative educators do seek out new ideas about education, and are more cosmopolite than laggards. Research shows that inquisitiveness, independence and aggressiveness are attributes of the innovator, and perhaps the thought processes that lead a man to buy a plane ticket to a place he has never before been are the same as those processes which lead a man to adopt an innovation. In general, rural sociologists agree that innovators lean toward cosmopolite sources more heavily than do people who do not innovate. But very little has been done in this particular area in education.

Impersonal sources of information tend to be more important to innovators than personal sources, according to rural sociologists. Once again, the distinction of information sources has not been dealt with to any extent by educational research.
CHAPTER III: PROCEDURES AND METHODOLOGY

This chapter describes the procedures and methodology by which this study was carried out. It is divided into two major sections: the first section contains a brief description of the *Study of Educational Knowledge Diffusion and Utilization* (Wolf and Fiorino, 1969) and the second section describes the procedures and methodology of this particular study. The *Study of Educational Knowledge Diffusion and Utilization* is included to depict the events leading up to this study.

The Study of Educational Knowledge Diffusion and Utilization

Objectives

This sub-section is intended to provide a brief description of the Kettering Project. A more detailed description is provided in Chapter I, Background to the Study, beginning on page 7.

From 1966-1968 several teams of interviewers gathered data for the purpose of probing the following:

1. The extent to which teachers, supervisors, administrators and teacher educators
   a. have adopted innovations within the past year;
   b. plan to adopt innovations within the next year;
   c. tried but failed to adopt innovations within the past year in their personal practice.

2. Influences of recognized diffusion agents upon the adoption of innovations (i.e., practices,
products, and ideas that are new to the practitioner) to the personal practice of teachers, supervisors, administrators and teacher educators.

3. Characteristics of selected target audience, teachers, supervisors, administrators and teacher educators. Data generated pertained to level of experience, years of professional experience, and earned academic credits in relation to the adoption of innovation to personal practice.

4. Characteristics of selected diffusion strategies (style, duration, and audience size) in relation to the adoption of innovation to personal practice.

**Population**

Diffusion agents which seem representative of those currently employed in the field of education were selected for the study. No formal criterion was structured as the basis for selection; rather factors such as extent of impact, data accessibility, and level of education treated served as operating criteria. Selected diffusion agents included publications, brief assemblages and extended assemblages. (For a complete listing, see Appendix B.)

Subjects to be interviewed were selected because of their exposure to these diffusion agents on a random basis. A sample 100% larger than deemed necessary was chosen for the study due to anticipated subject apathy, negative reactions to interviews, change of address, death and so forth. Eight hundred seventy five initial contacts were made, which resulted in 631 completed interviews. Due to damaged tapes and losses, the final sample amounted to 595 persons including 164 teachers, 240 supervisors and administrators, 60 teacher educators, and 131 individuals representing retired
individuals and students.

Instrumentation

A survey instrument was initially designed in the summer of 1966 and evolved through three pilot trials and two major revisions. The final instrument (see Appendix A) was used to train interviewers and was designed to determine what ideas and practices were new to the interviewers, and what antecedent and causal events were influential in the mind of the interviewer on his adoption of new ideas and practices. The instrument was also designed to obtain descriptive data about the interviewee, and about influential diffusion agents.

Data Collection and Analysis

Each subject was first contacted by mail regarding the importance of his participation, a description of the project, and possible face-to-face interview dates. Trained interviewers then arranged to meet with the subjects, during which meeting the interviewer obtained permission to tape record the session. The interview was preceded by a brief warm-up session and usually followed by some conversation, but only the interview itself, based upon the survey instrument, was recorded. Following the interview, information on the sound tape was transferred to the survey instrument and then later to a codification sheet which was stored for later analysis.

PROCEDURES

Study Procedures

This study will analyze the data in regard to the specific hypotheses:
1. Impersonal information sources are most important at the awareness stage and personal sources are most important at the evaluation stage.

2. Cosmopolite information sources are most important at the awareness stage and localite information sources are most important at the evaluation stage.

3. That the fine-stage adoption concept (awareness - interest - evaluation - trial - adoption) is valid in the field of education.

The Sample

The sample for this study was drawn from the original Kettering study sample in the following manner. A program was prepared by the University of Massachusetts Computer Center and accomplished the following: We obtained and then ranked the composite indices of innovativeness for each source of data (all subjects within each source of data) and then determined the five highest and the five lowest composite scores. Hence, the data sources accounting for the most innovative subjects and the data sources accounting for the least innovative subjects were derived for this study.

The sources accounting for the most innovative subjects included three ASCD Regional Institutes (at Detroit, Washington, D.C. and Minneapolis), one NDEA Academic Year Institute (at the University of Georgia) and a publication, The National Elementary Principal.

Conversely, three NDEA summer institutes (at the University of Virginia, Howard University, and Albright College) and two publications, The Instructor and School Science and Mathematics accounted for the least innovative subjects in the sample. These sources were selected among the twenty
actively considered (see Chapter I, p. ).

Table 3

Study Sample

Sample Accounting for the Most Innovative Subjects

1. ASCD Institute, Detroit, Mich. - N = 15
2. ASCD Institute, Washington, D.C. - N = 18
3. ASCD Institute, Minneapolis, Minn. - N = 18
4. NDEA Academic Year Institute, University of Georgia - N = 19
5. The National Elementary Principal (publication) - N = 40

Total N = 110

Sample Accounting for the Least Innovative Subjects

1. NDEA Summer Institute, University of Virginia - N = 15
2. NDEA Summer Institute, Howard University - N = 19
3. NDEA Summer Institute, Albright College - N = 16
4. The Instructor (publication) - N = 37
5. School Science and Mathematics (publication) - N = 52

Total N = 139

GRAND TOTAL = 249

Data Analysis

The data for this study were drawn from audio-taped responses of the subjects to questions on the original survey instrument. The question sequence used to identify information sources utilized, stages in the adoption process and innovations adopted were as follows: The interviewer asks the series eight questions (See Appendix A for complete inventory).
8. "Please identify any new practices, products and ideas that you initiated, introduced and have adopted in your work during the year. By adopted I mean if it is now an accepted part of your work."

a. Briefly describe (Innovation mentioned)

b. Describe the procedures you used to incorporate (Innovation mentioned) in your work. (Interviewer:

If trial or pilot study not mentioned, ask the following:)

1. Did you use (Innovation mentioned) on a trial basis before you adopted it?

(Interviewer: If yes, go to 1.1 -- if no, go to 2)

1.1 Explain your methods of assessing the results of the trial phase.

2. Explain your methods of assessing the worth of (Innovation mentioned).

c. When did you first become aware of (Information source)?

d. How did you first become aware of (Information source)?

(Interviewer: Wait for response. If none forthcoming, suggest readings, people, meetings, conferences, etc. Get specific responses.)

e. What other sources did you use to gain the information necessary to determine the possible usefulness and application of (Innovation mentioned) in your work?"

An instrument was designed by the researcher to analyze the data available on the sound tapes in regard to the hypotheses of the study (see Appendix C). The instrument was designed to facilitate the acquisition of frequency counts in terms of the major hypotheses to be tested. Specifically, the instrument was used to record the category of information
source mentioned by the interviewee and at which stage of the adoption process the source was mentioned.

Decision making or judging concerning the data gathered by the researcher involved adherence to operational definitions constructed by the researcher. These definitions serve as the framework within which categorization of particular information sources took place.

The operational definitions considered in the judging process were:

1. **Personal Information Source**

   Judged as any educational or non-educational associate mentioned by the subject of this study as an influential source for his knowledge of an innovative idea, product, or practice.

2. **Impersonal Information Source**

   Judged as any publication or other media specifically mentioned by the subject of this study as an influential source of his knowledge of an innovative idea, product, or practice.

3. **Cosmopolite Source**

   Judged as any assemblage mention by a subject of this study as an influential source for his knowledge of an innovative idea, product, or practice which is external to the subject's social environment.

4. **Localite Source**

   Judged as any assemblage mentioned by a subject of this study as an influential source for his knowledge of an innovative idea, product, or practice which is an integral part of the subject's social environment.

The audio-tapes were reviewed by the researcher so that he had no prior knowledge of the original sample source while
making judgments about the subject's responses. Later the tapes were unscrambled to report relevant relationships.

