1-1-1970

A study of the age and selected sources of information of innovative and laggard educators.

Mark Gustav Gulesian

University of Massachusetts Amherst

Follow this and additional works at: https://scholarworks.umass.edu/dissertations_1

Recommended Citation

https://scholarworks.umass.edu/dissertations_1/2475

This Open Access Dissertation is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Doctoral Dissertations 1896 - February 2014 by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.
A STUDY OF THE AGE AND SELECTED SOURCES OF INFORMATION OF INNOVATIVE AND LAGGARD EDUCATORS

A Dissertation

By

Mark Gustav Gulesian

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION

May 13, 1970

Major Subject: Teacher Training

Approved as to style and content by:

[Signatures and names of committee members]

May 1970

(Month) (Year)
A STUDY OF THE AGE
AND SELECTED SOURCES OF INFORMATION
OF INNOVATIVE AND LAGGARD EDUCATORS

A Dissertation Presented
by
Mark Gustav Gulesian

Submitted to the Graduate School of the
University of Massachusetts in
partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

May 1970
(month) (year)

Major Subject Teacher Training
Vulgo enim dicitur: Iucundi acti labores.

Marcus Tullius Cicero
This thesis was made possible only through the advice and encouragement of friends and family.

To my committee, Drs. Emma Cappelluzzo, William Wolf, and David Day, I express my thanks for their support and constructive criticism. My thanks also go to Dr. William Fanslow for taking the time and effort to be a reader. I wish to give special thanks to Dr. William Wolf, who gave me so much assistance and encouragement, and who deserves the ultimate accolade for an educator: he is a teacher.

For me, this thesis is most important in two ways. First, it has brought me to a new understanding of myself. Secondly, it has been the focal point for the formation of many friendships out of many acquaintances. Though this thesis suffer the fate of most theses, to lie dusty and forgotten on a library shelf, its true value cannot diminish for me.

Lastly, to my wife and two daughters, for whom this thesis was really written, I am deeply grateful.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREFACE</td>
<td>i</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>iii</td>
</tr>
<tr>
<td>I. INTRODUCTION TO THE STUDY</td>
<td>1</td>
</tr>
<tr>
<td>The Problem-Introduction</td>
<td></td>
</tr>
<tr>
<td>Significance of the Problem</td>
<td></td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td></td>
</tr>
<tr>
<td>Background of the Study</td>
<td></td>
</tr>
<tr>
<td>Overview of the Study</td>
<td></td>
</tr>
<tr>
<td>Definition of Terms Used in the Study</td>
<td></td>
</tr>
<tr>
<td>Organization of the Thesis</td>
<td></td>
</tr>
<tr>
<td>II. REVIEW OF RESEARCH</td>
<td>16</td>
</tr>
<tr>
<td>Studies by Rural Sociologists on Innovation</td>
<td></td>
</tr>
<tr>
<td>and Innovators</td>
<td></td>
</tr>
<tr>
<td>Studies on Characteristics of Innovators Done</td>
<td></td>
</tr>
<tr>
<td>in Education</td>
<td></td>
</tr>
<tr>
<td>Summary of Chapter II</td>
<td></td>
</tr>
<tr>
<td>III. PROCEDURES AND METHODOLOGY</td>
<td>48</td>
</tr>
<tr>
<td>The Study of Educational Knowledge Diffusion</td>
<td></td>
</tr>
<tr>
<td>and Utilization</td>
<td></td>
</tr>
<tr>
<td>Study Procedures</td>
<td></td>
</tr>
<tr>
<td>Limitations on Data Interpretation</td>
<td></td>
</tr>
<tr>
<td>Design of Data Collection Instrument and</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td></td>
</tr>
<tr>
<td>IV. THE DATA</td>
<td>66</td>
</tr>
<tr>
<td>Hypothesis One</td>
<td></td>
</tr>
<tr>
<td>Hypothesis Two</td>
<td></td>
</tr>
<tr>
<td>Hypothesis Three</td>
<td></td>
</tr>
<tr>
<td>Hypothesis Four</td>
<td></td>
</tr>
<tr>
<td>Hypothesis Five</td>
<td></td>
</tr>
<tr>
<td>Hypothesis Six</td>
<td></td>
</tr>
<tr>
<td>Other Analyses</td>
<td></td>
</tr>
<tr>
<td>V. STUDY SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</td>
<td>82</td>
</tr>
<tr>
<td>Summary and Critique of Study Methods</td>
<td></td>
</tr>
<tr>
<td>Discussion of Data and Conclusions</td>
<td></td>
</tr>
<tr>
<td>Recommendations</td>
<td></td>
</tr>
</tbody>
</table>