In the data analysis various sub-categories were developed for each of the general categories of information sources as defined by the researcher. For example, some sub-categories for localite sources were faculty meetings, department meetings, system meetings; sub-categories for personal information sources were teachers, students, university person; sub-categories for impersonal sources were books, magazines general and professional, television; sub-categories for cosmopolite sources were institutes, national meetings, personal visitation outside the local school system. For a complete listing of the sub-categories used in the data analysis, see Appendix C.

In the analysis of hypothesis number one that impersonal information sources are most important at the awareness stage and personal information sources are most important at the evaluation stage, the data was analyzed by a comparison of the total number of personal and impersonal information sources mentioned at each stage of the adoption process. These totals were the result of frequency counts of personal and impersonal sources mentioned by each subject in response to the survey instrument questions.

The results are reported for the two divergent groups in the sample, namely, the sample accounting for the most innovative subjects and, conversely, the sample accounting for the least innovative subjects.
Table 4

Importance of personal and impersonal information sources at each stage of the adoption process among the sample accounting for the most innovative subjects.

<table>
<thead>
<tr>
<th></th>
<th>Personal</th>
<th></th>
<th>Impersonal</th>
<th></th>
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<tbody>
<tr>
<td>Awareness</td>
<td>N = %</td>
<td></td>
<td>N = %</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>N = %</td>
<td></td>
<td>N = %</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>N = %</td>
<td></td>
<td>N = %</td>
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<td></td>
<td><strong>Total N</strong></td>
<td></td>
<td><strong>Total N</strong></td>
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</table>

Table 5

Importance of personal and impersonal information sources at each applicable stage of the adoption process among the sample accounting for the least innovative subjects.

<table>
<thead>
<tr>
<th></th>
<th>Personal</th>
<th></th>
<th>Impersonal</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Awareness</td>
<td>N = %</td>
<td></td>
<td>N = %</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>N + %</td>
<td></td>
<td>N = %</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>N = %</td>
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<td>N = %</td>
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<td></td>
<td><strong>Total N</strong></td>
<td></td>
<td><strong>Total N</strong></td>
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</tbody>
</table>

In the analysis of hypothesis number two that cosmopolite information sources are most important at the awareness stage and localite information sources are most important at the evaluation state, the data was analyzed by a comparison of the total number of cosmopolite and localite information sources mentioned at each stage of the adoption process. These totals were the result of a frequency count of cosmopolite and localite sources mentioned by each subject in response to the survey instrument questions.

The results are reported for the two divergent groups in the sample; namely, the sample accounting for the most
innovative subjects and, conversely, the sample accounting for the least innovative subjects.

Table 6

Importance of cosmopolite and localite information sources at each stage of the adoption process among the sample accounting for the most innovative subjects.

<table>
<thead>
<tr>
<th></th>
<th>Cosmopolite</th>
<th>Localite</th>
<th>Total N =</th>
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<tbody>
<tr>
<td>Awareness</td>
<td>N = %</td>
<td>N = %</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>N = %</td>
<td>N = %</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>N = %</td>
<td>N = %</td>
<td></td>
</tr>
</tbody>
</table>

Table 7

Importance of cosmopolite and localite information sources at each stage of the adoption process among the sample accounting for the least innovative subjects.

<table>
<thead>
<tr>
<th></th>
<th>Cosmopolite</th>
<th>Localite</th>
<th>Total N =</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>N = %</td>
<td>N = %</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>N = %</td>
<td>N = %</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>N = %</td>
<td>N = %</td>
<td></td>
</tr>
</tbody>
</table>

In the analysis of hypothesis number three that the fine stage adoption concept (awareness, interest, evaluation, trial, adoption) is valid in the field of education, the process consisted of computing the number of skipped stages out of the number of possible stages in the adoption of a particular innovation. The results are reported for the two divergent groups in the sample, namely, the sample accounting for the most innovative subjects and, conversely, the sample
accounting for the least innovative subjects.

Table 8
An analysis of the adoption stage concept by possible stages and skipped stages.

<table>
<thead>
<tr>
<th></th>
<th>Most Innovative</th>
<th>Least Innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Possible</td>
<td>Skipped</td>
</tr>
<tr>
<td>Awareness</td>
<td>N =</td>
<td>N =</td>
</tr>
<tr>
<td>Interest</td>
<td>N =</td>
<td>N =</td>
</tr>
<tr>
<td>Evaluation</td>
<td>N =</td>
<td>N =</td>
</tr>
<tr>
<td>Trial</td>
<td>N =</td>
<td>N =</td>
</tr>
<tr>
<td>Adoption</td>
<td>N =</td>
<td>N =</td>
</tr>
</tbody>
</table>

Other Analysis

The data used to investigate the major hypothesis led to an investigation of other questions which related to the particular sources mentioned by the subjects. These data resulted in an analysis of the importance all the information sources actively considered by the researcher at each stage of the adoption process.

The results are reported for the two divergent groups in the sample, namely, the sample accounting for the most innovative subjects and, conversely, the sample accounting for the least innovative subjects.
Table 9

Importance of personal, impersonal, cosmopolite and localite information sources at each stage of the adoption process among the sample accounting for the most innovative subjects.

<table>
<thead>
<tr>
<th></th>
<th>Personal</th>
<th>Impersonal</th>
<th>Cosmopolite</th>
<th>Localite</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Interest</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Evaluation</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
</tr>
</tbody>
</table>

Table 10

Importance of personal, impersonal, cosmopolite, and localite information sources at each stage of the adoption process among the sample accounting for the least innovative subjects.

<table>
<thead>
<tr>
<th></th>
<th>Personal</th>
<th>Impersonal</th>
<th>Cosmopolite</th>
<th>Localite</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Interest</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Evaluation</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
<td>N = %</td>
</tr>
</tbody>
</table>

Information sources by specific category

The data used to investigate the major hypothesis led to a further breakdown of personal, impersonal, localite and cosmopolite sources into sub-groups. The researcher felt that analysis of these sub-groups could produce revealing data concerning specific information sources utilized by subjects.

Each of the four general categories of information sources (personal, impersonal, localite and cosmopolite) was arbitrarily divided into various sub-categories for data
analysis. These sub-categories were utilized in order to facilitate the recording of data from audio-tape interviews as well as to record the importance of specific information sources at various stages of the adoption process. The frequency counts and per-cents derived from them are reported herein.

**Impersonal information sources**

The category of impersonal information sources consisted of eight arbitrarily chosen sub-categories as follows: Professional Magazines, Magazines (general), Magazines (not specified), Book, Newspaper, Television, Commercial Bulletin, and "Other".

The data collected pertaining to these sub-categories appears in Table 11 and is reported for the two divergent groups, namely, responses from subjects in the sample accounting for the most innovative activity and, conversely, the responses from the subject in the sample accounting for the least innovative activity.
### Table 11
Subject's utilization of impersonal information sources by sub-categories

<table>
<thead>
<tr>
<th></th>
<th>Most innovative</th>
<th>Least innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional magazines</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>General magazines</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Magazines (not specified)</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Book</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Newspaper</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Television</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Commercial bulletin</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Other</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Total N =</td>
<td></td>
<td>Total N =</td>
</tr>
</tbody>
</table>

**Personal information sources**

The category of personal information sources consisted of eleven arbitrarily chosen sub-categories as follows: teachers, administrators, University person, commercial representative, outside speaker, representative of the State Department, family, neighbors/friends, parents, students, and "other".

The data collected pertaining to these sub-categories appears in Table 12 and is reported for the two divergent groups in, namely, responses from the subjects in the sample accounting for the most innovative activity and, conversely, the responses from the subjects accounting for the least innovative activity.
Table 12

Subject's utilization of personal information sources by sub-categories

<table>
<thead>
<tr>
<th>Source</th>
<th>Most Innovative</th>
<th>Least Innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Administrators</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>University person</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Commercial representative</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Outside speaker</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Representative of the State Department</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Family</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Neighbors/Friends</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Parents</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Students</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Others</td>
<td>N = %</td>
<td>N = %</td>
</tr>
</tbody>
</table>

Total N = Total N =

Cosmopolite information sources

The category of cosmopolite information sources consisted of twelve arbitrarily chosen sub-categories as follows: University course, personal visitation, national meeting in professional specialty, national meeting in general professional interest, institute/workshop in professional specialty, institute/workshop in general professional interest, institute/workshop sponsored by commercial interest, and "other".

The data collected pertaining to these sub-categories
appears in Table 13 and is reported for the two divergent groups, namely, responses from subjects in the samples accounting for the most innovative activity and, conversely, the responses from the subjects in the sample accounting for the least innovative activity.

Table 13

Subject's utilization of cosmopolite information sources by sub-category

<table>
<thead>
<tr>
<th></th>
<th>Most innovative</th>
<th>Least innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>University course</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Personal visitation</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>National meeting in</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>professional specialty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National meeting in</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>general professional interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National meeting sponsored by commercial interest</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>State meeting in</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>professional specialty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State meeting in</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>general professional interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State meeting sponsored by commercial interest</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Institute/Workshop in</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>professional specialty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute/Workshop in</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>general professional interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute/Workshop sponsored by commercial interest</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Other</td>
<td>N = %</td>
<td>N = %</td>
</tr>
</tbody>
</table>

Total N = Total N =
Localite sources

The category of localite sources consisted of four arbitrarily chosen sub-categories as follows: department meetings, faculty meetings, system meetings, and other.

The data collected pertaining to these sub-categories appears in Table 14 and is reported for the two divergent groups, namely, the responses from the subjects in the sample accounting for the most innovative activity and, conversely, the responses from the subjects in the sample accounting for the least innovative activity.

Table 14
Subject's utilization of localite information sources by sub-category

<table>
<thead>
<tr>
<th></th>
<th>Most innovative</th>
<th>Least innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental meetings</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Faculty meetings</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>System meetings</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Other</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Total N</td>
<td>Total N =</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER IV: THE DATA

The data analyzed in this chapter were gathered by the procedures and methodology described in Chapter III. Audio-taped interviews were listened to and the responses to inventory questions were recorded on an inventory form (see Appendix A). Following the audio-tape analysis the data were transferred to a master sheet for cross count and frequency tabulation.

The original sample drawn for this study resulted in an analysis of 249 interviews. Of these interviews, 139 were derived from the sample accounting for the most innovative subjects while 110 of the interviews were derived from the sample accounting for the least innovative subjects.

From the original sample seven tapes were discarded for various reasons ranging from faulty recording to lack of information (questions not asked, etc.). This resulted in a total study sample of 242 subjects composed of 134 from the "most innovative" group and 108 from the "least innovative" group.

Since this study is concerned with the adoption process subjects "who had not adopted an innovation during the past year" were eliminated from the sample. (See interview inventory Series 8 Questions - Appendix A.)

This resulted in a study sample for analysis of 163 subjects who had actually gone through the adoption process. The breakdown included 134 subjects from the "most innovative" group and 57 subjects from the "least innovative" group.
Table 15

Total sample and subsequent sample derived for the study.

<table>
<thead>
<tr>
<th></th>
<th>Most innovative</th>
<th>Least innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample</td>
<td>139</td>
<td>110</td>
</tr>
<tr>
<td>Discarded tapes</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Study sample</td>
<td>134</td>
<td>108</td>
</tr>
<tr>
<td>Subjects with no adoptions</td>
<td>28</td>
<td>51</td>
</tr>
<tr>
<td>Total number of adoptions</td>
<td>106</td>
<td>57</td>
</tr>
</tbody>
</table>

This chapter is divided into two sections. First the data that relates directly to the hypotheses will be presented and then other data relevant to this study will be reported in the section entitled other analysis.

Hypothesis number one was stated as follows:

Impersonal information sources are most important at the awareness stage and personal sources are most important at the evaluation stage.

The data collected pertaining to this hypothesis appears in Table 16 and indicates the importance of personal and impersonal information sources among the sample accounting for the most innovative subjects. Other data collected that pertains to this hypothesis appears in Table 17 and indicates the importance of personal and impersonal information sources among the sample accounting for the least innovative subjects.
Table 16
Importance of personal and impersonal information sources at each stage of the adoption process among the sample accounting for the most innovative subjects.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Personal</th>
<th>Impersonal</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>40</td>
<td>17</td>
<td>57</td>
</tr>
<tr>
<td>N</td>
<td>70.2%*</td>
<td>29.8%</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>28</td>
<td>41</td>
<td>69</td>
</tr>
<tr>
<td>N</td>
<td>40.6%</td>
<td>59.4%*</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>93</td>
<td>10</td>
<td>103</td>
</tr>
<tr>
<td>N</td>
<td>90.3%*</td>
<td>9.7%</td>
<td></td>
</tr>
</tbody>
</table>

Table 17
Importance of personal and impersonal information sources at each stage of the adoption process among the sample accounting for the least innovative subjects.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Personal</th>
<th>Impersonal</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>14</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>N</td>
<td>50.0%</td>
<td>50.0%</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>17</td>
<td>19</td>
<td>36</td>
</tr>
<tr>
<td>N</td>
<td>47.2%</td>
<td>52.8%*</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>51</td>
<td>2</td>
<td>53</td>
</tr>
<tr>
<td>N</td>
<td>96.2%*</td>
<td>3.8%</td>
<td></td>
</tr>
</tbody>
</table>

The data analyzed with regard to hypothesis number one (that impersonal information sources are most important at the awareness stage and personal information sources are most important at the evaluation stage) provided some findings that are inconsistent with the generalizations put forth by rural sociologists. Noteworthy is the fact that among the sample accounting for the most innovative subjects, 70.2% mentioned personal information sources at the awareness stage; moreover, 90.3% of these subjects mention personal information sources again at the evaluation stage. The group, however, seemed to favor impersonal information sources at the
interest stage by some 59.4%.

Among the sample accounting for the least innovative subjects, personal and impersonal information sources were mentioned an equal number of times at the awareness stage while impersonal information sources were favored at the interest stage by some 52.8%. At the evaluation stage, however, 96.2% of the subjects mentioned personal information sources as most influential.

In summary, hypothesis number one was rejected. It was found that among the total study sample personal information sources were most important at the awareness stage and at the evaluation stage. Further, it was determined that among both groups in the sample impersonal information sources were most important at the interest stage.

Hypothesis number two was stated as follows:

Cosmopolite information sources are most important at the awareness stage and localite information sources are most important at the evaluation stage.

The data collected pertaining to this hypothesis appears in Table 18 and indicates the importance of cosmopolite and localite information among the sample accounting for the most innovative subjects. Other data collected that pertains to this hypothesis appear in Table 19 and indicate the importance of cosmopolite and localite information sources among the sample accounting for the least innovative subjects.
Table 18
Importance of cosmopolite and localite information sources at each stage of the adoption process among the sample accounting for the most innovative subjects.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Cosmopolite</th>
<th>Localite</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>N= 49 100%</td>
<td>N=0 0%</td>
<td>49</td>
</tr>
<tr>
<td>Interest</td>
<td>N=34 91.9%</td>
<td>N=3 8.1%</td>
<td>37</td>
</tr>
<tr>
<td>Evaluation</td>
<td>N=0 0%</td>
<td>N=0 0%</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 19
Importance of cosmopolite and localite information sources at each stage of the adoption process among the sample accounting for the least innovative subjects.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Cosmopolite</th>
<th>Localite</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>N=26 89.7%*</td>
<td>N=3 10.3%</td>
<td>29</td>
</tr>
<tr>
<td>Interest</td>
<td>N=21 100%*</td>
<td>N=0 0%</td>
<td>21</td>
</tr>
<tr>
<td>Evaluation</td>
<td>N=- 0%</td>
<td>N=0 0%</td>
<td>0</td>
</tr>
</tbody>
</table>

The data analyzed with regard to hypothesis number two (that cosmopolite information sources are most important at the awareness stage and that localite information sources are most important at the evaluation stage) again provided some findings that are inconsistent with generalizations put forth by rural sociologists. Among the sample accounting for the most innovative subjects, for instance, we discover that in the first two stages of the adoption process, awareness and interest, subjects mention cosmopolite information sources 100% and 91.9%, respectively. At the evaluation stage,
however, neither cosmopolite nor localite sources are mentioned at all.

Among the sample accounting for the least innovative subjects again it was found that in the first two stages of the adoption process the subjects mention cosmopolite information sources 89.7% and 100%, respectively. At the evaluation stage, however, neither source is mentioned at all.