APPENDIX

- Appendix A
- Appendix B
- Appendix C
- Appendix D
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Most Influential Information Source by Stage</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age of Adopters of Weed Spray and Antibiotics</td>
<td>29</td>
</tr>
<tr>
<td>2</td>
<td>Source of Information by Type of Neighborhood</td>
<td>31</td>
</tr>
<tr>
<td>3</td>
<td>Mean Age of Innovators and Laggards</td>
<td>56</td>
</tr>
<tr>
<td>4</td>
<td>Total Personal and Impersonal Information Sources of Innovators</td>
<td>57</td>
</tr>
<tr>
<td>5</td>
<td>Personal and Impersonal Information Sources of Laggards</td>
<td>57</td>
</tr>
<tr>
<td>6</td>
<td>Total Cosmopolite and Localite Information Sources of Innovators</td>
<td>58</td>
</tr>
<tr>
<td>7</td>
<td>Total Cosmopolite and Localite Information Sources of Laggards</td>
<td>58</td>
</tr>
<tr>
<td>8</td>
<td>Total Information Sources Mentioned by Innovators and Laggards</td>
<td>59</td>
</tr>
<tr>
<td>9</td>
<td>Personal Sources Mentioned by Innovators and Laggards</td>
<td>60</td>
</tr>
<tr>
<td>10</td>
<td>Impersonal Sources Mentioned by Innovators and Laggards</td>
<td>61</td>
</tr>
<tr>
<td>11</td>
<td>Localite Sources Mentioned by Innovators and Laggards</td>
<td>62</td>
</tr>
<tr>
<td>12</td>
<td>Cosmopolite Sources Mentioned by Innovators and Laggards</td>
<td>63</td>
</tr>
<tr>
<td>13</td>
<td>Population by Role</td>
<td>67</td>
</tr>
<tr>
<td>14</td>
<td>Age Distribution of Innovators and Laggards</td>
<td>68</td>
</tr>
<tr>
<td>15</td>
<td>Mean Age of Innovators and Laggards</td>
<td>68</td>
</tr>
<tr>
<td>16</td>
<td>Total Personal and Impersonal Information Sources of Innovators</td>
<td>69</td>
</tr>
<tr>
<td>17</td>
<td>Total Personal and Impersonal Information Sources of Laggards</td>
<td>69</td>
</tr>
<tr>
<td>18</td>
<td>Total Localite and Cosmopolite Information Sources of Innovators</td>
<td>70</td>
</tr>
<tr>
<td>19</td>
<td>Total Localite and Cosmopolite Information Sources of Laggards</td>
<td>71</td>
</tr>
</tbody>
</table>
21 Total Information Sources Mentioned by Innovators and Laggards

22 Total Number of Sources of Information Mentioned According to Role of Subjects

23 Personal Sources by Sub-Categories Mentioned by Innovators and Laggards

24 Impersonal Sources by Sub-Categories Mentioned by Innovators and Laggards

25 Localite Sources by Sub-Categories Mentioned by Innovators and Laggards

26 Cosmopolite Sources by Sub-Categories Mentioned by Innovators and Laggards

27 Popularity of Sub-Categories by Innovators

28 Popularity of Sub-Categories by Laggards
CHAPTER I
INTRODUCTION TO THE STUDY

The Problem

"It is my impression," says Eric Hoffer in The Ordeal of Change (1963), "that no one really likes the new." Yet, as the writer of Ecclesiastes points out rather glumly, men persist in disordering their settled ways and beliefs by seeking out the new.

The eye is not satisfied with seeing, 
nor the ear filled with hearing...
and he that increaseth knowledge, 
increaseth sorrow.

Nowhere does this struggle between desire for and fear of the new reflect more clearly than in the educational profession. In a world literally explosive with change, education seems to change in spite of itself; slowly, haltingly, begrudgingly and in confusion, giving way before the assault of the new. Perhaps, because educators are after all only human, the agonizing slowness of change simply reflects a frailty common to human nature remarked upon so many centuries ago by the Biblical scribe. Yet, there have always been a few men who have had the courage to change their world, to experiment, to test, and to wrestle with the unknown; men who are, in Walt Whitman's (1958) words

Surrounded, detached, in measureless oceans of space,
Ceaselessly musing, venturing, throwing, seeking the spheres to connect them....

In the past twenty or thirty years, the processes of change have come under study in the hope that such processes can be controlled and applied in some rational way to the problems which beset mankind and his society. Katz (1961) and Katz and Levin (1959), defining the study
of change as a tracing of the movement of a given new idea over time through specific channels of communication within a social structure, imply that recent years have seen the development of seven major research traditions which involve change. These are sociology, anthropology, market research, mass communication, rural sociology, and technical assistance. Rogers (1964, p. 39) adds education to this list, and it is well that he does so, although he immediately claims that "this tradition is probably one of lesser significance in terms of its contributions to understandings of the diffusion of ideas," for while studies growing out of the 1930's reflect a leisurely diffusion rate for educational innovations (Mort, 1966, pp. 317-21), there can be no doubt that in the last fifteen years an unprecedented pressure for sensible, directed, and organized change has gripped the field of education.

Certain factors, beyond the scope of this study but well reviewed by competent authorities such as Miles (1964, Chapter 1), Brickell (1961), Goodlad (1966), Lee (1966) and Gow, Holzner and Pendleton (1966) have continued to persist in forcing ever rapid change in education, even though Heck (1968) finds such claims difficult to substantiate by research. Briefly, the struggle for national survival brought about by the launching of the first Russian Sputnik; the demand for manpower of a more sophisticated calibre; the growth of knowledge production and the increased sophistication in methods of storing and retrieving such knowledge; the commitment of funds, both public and private, to the cause of education; and the increase in resources, both human and monetary, of the educational establishment have all brought about rapid change in education. Concomitant with the rapidity of change is a necessity for
understanding and controlling the process of change so that it may be used more effectively.