In summary, hypothesis number two was rejected. It was found that among both groups in the sample localite information sources were not mentioned at the evaluation stage. Noteworthy is the fact that cosmopolite sources are also important for both groups at the interest stage; moreover, that localite sources were only mentioned six times out of 116 possibilities or 5.2% by the subjects in both sample groups.

Hypothesis number three was stated as follows:

That the five-stage adoption concept (awareness, interest, evaluation, trial, and adoption) is valid in the field of education.

In the analysis of hypothesis number three the process consisted of computing the number of skipped stages out of the number of possible stages in the adoption of a particular innovation. The results are reported in Table 20 for the two divergent groups in the sample.
Table 20

An analysis of the adoption stage concept by possible stages and skipped stages.

<table>
<thead>
<tr>
<th></th>
<th>Most innovative</th>
<th>Least innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Possible</td>
<td>Skipped</td>
</tr>
<tr>
<td>Awareness</td>
<td>N = 106</td>
<td>N = 0</td>
</tr>
<tr>
<td>Interest</td>
<td>N = 106</td>
<td>N = 0</td>
</tr>
<tr>
<td>Evaluation</td>
<td>N = 106</td>
<td>N = 3</td>
</tr>
<tr>
<td>Trial</td>
<td>N = 106</td>
<td>N = 27</td>
</tr>
<tr>
<td>Adoption</td>
<td>N = 106</td>
<td>N = 0</td>
</tr>
</tbody>
</table>

The data analyzed with regards to hypothesis number three (that the five-stage adoption concept is valid in the field of education) produced some findings that are again inconsistent with those in rural sociology. Among the sample accounting for the most innovative subjects, 30 stages were skipped out of a possible 530 (5 X 106) with 27 of these accounting for the trial stage. In other words, 25% of this sub-sample admittedly did not have a trial phase before adoption.

Among the sample accounting for the least innovative subjects, 35 stages were skipped out of a possible 285 (5 X 57). Four subjects interviewed stated that they had skipped the evaluation stage and 31, or 54%, admitted that they had not had a trial stage.

In summary, the adoption stage concept is valid for the sample accounting for the most innovative subjects with some
reservation about the trial stage since about 1/4 of the subjects skipped this stage. Among the sample accounting for the least innovative subjects, the five-stage concept is not valid with more than half of the sample skipping the trial stage.

Other Analysis

The data used to investigate the major hypotheses of this study led to an investigation of other questions which related to the relative importance of all of the information sources (personal, impersonal, cosmopolite, localite) actively considered by the researcher at each stage of the adoption process. The data analyzed with regard to this consideration appears in Table 21 for the sample accounting for the most innovative subjects, and Table 22 for the sample accounting for the least innovative subjects.

Table 21

<table>
<thead>
<tr>
<th>Importance of personal, impersonal, cosmopolite and localite information sources at each stage of the adoption process among the sample accounting for the most innovative subjects.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal</strong></td>
</tr>
<tr>
<td>Awareness</td>
</tr>
<tr>
<td>Interest</td>
</tr>
<tr>
<td>Evaluation</td>
</tr>
<tr>
<td>Total sources</td>
</tr>
</tbody>
</table>

*Note: Three individuals indicated they had skipped this stage entirely.*
Table 22

Importance of personal, impersonal, cosmopolite, and localite information sources at each stage of the adoption process among the sample accounting for the least innovative subjects.

<table>
<thead>
<tr>
<th></th>
<th>Personal</th>
<th>Impersonal</th>
<th>Cosmopolite</th>
<th>Localite</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>N=14</td>
<td>24.6%</td>
<td>N=26</td>
<td>45.6%*N=3 5.2%</td>
<td>N=57</td>
</tr>
<tr>
<td>Interest</td>
<td>N=17</td>
<td>29.8%</td>
<td>N=19</td>
<td>33.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Evaluation</td>
<td>N=51</td>
<td>96.2%*N=2</td>
<td>3.8% N=0</td>
<td>0% N=0</td>
<td>0%</td>
</tr>
<tr>
<td>Total sources</td>
<td>N=82</td>
<td>49.0%</td>
<td>N=35</td>
<td>20.0%</td>
<td>28.1%</td>
</tr>
</tbody>
</table>

Note: Four individuals indicated skipped stage

In Table 21 among the sample accounting for the most innovative subjects, cosmopolite information sources were most important at the awareness stage, impersonal sources at the interest stage and personal information sources at the evaluation stage.

Among the sample accounting for the least innovative subjects (Table 22), cosmopolite information sources were most important at the awareness stage and interest stage while personal information sources were most important at the evaluation stage.

Noteworthy is the similarity in both sample groups especially when comparisons are made of the percentages for the total source usage. It appears that the only variance occurs among sources mentioned at the interest stage. Among the sample accounting for the most innovative subjects, impersonal sources were mentioned more than any other source at the interest stage while among the sample accounting for the least
innovative subjects, cosmopolite information sources were mentioned more than any other source considered.

Information sources by specific category

The data used to investigate the major hypotheses of this study led to an investigation of other questions concerning the use of information sources by specific categories.

Each of the four general categories of information sources (personal, impersonal, localite and cosmopolite sources) was arbitrarily divided into various sub-categories for data analysis. These sub-categories were utilized in order to facilitate the recording of data from audio-tape interviews as well as to record the importance of specific information sources at various stages of the adoption process. The frequency counts and per-cents derived from them are reported herein.

Impersonal information sources

The category of impersonal information sources consisted of eight arbitrarily chosen sub-categories as follows: Professional magazines, magazines (general), magazines (not specified), book, newspaper, television, commercial bulletin, and "other".

The data collected pertaining to these sub-categories appears in Table 23 and is reported for the two divergent groups, namely, responses from subjects in the sample accounting for the most innovative activity and, conversely,
the responses from the subject in the sample accounting for the least innovative activity. A frequency count of the number of subjects who mentioned these categories yielded the following data:

Table 23
Subject's utilization of impersonal information sources by sub-categories

<table>
<thead>
<tr>
<th></th>
<th>Most innovative</th>
<th>Least innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional magazines</td>
<td>N=51 75.0%</td>
<td>N=24 68.6%</td>
</tr>
<tr>
<td>General magazines</td>
<td>N= 3 4.4%</td>
<td>N= 2 5.9%</td>
</tr>
<tr>
<td>Magazines (not specified)</td>
<td>N= 2 2.9%</td>
<td>N= 1 2.9%</td>
</tr>
<tr>
<td>Book</td>
<td>N= 4 5.9%</td>
<td>N= 2 5.9%</td>
</tr>
<tr>
<td>Newspaper</td>
<td>N= 2 2.9%</td>
<td>N= 1 2.9%</td>
</tr>
<tr>
<td>Television</td>
<td>N= 1 1.5%</td>
<td>N= 1 2.9%</td>
</tr>
<tr>
<td>Commercial bulletin</td>
<td>N= 4 5.9%</td>
<td>N= 2 5.9%</td>
</tr>
<tr>
<td>Other</td>
<td>N= 1 1.5%</td>
<td>N= 2 5.9%</td>
</tr>
<tr>
<td>Total N = 68</td>
<td></td>
<td>Total N = 35</td>
</tr>
</tbody>
</table>

All of the impersonal information sources actively considered were mentioned at least once. In order of decreasing importance, among the sample accounting for the most innovative subjects, the following were mentioned: Professional magazines, books, commercial bulletins, magazines not specified, newspapers, television and other. In order of decreasing importance, among the sample accounting for the least innovative subjects, the following were mentioned: Professional magazines, general magazines, books, commercial
bulletins, other, magazines not specified, newspapers, television. Noteworthy is the substantial percentage from both groups in the sample who mention professional magazines.

**Personal information sources**

The category of personal information sources consisted of eleven arbitrarily chosen sub-categories as follows: Teachers, administrators, University person, commercial representative, outside speaker, representative of the State Department, family, neighbors/friends, parents, students, and "other".