Rogers (1962, p. 39) claims that "while education diffusion tradition is one of the largest in number of studies" there has unfortunately been "no close attention to any other diffusion tradition." Educators, it is claimed (Eichholz and Rogers, 1964), have not built upon the work of other traditions, the strongest and most conclusive of which has been, by its very nature, that done by the rural sociologists. Research in agriculture, dating from the 1920's, and backed by the Federal Extension Service, consists of hundreds of studies of farm practices and has resulted in the recommendation and promulgation of innovative farm practices by the Extension Service. An overview (Lionberger, 1968) of this research tradition quickly demonstrates that some of the reason for its success lies in the fact that the study of farmer practices inherently lends itself to definitive research results. The effect of innovative irrigation practices, or new types of fertilizer, is physically demonstrable, and the study of the farmer as a unit of analysis lends itself to solving the problem of control for the researcher. Studies such as the classic by Ryan and Gross (1943) on hybrid seed corn, or Wilkening's (1953) efforts in regard to the influence of the farm family on adoption decisions resulted in hundreds of research studies by rural sociologists, and in data that is dramatically "hard."

Educational studies on innovation have not, partly because of the complexity of what is being studied, lent themselves to such precise data. Miles (1964, p. 642) further points out that even within the work done on change by educational researchers, there is a "relative paucity of
generalizations...of innovators" unlike the work of the rural sociologists, who discovered a wealth of data from the study of the individual farmer. This study is an attempt to move in a direction which will build upon some of the well researched assumptions of the rural sociologists, and will attempt to examine some generalizations about the age and information sources of educators who have demonstrated a marked affinity, or lack of affinity, for change.

This is a study of four general hypotheses regarding innovators and laggards, based upon work of the rural sociologists, and applied to previously identified educational innovators and non-innovators, regarding age of innovators and laggards, the sources from which innovators and laggards obtain information concerning innovative ideas; and the numbers of sources used by innovators and laggards. The author hopes that this study will serve as a thread in a larger fabric which, binding the research tradition of rural sociology to the field of education, will point the way to the control and more effective use of change to improve American education.

The Significance of the Problem

In a time when education must adapt and change not only to remain viable but simply to survive, it is becoming increasingly necessary to identify those persons in the profession who are innovators or change agents. It is also desirable to identify those persons who are, in the language of the rural sociologist, laggards. The former must be given recognition and leadership roles, while the latter must be identified for the purpose of remediation or perhaps even exorcism. While the
innovator can be identified through his good works, the time is past when the education profession can afford the luxury of time that such identification takes. If, in the past, education has been able to afford the time for the laggard to become identified through his lack of "good works" it is certain that the future will demand a quicker identification of such persons, if only in the hope that what is known of the process of change can be applied to such persons to make them useful to the profession. Farmers who used the horse in the face of the Ford tractor found themselves with small crops, smaller incomes, and finally, off the farm. In education we cannot afford a laissez-faire attitude, for our crop is not corn or soy beans, but human minds and attitudes. Nor are the results of the laggard as dramatically displayed as in agriculture; withered minds and missed opportunities, while not as evident as stunted corn stalks and Oklahoma dust, are nevertheless more drastic in the long run. Education must find ways to recognize and reward the innovative and to identify and help the laggard if the profession is to fulfill the promise implicit in American education.

Secondly, it is necessary to determine whether the work done in regard to innovation in other disciplines has some relationship to education. Rural sociologists (Eichholz and Rogers, 1964) while praising rural sociology for producing "the greatest number of publications and studies on the diffusion of new ideas" also claim that as far as education diffusion studies are concerned, while they are numerous, they have paid "no close attention to any other diffusion tradition."

It seems sensible, then, if Miles (1964, p. 642) is correct in listing under his agenda for the study of educational innovation a need
for "further attention to the innovative personality" that use should be made of the work done by the rural sociologists in attempting to determine the characteristics of educational innovators. "I would maintain," says Rogers (1964), "that understanding the behavior of innovators is essential to a comprehension of the central processes of social change." More than three decades of research in a field which by its very nature is much more amenable to evaluation than education ought to be invaluable to the discipline of education.

While there are significant differences between agriculture and education, such as the effect of the profit motive in relation to adoption of new farm practices, the more measureable and controllable research of rural sociology makes an ideal base for building theories of change in regard to the discipline of education.

Statement of the Problem

This study will examine fifty innovative and the fifty laggard interviewees chosen from an original sample of 631 interviewed educators, in relation to four broadly defined hypotheses: that innovative educators are generally younger than laggard educators; that impersonal sources of information are more important than personal sources of information for innovative educators than for laggard educators; that cosmopolite sources of information are more important than localite sources of information for innovative educators than for laggard educators; and that innovative educators utilize a greater number of information sources than do laggard educators. These hypotheses are based upon the work of numerous rural sociologists, and one function of this
study will be to determine whether the findings of the rural sociologists regarding the age and information sources of innovative and laggard farmers can lead to assumptions concerning the age and information sources of innovative and laggard educators, thus determining whether there is some relationship between the research done in agriculture in these areas and the research done in education.