The data collected pertaining to these sub-categories appears in Table 24 and is reported for the two divergent groups in, namely, responses from the subjects in the sample accounting for the most innovative activity and, conversely, the responses from the subject accounting for the least innovative activity. A frequency count of the number of subjects who mentioned these categories yielded the following data:
Table 24
Subject's utilization of personal information sources by sub-categories

<table>
<thead>
<tr>
<th>Source</th>
<th>Most innovative</th>
<th>Least innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>N=88 54.7%</td>
<td>N=21 25.6%</td>
</tr>
<tr>
<td>Administrators</td>
<td>N=41 25.5%</td>
<td>N=27 32.9%</td>
</tr>
<tr>
<td>University person</td>
<td>N=7 4.4%</td>
<td>N=4 4.9%</td>
</tr>
<tr>
<td>Commercial representative</td>
<td>N=17 10.6%</td>
<td>N=10 12.2%</td>
</tr>
<tr>
<td>Outside speaker</td>
<td>N=2 1.2%</td>
<td>N=0 0%</td>
</tr>
<tr>
<td>Representative of the State Department</td>
<td>N=0 0%</td>
<td>N=0 0%</td>
</tr>
<tr>
<td>Family</td>
<td>N=1 .62%</td>
<td>N=2 2.4%</td>
</tr>
<tr>
<td>Neighbors/Friends</td>
<td>N=1 .62%</td>
<td>N=2 2.4%</td>
</tr>
<tr>
<td>Parents</td>
<td>N=0 0%</td>
<td>N=2 2.4%</td>
</tr>
<tr>
<td>Students</td>
<td>N=2 1.2%</td>
<td>N=11 13.4%</td>
</tr>
<tr>
<td>Others</td>
<td>N=2 1.2%</td>
<td>N=3 3.7%</td>
</tr>
<tr>
<td>Total N = 161</td>
<td>Total N = 82</td>
<td></td>
</tr>
</tbody>
</table>

Among the sample accounting for the most innovative subjects, representative of the State Department and parent were not mentioned at all. In order of descending importance the following personal sources were mentioned: teachers, administrators, commercial representative, university person. Each of the other sub-categories was mentioned once or twice.

Among the sample accounting for the least innovative subjects, representative of the State Department and outside speaker were not mentioned as important. In order of
descending importance the following personal sources were mentioned: administrators, teachers, students, commercial representative, university person, others. Each of the remaining sub-categories was mentioned twice.

**Cosmopolite information sources**

The category of cosmopolite information sources consisted of twelve arbitrarily chosen sub-categories, as follows: University course, personal visitation, national meeting in professional specialty, national meeting in general professional interest, Institute/Workshop in professional specialty, Institute/Workshop in general professional interest, Institute/Workshop sponsored by commercial interest, and "other".

The data collected pertaining to these sub-categories appears in Table 25 and is reported for the two divergent groups, namely, responses from subjects in the samples accounting for the most innovative activity and, conversely, the responses from the subject in the sample accounting for the least innovative activity. A frequency count of the number of subjects who mentioned these categories yielded the following data:
Table 25
Subject's utilization of cosmopolite information sources by sub-category

<table>
<thead>
<tr>
<th>Source</th>
<th>Most innovative</th>
<th>Least innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>University course</td>
<td>N=13 15.7%</td>
<td>N=5 10.6%</td>
</tr>
<tr>
<td>Personal visitation</td>
<td>N= 5 6.0%</td>
<td>N=2 4.3%</td>
</tr>
<tr>
<td>National meeting in professional specialty</td>
<td>N=14 16.9%</td>
<td>N=6 12.8%</td>
</tr>
<tr>
<td>National meeting in general professional interest</td>
<td>N=17 20.5%</td>
<td>N=12 25.5%</td>
</tr>
<tr>
<td>National meeting sponsored by commercial interest</td>
<td>N= 2 2.4%</td>
<td>N=3 6.4%</td>
</tr>
<tr>
<td>State meeting in professional specialty</td>
<td>N= 2 2.4%</td>
<td>N=5 10.6%</td>
</tr>
<tr>
<td>State meeting in general professional interest</td>
<td>N= 6 7.2%</td>
<td>N=5 10.6%</td>
</tr>
<tr>
<td>State meeting sponsored by commercial interest</td>
<td>N= 3 3.6%</td>
<td>N=3 6.4%</td>
</tr>
<tr>
<td>Institute/Workshop in professional specialty</td>
<td>N=15 18.0%</td>
<td>N=2 4.3%</td>
</tr>
<tr>
<td>Institute/Workshop in general professional interest</td>
<td>N= 3 3.6%</td>
<td>N=2 4.3%</td>
</tr>
<tr>
<td>Institute/Workshop sponsored by commercial interest</td>
<td>N= 2 2.4%</td>
<td>N=1 2.1%</td>
</tr>
<tr>
<td>Other</td>
<td>N= 1 1.2%</td>
<td>N=1 2.1%</td>
</tr>
<tr>
<td>Total N</td>
<td>83</td>
<td>47</td>
</tr>
</tbody>
</table>

All of the cosmopolite information sources actively considered by the researcher were mentioned at least once. In order of decreasing importance among the sample accounting for the most innovative subjects, the following were mentioned as important: National meetings in general professional...
interest, institutes/workshop in professional specialty, national meeting in professional specialty, state meeting in general professional interest, personal visitation (outside social system). Each of the other sub-categories were mentioned several times.

Among the sample accounting for the least innovative subjects, all of the cosmopolite information sources considered were mentioned at least once. In order of decreasing importance, the following were mentioned: national meeting in general professional interest, university course, national meeting in professional specialty, state meeting in general professional interest. Each of the other sub-categories were mentioned several times.

**Localite sources**

The category of localite sources consisted of four arbitrarily chosen sub-categories as follows: department meetings, faculty meetings, system meetings, and other.

Unfortunately, the data collected pertaining to this sub-category was minimal. A frequency count of the number of subjects who mentioned these categories yielded the following results.

Among the sample accounting for the most innovative subjects, faculty meetings were mentioned three times and the other localite sources considered were not mentioned at all, while among the sample accounting for the least innovative subjects, departmental meetings were mentioned twice and faculty meetings once and system meetings not at all.
CHAPTER V: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The stated hypotheses in this study were based upon models generated by studies in rural sociology. In essence this study was an attempt to test the applicability of these generalizations in the field of education. These generalizations were as follows:

1. Impersonal information sources are most important at the awareness stage of the adoption process and personal information sources are most important at the evaluation stage of the adoption process.

2. Cosmopolite information sources are most important at the awareness stage of the adoption process and localite information sources are most important at the evaluation stage of the adoption process.

3. That the five stage adoption concept (awareness - interest - evaluation - trial - adoption) is valid in the field of education.

This chapter will consist of a summary of the study, an evaluation of the methods used to gather data in Chapter IV, an interpretation of the results, conclusions based upon the results, and recommendations for future research.

Summary-Critique of Study Methods

The focus of this study was to determine the relative importance of various information sources (personal - impersonal - cosmopolite - localite) at each stage of the adoption process (awareness - interest - evaluation - trial -
adoption). Moreover, this investigation sought to determine if the five stage adoption model drawn from rural sociology was a valid model in the field of education.

A generalization supported by many studies in rural sociology is that impersonal information sources are most important at the awareness stage and personal information sources are most important at the evaluation stage [(Wilkening, 1956) (Copp: and others, 1958) (Rogers and Beal, 1958)]. Personal communications involve direct face-to-face contact between communicator and the receiver. In short, when making a decision about an innovation, people would rather believe people than facts (Boddewyn, 1961).

Impersonal communication does not involve direct face-to-face exchange between the communicator and the communi-catee. Impersonal communication nearly always is spread via the mass media. They function as direct one-way, rapid dispensers of information. Mass communications are most ef-fective at calling out various alternatives to an individual's attention. In short, impersonal information sources are best able to create awareness of an innovation (Deutschman and Danielson, 1960).

A second generalization about information sources by adoption stage involves the cosmopoliteness of an information source versus localiteness. Cosmopoliteness is the extent to which an individual's orientation is external to a partic-ular social system. Not only do individuals range along a cosmopoliteness-localite dimension but information sources
can also be classified as to their degree of cosmopoliteness (Campbell, 1959). Cosmopolite information about innovations comes from outside the social system while other information about new ideas reaches the individual from sources inside the system in a localite fashion. Hence the generalization: cosmopolite information sources are most important at the awareness stage and localite sources are most important at the evaluation stage. This generalization is supported by studies in rural sociology (Wilkening and others, 1960). The findings of Ryan and Gross (1943) and later, Katz (1961) suggest that information about innovation usually emanates from sources outside or external to the system. When the idea gains support in the system, localite sources are widely available to assist in the evaluation of the innovation.