Background of the Study

During the 1966-1967 academic year, data was gathered by several teams of researchers (Fiorino and Wolf, 1969) for the purpose of probing the following:

1. The extent to which teachers, supervisors, administrators, and teacher educators (a) had adopted innovations within the past year or so (b) planned to adopt innovations within the next year or so (c) had tried but failed to adopt innovations within the past year or so in their personal practice.

2. Determining the influence 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. Determining some characteristics of selected teachers, supervisors, administrators and teacher educators, such as level of experience, years of professional experience, and earned academic credits, in relation to the adoption of innovations to personal practice.

4. Exploring the relationships between five distinguishable stages of adoption (awareness, interest, evaluation, trial and adoption), and the adoption process described by teachers, supervisors, administrators, and teacher educators.

By using certain selected diffusion agents, a population of 800 educators was selected on the basis of their exposure to the diffusion agents. The selected diffusion agents included publications, brief
assemblages, and extended assemblages (Appendix A). Although every attempt was made to select the sample population for the study to meet the specifications of "randomness" the selection may have been biased due to a number of factors. The researchers were not given free access to some of the lists of those agencies contacted, but instead received lists prepared by the agencies themselves. Therefore, the researchers could only assume that the agencies honored the request to select names at random from a given population. Secondly, due to limitations in budget, geographically isolated persons were sometimes not interviewed, thus biasing the data sample gathered in favor of those of the population residing in or close to urban areas.

Subjects were selected as follows (Appendix B):

1. Association for Supervision and Curriculum Development (ASCD) Institutes (N=60). Complete lists of participants who attended four ASCD Regional Research Institutes in Denver, Detroit, Minneapolis and Washington, D. C. 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 Mississippi River. (One exception was the Denver meeting, from which participants west of the Mississippi were selected.)

2. National Defense Education Act Summer and Academic Year Institutes (N=120). Complete lists of participants who attended six summer and six academic year institutes in English (University of Virginia and Middlebury College), reading (Howard University), German (Albright College), guidance (University of Georgia), cultural deprivation (New York University and Bank Street College) were obtained. The summer institutes were selected randomly from a list of completed institutes, whereas the academic year institutes 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. They then 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 were randomly selected from the original 100. The editors of the Saturday Review, School Science and Mathematics, and the National Elementary Principal, at the researchers' request, offered a randomly selected list of subscribers. From these lists 100, and then 50 of the original 100 names were randomly selected.

4. **Annual professional meetings** (N=200). Administrative officers of the Association for Supervision and Curriculum Development, the National Association of Elementary School Principals, and the Association for Childhood Education International 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 names were randomly selected. The executive secretary of the International Reading Association, at the researchers' request, mailed a randomly selected list of conference participants. From this list 100 names, and then 50 names of the original 100 were randomly selected.

The data for the study was acquired by a project staff consisting of two co-directors, six full time interviewers, one combination secretary interviewer, an interview trainer, and a project advisory council, as well as an office manager. The interviewers, with one exception, were experienced educators pursuing advanced degrees in school administration, or guidance and counseling, at the University of Massachusetts. The interview trainer was a professor of guidance and counseling at the University of Massachusetts who spent from six to eight weeks training the interviewers. The project staff was advised by an advisory council consisting of Matthew Miles, Columbia University; Herbert Lionberger, University of Missouri; David Clark, Indiana University, Henry Brickell, Indiana University; and Robert W. Travers, Western Michigan University.

A survey instrument was evolved which would be applicable to all
the diffusion agents under study (Appendix C). The instrument focused upon ideas and practices which have been, are about to be, or were unable to be, adopted in the interviewee's work as an educator. The survey was designed to incorporate antecedent related events which the subject found relevant to his decisions concerning adoption of new practices, as well as to uncover descriptive data about those diffusion agents and target audiences which the interviewee felt to be influential in regard to his decisions regarding innovation.

Each subject was initially contacted by mail concerning the importance of the study, a description of the project, and a possible date for an interview. 875 contacts were made by researchers, which ultimately yielded 631 completed interviews. Interviews consisted of a brief warm-up period to establish rapport; the interview itself, requiring from fifteen to ninety minutes; and a follow-up conversation. Those interviewed were not informed about the basis for their inclusion in the project. Each interview was sound taped, then transferred to the survey instrument, and then codified and stored for subsequent analysis. Interviews were conducted as uniformly as possible, conforming to the survey instrument.

The codification scheme used met the criteria of openness, clarity, internal consistency, external validity, and adaptability to key punch card storage and computer data processing. A program was then prepared by the University of Massachusetts Computer Center to process information stored on the key punch cards. The program was designed to accomplish the following:

1. Summarize information pertaining to each of the survey inventory items.
2. Relate these summaries to characteristics of the study sample and of the diffusion agents.

3. Obtain and then rank the index of innovativeness for each subject, draw out the 50 highest and the 50 lowest scores, then summarize in terms of five considerations.

4. Obtain and then rank the composite indices of innovativeness for each source of data, draw out the five highest and five lowest composite scores, then summarize in terms of three considerations.

Item three provides the population for the present study, which will analyze the fifty most innovative and fifty most laggard educators using data relating to age and information sources, relative to theories which have evolved from the research of rural sociologists.

**Overview of the Study**

This study will be descriptive in nature, and is undertaken to determine the following questions:

1. Whether innovative educators are generally younger than laggard educators.

2. Whether cosmopolite sources of information are more important than personal sources of information for innovative educators than for laggard educators.

3. Whether cosmopolite sources of information are more important than localite sources of information for innovative educators than for laggard educators.

4. Whether innovative educators utilize a greater number of information sources than do laggard educators.

Taped responses of fifty innovative educators and fifty laggard educators to questions drawn from the Study of Educational Knowledge Diffusion and Utilization will be reviewed by means of a survey instrument. The instrument is designed to test the following hypothesis:

1. The arithmetic average of the age of innovative educators is less than the arithmetic average of the age of laggard
educators.

2. Innovative educators will mention, specifically, a greater number of impersonal sources of information than they will mention personal sources of information in regard to their knowledge of innovative ideas, products, or practices.

3. Laggard educators will mention, specifically, more personal sources of information than they will mention impersonal sources of information in regard to their knowledge of innovative ideas, products and practices.

4. Innovative educators will mention, specifically, more cosmopolite sources of information than they will mention localite sources of information in regard to their knowledge of innovative ideas, products and practices.

5. Laggard educators will mention, specifically, more localite sources of information than they will mention cosmopolite sources of information in regard to their knowledge of innovative ideas, products, and practices.

6. Innovative educators will mention, specifically, a greater number of information sources than will laggard educators in regard to their knowledge of innovative ideas, products or practices.

**Definition of Terms Used in Study**

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 individual educator's experience.

**Innovative educator.** Any of the persons who, because of the nature of their responses to questions regarding innovative ideas, products or practices which they had adopted, planned to adopt, or would like to adopt but had been unable to, were ranked according to frequency count by the Kettering Study for Educational Knowledge Diffusion and Utilization (Fiorino and Wolf, 1969) as among the fifty most innovative educators in a total population of 581 educators.
Laggard educator. Any of the persons who, because of the nature of their responses to questions regarding innovative ideas, products, or practices which they had adopted, planned to adopt, or would like to adopt but had been unable to, were ranked according to frequency count by the Kettering Study for Educational Knowledge Diffusion and Utilization as among the fifty least innovative educators in a total population of 581 educators.

Personal Information Source. Any educational or non-educational associate mentioned by a 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 subjects of this study, i.e., school, district, state or national professional circles.

Organization of the Thesis

This five chapter thesis will be presented in conventional research
format. The first chapter will include 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 will comprise the second chapter. This review will include an introduction; a section generally reviewing work previously done on the characteristics of innovators in the fields 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 age and 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 will be incorporated in Chapter III.

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

Chapter V will include 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 will include an appendix containing copies of instruments used, charts and tables, and a formal bibliography. The style to be 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, 1969-70.
This chapter reviews the literature in regard to the general hypotheses set forth in this study: namely, whether innovative educators are generally younger than laggard educators; whether impersonal sources of information are more important than personal sources of information for innovative educators than for laggard educators; whether cosmopolite sources of information are more important than localite sources of information for innovative educators than for laggard educators; and whether innovative educators utilize more sources than non-innovative educators.

Because of the limited number of studies that have been made in educational research regarding these hypotheses, and because the basis for the hypotheses of this study rests upon work done by the rural sociologists in the areas of age and sources of information, this chapter will first review the research done in the field of rural sociology relating to the hypotheses of this study. In addition, studies which have attempted to link the two fields of rural sociology and education will be reviewed on the grounds that such studies provide a foundation for the main thrust of this study.

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 inbreeding, 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 seems 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 begin 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 Guba, and rural sociologists, such as Eichholz, Rogers and Lionberger. 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 inner-personal 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 ideas 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 with particular attention to numbers one and six above, 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 cosmopolitaness,
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 impersonal, 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>Most Influential Information Source by Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
</tr>
<tr>
<td>Interest</td>
</tr>
<tr>
<td>Evaluation</td>
</tr>
<tr>
<td>Trial</td>
</tr>
<tr>
<td>Adoption</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 locality 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.
For the purpose of this review of research, adopter categories will be differentiated into "innovators" and "laggards." Such categories conform roughly to Lionberger's "early majority" and "late majority laggards."

**Personal characteristics of innovators.** Numerous studies have been made by rural sociologists in regard to the personal characteristics of adopters. Rogers and Lionberger summarize the research done in this area into the categories of age, social status, financial position, specialization, and mental ability. The research reviewed here will be that which deals with the age of innovators.

**Age of innovators.** Ryan and Gross (1943) found great differences in age between the earliest and latest adopters of hybrid seed corn, both at the time of adoption (20.8 years) and at the time of the research interview (10.8 years). This distinction between age at time of adoption and at time of interview would seem to be a vital one, and is seldom mentioned in subsequent studies of the question.

While Ryan and Gross claimed to have positive proof that early adopters are younger than late adopters, later research seldom makes such definite claims. Typical of such research is that done by Copp (1956) which investigated the practices of one hundred and fifty seven Kansas cattlemen, rating them according to adoption scores and then inquiring as to the social and economic backgrounds of each farmer. Copp found that the degree of relationship between age and adoption score was not significant, and concluded that the young farmer was in a generally weak position to adopt better farm methods, probably due to a lack of capital.