To review briefly the adoption model drawn from rural sociology (Lionberger, 1960), it consists of five stages as follows:

Stage one: Awareness - At the awareness stage a person first learns about a new idea, practice, or product.

Stage two: Interest - More detailed information about the innovation is sought out.

Stage three: Evaluation - The information and evidence are weighed in terms of the individual's own setting. (The pro's and con's are considered.)

Stage four: Trial - The change is put into practice on a pilot basis.
Stage five: Adoption - The new practice, product, or idea is good enough for full scale and continued use.

The sample for this study was drawn from the original Kettering Foundation Study sample of 631 audio-taped interviews in the following manner.

In order to examine two divergent sub-sample groups for possible similarities and differences, the researcher obtained and then ranked the composite indices of innovativeness for each source of data and then determined the five highest and the five lowest composite scores.

The sources accounting for the most innovative subjects included three ASCD Regional Institutes (at Detroit, Washington, D.C., and Minneapolis), one NDEA Academic Year Institute (at the University of Georgia), and a publication, The National Elementary Principal. (Total N = 139.)

Conversely, three NDEA summer institutes at the University of Virginia, Howard University, and Albright College) and two publications, The Instructor and School Science and Mathematics (Total N = 110) accounted for the least innovative subjects.

Since this study is concerned with the adoption process, the analysis of audio-tapes produced the matrix for the study, namely of 163 subjects who had actually adopted an innovation during a previous twelve months' period. Their interviews were examined, responses recorded, and the data analyzed with regard to the methods and procedures put forth in Chapter III.

Certain considerations inherent in the data gathering
and analysis are presented below:

1. This study was concerned with the importance of various information sources at each stage of the adoption process; hence the focus of the study was on that process. The innovations mentioned in the interviews were used as a vehicle by which this process was studied. In no case did the researcher attempt to evaluate the worth of innovations mentioned or the contemporary nature of so-called "innovations" mentioned.

2. Only those individuals who had actually adopted an innovation were studied. In other words, those individuals who had at one stage or another of the process rejected an innovation were not included in the study sample.

3. A few pilot or trial stages mentioned by interviewees were not true trial stages in the opinion of the researcher. They were, however, accepted and recorded as such.

4. Only the first three stages of the adoption process were studied. It was found that experiences with the innovation gained at the trial stage were the most important information sources.

During the interviews, it was noted that most of the interviewees recognized that they went through a series of stages as they moved from awareness to adoption. They realized they had received information from different sources, and seemed to have little trouble recalling the time at which they were aware, tried and adopted the innovation. The subjects were "forced" to answer specific questions; thus it could be argued that the idea of stages might be forced. However, if the stages were not meaningful to the interviewees, they could have stated "don't know" or refused to answer. There were very few "don't know" or "don't remember" answers.

In summary, this study has been built upon existing
supportive models in rural sociology. As a research tradition, the rural sociologist has produced knowledge about change that appears to have some relationship to change in education. It should be cautioned, however, that there appear to be some problems concerning the applicability of the change models, methodology and concepts from other research traditions to educational change. Consider this difference, for instance: public education is a bureaucratic structure with a relatively intangible product, but fields such as agriculture are made up of individuals with a profit motive who produce very tangible products.

**Data Analysis and Conclusions**

Each hypothesis is presented in this sub-section, followed by a discussion of the data and conclusions related to that data.

**Hypothesis Number One**

Impersonal information sources are most important at the awareness stage and personal information sources are most important at the evaluation stage.

The data analysis pertaining to this hypothesis resulted in the following: Among the sample accounting for the most innovative subjects, 70.2% mentioned personal information sources at the awareness stage and 90.3% of these subjects mentioned personal information sources again at the evaluation stage. Hence, personal information sources were most important at both the awareness stage and the evaluation stage of the adoption process.
Among the sample accounting for the least innovative subjects, personal and impersonal information sources were mentioned an equal number of times at the awareness stage, whereas at the evaluation stage personal sources were mentioned 96.2% of the time.

In general these findings do support the theories of rural sociologists with regard to the importance of personal information sources at the evaluation stage. The reasons as summarized by Rogers (1962) and others involve the fact that personal communication is important at the evaluation stage where mental judgment of the innovation is made because:

1. Personal communication allows a two-way exchange of ideas. The communicatee may secure clarification or additional information from the communicator.

2. Personal communication is likely to influence behavior as well as transfer ideas. In most cases persons who interact have similar ideas, values and attitudes and may be important reference groups to one another. Mass communications seldom affect decisions directly although they may operate through an intervening variable of group interaction to cause changes in behavior.

3. Greater accessibility and credibility may be cited as reasons for the importance of personal information sources of the evaluation stage. When the source is well known it is more likely to be regarded as trustworthy.

The findings with regard to impersonal information sources at the awareness stage were inconsistent with the generalization put forth by the researcher. Among the sample accounting for the most innovative subjects, impersonal information sources were mentioned with less frequency at the awareness stage than personal sources. Impersonal sources
were, however, mentioned 59.4% of the time at the interest stage. This would seem to indicate that initial awareness was developed through personal sources, mainly peer group associates, but that knowledge about the innovation was sought out through reading.

Among the sample accounting for the least innovative subjects, personal and impersonal sources were mentioned an equal number of times at the awareness stage and therefore no conclusion about source importance could be drawn. This group did, however, mention impersonal information sources 52.8% of the time at the interest stage to reinforce the finding that among both groups impersonal information sources were most important at the interest stage.

In light of the popularity of personal information sources at the awareness and evaluation stage, it appears that personal contact may have greater effectiveness in the face of resistance or apathy on the part of the target audience. A study by McKain and others (1958, p. 2) of a campaign to influence the milk consumption of older persons indicated that personal influence from a change agent was particularly effective in securing adoption of an idea among lower status persons. Moreover, impersonal information sources can usually be more easily avoided or ignored than personal ones. An example of this point comes from a sociometric study of Missouri farmers by Lionberger (1955, p. 32). He found the "non-receptive farmers" (those who opposed most farm innovation) readily sought information and advice from farmers who, in turn, were highly receptive
to innovation. Lionberger concluded, "It is thus obvious that interpersonal sources provided low resistance avenues for farm information which is not accepted when coming from more direct institutionalized agencies."

Specifically with regard to Lionberger's findings, this study yielded data concerning subjects' utilization of personal information sources by specific sub-category. Among the sample accounting for the most innovative subjects, composed mainly of administrators, teachers were mentioned most frequently, followed by administrators. Among the sample accounting for the least innovative subjects, composed mainly of teachers, administrators were mentioned most frequently, followed by teachers. (See Table 24 for a complete listing of all personal sources by sub-categories.)

This noticeable popularity of administrators and teachers indicates the great degree of influence peer groups have on one another. Moreover, there should be concern for the absence of reference to Representatives of the State Department and the low rate of reference to University persons, parents, neighbors, and friends.

With regard to impersonal sources by sub-category, the noticeable popularity of professional magazines indicates their influence as impersonal information sources but perhaps of more concern is the low rate of reference to television, books, and newspapers.
Hypothesis Number Two

Cosmopolite information sources are most important at the awareness stage and localite information sources are most important at the evaluation stage.

Among the sample accounting for the most innovative subjects, at the awareness stage subjects mentioned cosmopolite sources all of the time while at the evaluation stage cosmopolite sources were not mentioned at all. Localite sources are mentioned only at the interest stage (3 times).

Among the sample accounting for the least innovative subjects, cosmopolite sources were mentioned most frequently at the awareness stage while at the evaluation stage cosmopolite sources were not mentioned at all. Localite information sources were mentioned at the awareness stage and only a few times.

The cosmopolite-localite generalization is supported in rural sociology by the findings of Wilkening and others (1960).

In essence the study dealt with data obtained from 148 farm housewives residing in one Iowa community and the sources of information used in adopting a "miracle fabric". The sources were classified as (1) cosmopolite or outside of the community, or (2) localite, or inside of the community. Their findings produced the generalization: Cosmopolite sources were most important at the awareness stage and localite sources play their greatest role at the evaluation stage.
This study, however, produced results pertaining to the cosmopolite-localite dimension which were inconsistent with the findings of rural sociologists. Although cosmopolite information sources were found to be important for both groups at the awareness and interest stages, localite sources were not mentioned at the evaluation stage. Specifically, localite sources were mentioned only six times by the subjects in both sample groups. Unfortunately, the low number of responses in this category made it difficult to make any judgments concerning the relative importance of localite sources for both sample groups and the conclusion drawn is that localite sources were not influential.