Lowry and Hay (1958) in a study of health care services and
enrollment of voluntary health insurance programs in Stokes County, North Carolina interviewed 280 household heads who represented 1,081 individuals. They found a positive relationship between increasing age and increasing use of medical services. While this statistic is not particularly surprising, it is interesting to note that the researchers found an inverse relationship between increasing age and use of dental services. They also found that higher income led to more frequent use of medical and dental services. The study is pertinent in that it points out the difficulty in attempting to isolate the factor of age from other pressures in the adoption of new practices.

Lionberger and Coughneour (1957) studied a farm community in Northeast Missouri and investigated the age of the farm operator as a factor in adoption. The researchers note that while in our society age tends to be less of an ascribed status characteristic than in other societies, they found strong trends among farmers to look upon older members of the group as wise through experience, and to seek them out as sources of ideas. The researchers found that middle-aged farm operators were sought after the most for information, with the youngest and oldest farm operators following in popularity in that order. However, using improved practice ratings of farmers as the measure, the researchers found that young farmers were most competent technologically, even though they weren't the most sought after for information. The findings of this study tend to demonstrate that young farmers are more innovative than older farmers, but suffer a lack of status among their peers due to their age.

Beal and Rogers (1960), investigating the adoption of a spray for
weed control and an antibiotic feed supplement, looked at several personal characteristics, including age, of those farmers involved in their study in a central Iowa community. Their research discovered that among the 148 farmers interviewed, the earlier adopters of both innovations were older in age than were the later adopters. In relation to the five stage adoption scale, they found that farmers ranked as follows:

Table 2
Age of Adopters of Weed Spray and Anti-biotics

<table>
<thead>
<tr>
<th></th>
<th>Innovators</th>
<th>Early Adopters</th>
<th>Early Majority</th>
<th>Late Majority</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weed Spray</td>
<td>53.6</td>
<td>47.7</td>
<td>45.6</td>
<td>40.8</td>
<td>39.7</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>53.0</td>
<td>50.4</td>
<td>42.1</td>
<td>40.9</td>
<td>39.4</td>
</tr>
</tbody>
</table>

The results of this study would seem to contradict those of the Ryan and Gross study and the Beal and Rogers study.

There is obvious disagreement among researchers regarding the significance of the factor of age in regard to innovative behavior. It seems obvious that much of the confusion is due to the inability of the researchers to isolate the factor of age from other factors which influence innovative behavior such as education, size of operation, and wealth. Few studies attempt to differentiate between age at time of adoption and age at time of interview, although it is well known that the adoption process of an innovation from awareness through interest, evaluation, trial and adoption varies according to the individual and the innovation, and would thus affect significantly the factor of age (Beal and Rogers, 1960). However, Rogers (1962) claims adequate
theoretical grounds for innovators being younger than laggards, including the fact that the socialization of personality occurs mainly in early life, and that therefore young people learn more modern, cultural values than do older people. Other research has demonstrated that younger farmers have more social contacts, use more sources of information, and travel more than older farmers, all of which would indicate a greater contact with new ideas, and thus a greater degree of innovativeness.

**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 3
Source of Information by Type of Neighborhood

<table>
<thead>
<tr>
<th>Source of Information</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 on 19% of those in the low adoption category use such meetings as information sources.

Fliegel (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 adopters 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, visits) 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 basis: 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 Burdge (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 Fliegal (1956), Marsh and Coleman (1955) and Cougheneour (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 Burdge (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 try younger, or higher social status, 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 ideational 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 teaching seemed to discriminate significantly between innovative and non-innovative teachers.

The author of this study admits that problems were entailed by an attempt to do too much, particularly in the combining in one study of personality characteristics and intellectual dimensions. It is also evident that the only real indication that those teachers termed "innovative" really were innovative is the opinion of their fellow teachers. No behavioral proof or other evidence of innovation was asked for. Nevertheless, this study is important because it is an attempt to determine the kind of person whom others see as innovative.

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. The authors point out that the significance of the study may lie in what it does to assumptions administrators work with in luring teachers to staff innovative programs; i.e., that experienced and older teachers are less receptive to change than younger teachers. 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 characteristic 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 hypothesis, that innovators tend to be younger than traditionalists, proved tenable. The other six hypothesis 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 these administrators who he found to be traditional. His data confirmed findings that younger age and cosmopoliteness 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 these 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 whose talk 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 of Chapter Two

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.

There seems to be no consensus of opinion by researchers regarding the hypotheses that innovators are generally younger than laggards. While rural sociologists seem satisfied that youth breeds innovation, educational studies have been in conflict over this point. However, due to the poor reliability of some educational research, the evidence seems to tend toward favoring this hypotheses.

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. 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.
This chapter describes the procedures by which this study was effected. It contains (1) a description of the Study of Educational Knowledge Diffusion Utilization, and (2) a description of the procedures, organization and limitations of the present study. The Study of Educational Knowledge Diffusion and Utilization is included to make clear the relationship of the part (this study) to the whole (The Study of Educational Knowledge Diffusion Utilization).

The Study of Educational Knowledge Diffusion and Utilization

Purposes. The general procedure of the Study of Educational Knowledge Diffusion and Utilization was focused upon certain specific practices of selected educators. The study was designed to probe (1) the extent to which teachers, supervisors and administrators, and teacher educators (a) had adopted innovations within a specific time period (b) planned to adopt innovations within a specific time period or (c) tried but failed to adopt innovations within the past year or so, in their personal practice; (2) the influence of recognized diffusion agents upon the adoption of innovations (i.e., practices, products, and ideas that were new to the practitioner) to the personal practices of the subjects of the study; (3) the characteristics of selected target audiences (level of experience, years of professional experience, and earned academic credits) in relation to the adoption of innovations to personal practice; (4) characteristics of selected diffusion strategies (style, duration and audience size) in relation to the adoption of innovations
to personal practice; and (5) the relationships between the five distinguishable stages of innovation adoption reported by Rogers (1964), Lionberger (1968) and others, and the adoption process described by randomly selected educators.

**Population.** The instrumentation and population used by the Study of Educational Knowledge Diffusion and Utilization have been discussed in considerable detail in Chapter One of this study in the section entitled "Background to the Study." To recapitulate briefly, however, selected diffusion agents were chosen, including publications, brief assemblages, and extended assemblages (See Appendix A). Subjects to be interviewed were selected because of their exposure to these diffusion agents on a random basis. The true "randomness" of the population was affected to a certain extent by the fact that those selected had to have contact with the diffusion agents under consideration. Thus, educators not exposed to the diffusion agents used in the study were not considered, an omission which may have biased the study in favor of those who engage in innovative activity. In addition, several of the diffusion agents contacted prepared random lists of subjects themselves, rather than turning over lists of entire populations from which the researchers could pick subjects at random. The researchers could only hope that in these cases the agencies honored the request to select "x" number of names at random from a given population. Thirdly, due to budgetary limitations, the final population tended to be biased in favor of those persons living in or close to urban centers.

A sample 100% larger than that necessary was chosen for the study due to anticipated subject apathy, negative reactions to interview,
change of address, death, and so forth. 875 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 persons 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 C) 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 warm-up session and followed by 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.

**Study Procedures**

This study will analyze data described below in regard to six
specific hypothesis:

(1) The arithmetic average of the age of innovative educators is less than the arithmetic average of the age of laggard educators.

(2) Innovative educators will mention, specifically, a greater number of impersonal sources of information than they will mention personal sources of information in regard to their knowledge of innovative ideas, products, and practices.

(3) Laggard educators will mention, specifically, more personal sources of information than they will mention impersonal sources of information in regard to their knowledge of innovative ideas, products, and practices.

(4) Innovative educators will mention, specifically, more cosmopolite sources of information than they will mention localite sources of information in regard to their knowledge of innovative ideas, products, and practices.

(5) Laggard educators will mention, specifically, more localite sources of information than they will mention cosmopolite sources of information in regard to their knowledge of innovative ideas, products, and practices.

(6) Innovative educators will mention, specifically, a greater number of information sources than will laggard educators in regard to their knowledge of innovative ideas, products, and practices.

By determining whether the above hypothesis are accepted or rejected, the investigation will draw conclusions in regard to the
compatibility to education of selected theories of the rural sociologists. These theories are:

(1) That innovators are generally younger than laggards.
(2) That impersonal sources of information are more important than personal sources of information for innovators than for laggards.
(3) That cosmopolite sources of information are more important than localite sources of information for innovators than for laggards.
(4) That innovators utilize a greater number of information sources than do laggards.

The data for the present study is a part of that which was generated by the Study of Educational Knowledge Diffusion and Utilization in its investigation of 595 educators. This study, however, concerns itself with a particular population drawn from within the larger population of the original sample and analyzes the data gathered in the course of the original study in regard to this specific sample.

**Population.** The population of this study was determined by ranking each of the 595 subjects of the original study by means of a frequency count based upon the responses of the original subjects to certain items of the Study of Educational Knowledge Diffusion and Utilization Inventory (See Appendix C). These questions were (1) Please identify any new practices, products and ideas that you initiated, introduced and have adopted in your work during the past year, (2) please identify any new practices, products and ideas that you initiated and definitely plan to adopt in your work within the next year and (3) please
identify any new practices, products and ideas that you would like to adopt in your work that for some reason you are prevented from so doing.

The computer was then programmed to draw out (from the total population) those 50 subjects with the highest rank of innovativeness, and those 50 subjects from the total population with the lowest rank of innovativeness as determined by a frequency count of the innovations mentioned in response to the three questions on innovative practices and ideas.

Data. The data for this study were drawn from the responses of the subjects to two questions of the original survey instrument, prior to any identification of the subject as either innovative or laggard. The questions from the survey instrument used to obtain data were (1) Years of Professional Education Experience Primarily as: a. An elementary or secondary teacher, b. a supervisor or administrator, c. a teacher educator, d. other and (2) 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 prove to be most influential. b. Non-education Associates and Friends: 1. Which individuals (that is, neighbors, club contacts, etc.) prove to be most influential? c. Publications (i.e., journals, newspapers, books, etc.): 1. Which particular publications or sections of publications do you rely on for information? d. Brief Assemblages (1 day to a week -- i.e., professional organization meetings, annual conferences, institutes, etc.): 1. Which particular assemblages do you regularly attend for information? 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.