This study has determined that innovators utilize cosmopolite information sources more than any of the other sources actively considered. Among both groups in the sample, cosmopolite sources were mentioned specifically more than any of the other major categories. Perhaps this is because the innovators' reference groups are more likely to be outside rather than within their social system. They traveled and were interested in affairs beyond the boundary of their social system. Moreover, the cliques and formal organizations to which innovators belonged are likely to include other innovators as their members. This further substantiates earlier findings (Ross, 1958) that teachers at more innovative schools were relatively more likely to get new ideas from outside their community.

Hypothesis Number Three

That the five-stage adoption concept (awareness -
interest - evaluation - trial - adoption) is valid in the field of education.

In the analysis of hypothesis number three, the process consisted of computing the number of skipped stages out of the number of possible stages in the adoption of a particular innovation.

Among the sample accounting for the most innovative subjects, 30 stages were skipped out of a possible 530 (5 X 106), with 27 of these accounting for the trial stage. In other words, 25% of this group indicated during the interview that they did not have a trial stage before the adoption of an innovation. It was also determined that three individuals skipped the evaluation stage.

Among the sample accounting for the least innovative subjects, 35 stages were skipped out of a possible 285 (5 X 57). Four subjects interviewed stated that they had skipped the evaluation stage and 31, or 54%, admitted that they had not had a trial stage.

Research in rural sociology yielded validity for the adoption stage concept. Rogers and Beal (1960) found that most individuals go through each of the five stages for each innovation studied. More specifically, they found that only 20 stages were skipped out of a possible 1170 stages (for two farm innovations adopted by 129 and 104 respondents respectively). The trial stage was skipped most often, and particularly by late adopters. The fact that only a few respondents reported skipping any stages provided evidence
that the stage concept is valid.

This study produced findings that conflict with the rural sociologists and hence raised some questions about the validity of the stage concept in education. Among the sample accounting for the least innovative subjects, the trial stage was skipped by more than half of the subjects. For this particular sample group, composed mainly of classroom teachers, the evidence seems to refute the validity of the five stage concept. Perhaps this is because the individuals adopted on impulse, that is, they became aware of an innovation and they adopted it quickly. It should be mentioned that adoption could occur on impulse or very rapidly because of the characteristics of the innovation. Many innovations mentioned were relatively inexpensive (i.e., overhead projectors) and technically simple in nature. Decisions were made about such innovations without a trial stage.

Among the sample accounting for the most innovative subjects, the trial stage was skipped by 25% of the group. Hence, for this group, composed mainly of administrators, the five stage adoption concept is valid. Perhaps, as pointed out in the preceding paragraph, the nature or characteristic of the innovation will determine whether or not a trial stage is held. Decisions to un-grade schools or institute team teaching warrant pilot phases before becoming fully adopted. Moreover, major innovations require a period of time that can often be measured in years to pass
through the adoption process.

To summarize the present evidence seems to suggest that other factors such as the role of the innovator or the characteristic of the innovation and even perhaps both serve to determine the number of adoption stages. Among the sample accounting for the most innovative subject there seems support for the validity of the adoption stages concept, but the findings are not conclusive. There is very little evidence as to exactly how many stages there are in the adoption process. Do we not continue to evaluate and seek information about an innovation after the adoption stage? Nevertheless, until more evidence exists, it seems conceptually sound that the five stage adoption model is relatively applicable in the field of education.

Recommendations

With regard to the findings and conclusions generated by this study, specific and general recommendations are proposed in this section.

Specifically, future research based upon this study could take the form of limited research problems and include the following:

1. A study to investigate the techniques educators utilized to evaluate innovations.

2. A study to determine the effects of antecedent conditions upon the adoption of educational innovation.

3. A study to determine the influence of mass media, especially television, upon the adoption of educational
innovations (i.e., Channel 3, a Hartford, Connecticut station, recent dissemination of the Stamford Drug Study Curriculum Guide).

4. A study that would investigate the effect information sources have upon the rejection of an innovation.

5. A study to determine the relationship between exposure to an innovation and the adoption of an innovation.

Generally, the education profession must know scientifically more about the process of change and the existing communications network that facilitates change. This study has shown that information sources are an important stimulus to the individual in the adoption process. The educational innovator becomes aware of innovations mainly through cosmopolite and personal information sources such as their peers. At the evaluation stage the individual forms his perceptions concerning the characteristics of the innovation by utilizing personal sources. With regard to this study, localite information sources were not important.

Information sources are, however, only one dimension. To effectively research the adoption of innovations in education we must study the total process which, as Rogers (1962) suggests, involves three major dimensions, (1) antecedents, (2) process, and (3) results.

Antecedents are those factors present in the situation prior to the introduction of an innovation, such as: the innovator's characteristics, security-anxiety, values, mental ability, social status, cosmopolitaness, opinion leadership. Other antecedent factors relate directly to the
environment, such as: characteristics of school systems, economic considerations, and social system.

Further, the innovator's perceptions concerning the characteristics of the innovation should be studied with regard to: the innovation's relative advantage, compatibility, complexity, and adaptability.

And finally, the researcher should consider the results of an adoption in terms of an adoption-rejection dimension, specifically: continued adoption or discontinuance, later adoption, or continued non-adoption.

With this theoretical framework in mind, perhaps future diffusion research could be designed to predict innovative behavior.

The findings of this study were organized around generalizations which summarized the evidence available about the relationship between certain concepts. Truth claims have been established for these generalizations yet they seldom can be considered to be principles in the field of education until much more research is completed.
APPENDIX A: THE INTERVIEW INVENTORY

1. Name _____________________________________________

2. Title of Position ___________________________________

3. Employer __________________________________________

4. Years of Professional Education Experience Primarily as:
   a. An elementary or secondary teacher
   b. A supervisor or administrator
   c. A teacher educator
   d. Other

   TOTAL ___________________________________________

5. Academic Experience:
   a. Do you have a degree? If so, what is the highest?
   b. Do you have any graduate credit beyond this degree?
      (a) Less than 4 years of college
      (b) Bachelor's degree
      (c) Less than 30 hours of graduate study
      (d) Master's degree
      (e) Less than 90 hours of graduate study
      (f) Doctoral degree

6. My purpose in visiting you is to inquire about your experience with innovative or new educational practices, products, and ideas. When I refer to "new educational practices," I am referring to those that are new to you. I am going to ask you a series of questions in four categories relative to your experience with new educational practices, products, or ideas.

   First, those that you are aware of and in which you are interested.

   Second, those that you initiated and have adopted in your work.
Third, those that you initiated and definitely plan to adopt.

Fourth, those that you would like to adopt.

Before we begin, I would like to make two suggestions concerning the interview. First, do not make the tape recorder rush you in thinking about your answers; take time to think, I have plenty of tape. Second, we know that not everyone will have innovations to discuss in each of the four categories. If, after some thought and perhaps some help from me, you cannot think of anything, we will go on to the next series of questions. Shall we begin?

7. Please identify those new practices, products, or ideas that you are aware of and have attempted to obtain information about. (Mention each by name, briefly.)

(Interviewer: Make a written note of each mentioned and then ask the following questions about each. If none mentioned, go on to the next page.)

a. How did you first become aware of _________?

b. What other sources have you used in gaining information about _________________________?
ADOPTED INNOVATION

8. Please identify any new practices, products, and ideas that YOU initiated, introduced and have adopted in your work during the past year. By adopted I mean that it is now an accepted part of your work.

(Interviewer: Make a written note of each mentioned, and then subject each to the following series of questions. If no adoptions of innovations are offered, go on to next page.)

a. Briefly describe (each, one at a time)

b. Describe the procedures you used to incorporate

(Interviewer: If trial or pilot study not mentioned, ask the following:) 

1. Did you use ______ on a trial basis before you adopted it?

(Interviewer: If yes, go to 1.1--; if no, go to 2.)

1.1 Explain your methods of assessing the results of the trial phase.

2. Explain your methods of assessing the worth of ____________.

c. When did you first become aware of ____________?

d. How did you become aware of ____________?

(Interviewer: Wait for response. If none forthcoming, suggest readings, people, meetings, conferences, etc. Get specific responses)

e. What other sources did you use to gain the information necessary to determine the possible usefulness and application of ____________ in your work?

f. What influenced your decision to adopt ____________ in your work?

(Interviewer: Follow same directions as in d.)
g. What are your future plans concerning the use of ________________ in your work?
9. Please identify any new practices, products and ideas that you initiated and definitely plan to adopt in your work within the next year.

(Interviewer: Make a written note of each mentioned, and then subject each to the following series of questions. If no innovations are earmarked for adoption, go on to the next page.)

a. Briefly describe ______ (each, one at a time)

b. What sources did you use to gain the information necessary to determine the possible usefulness and applicability of ______ in your work?

c. When did you first become aware of ______?

d. What influenced your decision to adopt ______ in your work?

(Interviewer: Follow same directions as in b.)

e. Describe the procedures you expect to use to incorporate ______ in your work.

(Interviewer: If trial or pilot study not mentioned, ask the following:)

1. Do you plan to try ______ on a trial basis before you adopt it?

(Interviewer: If yes, go to 1.1 -- if no, go to 2.)

1.1 Explain the methods you plan on using to assess the results of the trial phase.

2. Explain the methods you plan on using to assess the worth of ______.

f. How did you become aware of ______?

(Interviewer: Wait for a response. If none is forthcoming, suggest readings, people, meetings, conferences, etc. Get specific responses.)
10. Please identify any new practices, products and ideas that you would like to adopt in your work, but for some reason you are prevented from doing so.

(Interviewer: Make a written note of each mentioned, and then subject each to the following series of questions. If no innovations are mentioned, go on to the next page.)

a. Briefly describe ________________.

b. Describe the procedures you used in attempting to incorporate ________________ in your work.

c. When did you first become aware of ____________?

d. How did you become aware of ____________?

(Interviewer: Wait for a response. If none is forthcoming, suggest reading, people, meetings, conferences, etc. Get specific responses.)

e. What other sources did you use to gain the information necessary to determine the possible usefulness and applicability of ________________ in your work?

(Interviewer: Follow same directions as in d.)

f. What influenced your desire to adopt ________________ in your work some day?

(Interviewer: Follow same directions as in d.)

g. Explain why you have not been able to adopt ________________ in your work.

(Interviewer: Attempt to obtain specific reasons.)
11. Briefly note the influence of the following information sources upon your knowledge of educational innovations such as those previously discussed:

a. **Education Associates:**
   1. Which colleagues (that is, teachers, principals, supervisors, etc.) prove to be most influential?
   2. In what ways are these individuals an important resource?

b. **Non-Education Associates and Friends:**
   1. Which individuals (that is, neighbors, club contacts, etc.) prove to be most influential?
   2. In what ways are these individuals an important resource?

c. **Publications** (*i.e.*, journals, newspapers, books, etc.):
   1. Which particular publications or sections of publications do you rely upon for information?
   2. In what ways are publications an important resource?
   3. What part do you pay for each of these?

d. **Brief Assemblages** (one day to a week -- *i.e.*, professional organization meetings, annual conferences, institutes, etc.):
   1. Which particular assemblages do you regularly attend for information?
   2. In what ways are these assemblages an important resource?
   3. What part do you pay for each of these?

e. **Extended Assemblages** (several weeks to a year -- *i.e.*, college-level courses, summer and academic year institutes, seminars, etc.):
   1. Which particular assemblages do you select for information?
   2. In what ways are these assemblages an important resource?
   3. What part do you pay for each of these?)
12. Do you subscribe to the *Saturday Review*?
   a. Yes __
   b. No ___
## APPENDIX B: SUBJECTS CONTACTED AND INTERVIEWED BY SUB SAMPLE

<table>
<thead>
<tr>
<th>NAME OF SUB SAMPLE</th>
<th>TOTAL N CONTACTED*</th>
<th>COMPLETED INTERVIEWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ASCD Institute (Detroit)</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>2. ASCD Institute (Denver)</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>3. ASCD Institute (Washington, D.C.)</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>4. ASCD Institute (Minneapolis, Minn.)</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>5. NDEA Summer Institute (Virginia)</td>
<td>23</td>
<td>15</td>
</tr>
<tr>
<td>6. NDEA Summer Institute (Middlebury)</td>
<td>35</td>
<td>19</td>
</tr>
<tr>
<td>7. NDEA Summer Institute (Howard)</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>8. NDEA Summer Institute (Albright)</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>9. NDEA Academic Year Institute (Georgia)</td>
<td>28</td>
<td>19</td>
</tr>
<tr>
<td>10. NDEA Academic Year Institute (Buffalo)</td>
<td>27</td>
<td>22</td>
</tr>
<tr>
<td>11. NDEA Academic Year Institute (Bank Street)</td>
<td>22</td>
<td>18</td>
</tr>
<tr>
<td>12. NDEA Academic Year Institute (N.Y.U.)</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>13. School Science and Mathematics</td>
<td>67</td>
<td>52</td>
</tr>
<tr>
<td>14. Instructor</td>
<td>72</td>
<td>37</td>
</tr>
<tr>
<td>15. Elementary English</td>
<td>72</td>
<td>55</td>
</tr>
<tr>
<td>16. National Elementary Principal</td>
<td>56</td>
<td>40</td>
</tr>
<tr>
<td>17. Saturday Review</td>
<td>56</td>
<td>30</td>
</tr>
<tr>
<td>18. Annual Meeting (ASCD)</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>19. Annual Meeting (ACEI)</td>
<td>67</td>
<td>50</td>
</tr>
<tr>
<td>20. Annual Meeting (IRA)</td>
<td>61</td>
<td>42</td>
</tr>
<tr>
<td>21. Annual Meeting (DESP)</td>
<td>80</td>
<td>62</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>875</strong></td>
<td><strong>631</strong></td>
</tr>
</tbody>
</table>
* Negative or no response realities caused us to select additional names from a pool of random choice for each sample.
APPENDIX C

Name ___________________________ No. _______ Tape # _______ Footage _________

Position ________________________ Code ________ City ___________ State _______

Adoption Stage and Information Sources

PERSONAL SOURCES

Teachers
Administrators
Supervisor
University person
Commercial rep.
Outside speaker

Rep. from State Ed. Dept.
Family
Neighbor/Friend
Parents of students
Students
Other

IMPERSONAL SOURCES

Magazines
    Prof. Interest
    General prof.
    General
    Not specified

Books
Newspapers
Television
Other

LOCALITE SOURCES

Department meetings
Faculty meetings

System meetings
Other

COSMOPOLITE SOURCES

University course
Personal visitation
National meeting
    professional specialty
    professional general
    commercial
State meeting
    professional specialty
    professional general
    commercial

Institute/workshop
    professional specialty
    professional general
    commercial
    Other

NOTES:


BIBLIOGRAPHY


Carlson, R. O. Adoption of educational innovations. Eugene: Center for the Advanced Study of Educational Administration, University of Oregon, 1965a.


Clark, David L. and Guba, Egon G. Effecting Change in Institutions of Higher Education. UCEA International Inter-Visitation Program, 1966.


Copp, J. H. Personal and social factors associated with the adoption of recommended farm practices among cattlemen. Manhattan: Kansas Agricultural Experiment Station Bulletin, No. 83, 1956.


Corey, Stephen M. Helping Other People Change. Ohio State University Press. (Kappa Delta Pi Lecture Series)

Culbertson, Jack A. Organizational Strategies for Planned Change in Education, 1965.


Demeter, L. Accelerating the local use of improved educational practices in school systems. Eugene: Center for the Advanced Study of Educational Administration, University of Oregon, 1965.


Fliegal, F. A multiple correlation analysis of factors associated with adoption of farm practices. Rural Sociology, 1956, 21, 284-292.


Mort, P. R. and Cornell, F. G. American schools in transition (how our schools adapt their practices to changing needs - a study of Pennsylvania). New York: Columbia University Teacher's College, 1941.


Subcommittee on the Diffusion and Adoption of Farm Practices of the Rural Sociological Society. Sociological research on the diffusion and adoption of farm practices. Lexington: Kentucky Agricultural Experiment Station, 1952.