The verbal responses of the 595 original subjects to the above questions were recorded on sound tape. After the fifty most innovative and fifty least innovative subjects had been identified by the computer, the sound tapes containing their responses were culled from the remainder of the recordings. The response of each subject was then noted on a rating sheet (See Appendix D) designed to organize the data reported along the lines of hypotheses set forth in this study.

The data gathered on these instruments are both quantitative and descriptive in nature. The data was analyzed by the author of the study using several rules. The rules were as follows:

1. To determine the age of the subject, the number of years of various types of experiences will be added to a base number of 23. The number 23 was chosen arbitrarily to represent the average age of an educator at the time he begins his professional career.

2. Personal vs. impersonal sources: Personal sources will be those educational and non-educational associates specifically mentioned by the subject as an influential source for his knowledge of an innovative idea, practice, or product. Impersonal sources will be those publications or other media specifically mentioned by the subject as an influential source on his knowledge of an innovative idea, practice, or product.
3. **Localite** vs. **cosmopolite** sources. A cosmopolite source can be either a brief or extended assemblage but it must meet the criteria of being external to the subject's social system. In this case, the subject's social system will be considered his professional environment; i.e., school system, or college. A localite source is any brief or extended assemblage held within the subject's social system.

**Data Analysis.** The analysis of the data will take place on two levels. The six general hypotheses will be investigated, and in addition, data incidental to the investigation of each hypotheses will be discussed.

An instrument was designed by the investigator to analyze the data available on the sound tapes in regard to the hypotheses of the study. (See Appendix D). The instrument was designed to facilitate the acquisition of frequency counts in regard to the major hypotheses advanced by this study. The design of the instrument, however, also resulted in the generation of much interesting data, particularly in regard to specific sources of information referred to by both innovators and laggards as influential to their knowledge of innovation.

Each tape was coded and then reviewed by the investigator without knowledge as to whether the tape being reviewed was in the innovative or laggard group, and the checklist instrument (Appendix D) was completed as the tape was reviewed. After all tapes had been reviewed, the resultant 100 checklists were unscrambled and placed in innovative and laggard groups for subsequent analysis.

The analysis of hypothesis one, that the arithmetic average of
the age of innovators is less than the arithmetic average of the age of laggards was completed by means of determining the numbers of years of professional experience of each subject. The resultant number was added to the number 23 (see page 54). The resultant numbers for each of the subjects in the innovative group were added together and then were divided by the number of subjects in the group to achieve the arithmetic average age of the innovative group. The same procedure was used for the laggard group. The resulting averages were then compared to test hypothesis number one.

Table 4
Mean Age of Innovators and Laggards

<table>
<thead>
<tr>
<th>Innovators</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Experience + 23)Age = Mean Age</td>
<td>(Experience + 23)Age = Mean Age</td>
</tr>
<tr>
<td>N(50)</td>
<td>N(50)</td>
</tr>
</tbody>
</table>

Mean age was used to test this hypothesis because the backgrounds of those in the groups were such as to cause their ages to fall close to normal distribution.

Hypothesis number two, that innovators will mention, specifically, a greater number of impersonal sources of information than they will mention personal sources of information in regard to innovative ideas and practices was analyzed by comparison of the total personal and impersonal sources mentioned by the group. These totals were the result of frequency counts of personal or impersonal sources mentioned by each subject in response to the survey instruments.
Table 5

Total Personal and Impersonal Information Sources of Innovators

<table>
<thead>
<tr>
<th>Personal</th>
<th>Impersonal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>$N =$ %</td>
<td>$N =$ %</td>
</tr>
</tbody>
</table>

The figures and percentages included in each group or cell would determine whether hypothesis was accepted or rejected.

Hypothesis number three, that laggards will mention, specifically, more personal sources of information than they will mention impersonal sources of information in regard to innovative ideas and practices, was analyzed by a comparison of the total personal and impersonal sources mentioned by the group. These totals were the result of frequency counts of personal and impersonal sources of information mentioned by each subject in response to the survey instrument.

Table 6

Personal and Impersonal Information Sources of Laggards

<table>
<thead>
<tr>
<th>Personal</th>
<th>Impersonal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>$N =$ %</td>
<td>$N =$ %</td>
</tr>
</tbody>
</table>

The figures and percentages included in each group or cell would determine whether the hypothesis was accepted or rejected.

Hypothesis number 4, that innovators will mention, specifically, more cosmopolite sources of information than they will mention localite sources of information in regard to innovative ideas and practices, was
analyzed by a comparison of the total cosmopolite and local sources mentioned by the group. These totals were the result of frequency counts of cosmopolite and localite sources of information mentioned by each subject in response to the survey instrument.

Table 7
Total Cosmopolite and Localite Information Sources of Innovators

<table>
<thead>
<tr>
<th>Cosmopolite</th>
<th>Localite</th>
</tr>
</thead>
<tbody>
<tr>
<td>N =</td>
<td>%</td>
</tr>
<tr>
<td>N =</td>
<td>%</td>
</tr>
</tbody>
</table>

The figures and percentages included in each group or cell would determine whether the hypothesis was accepted or rejected.

Hypothesis number 5, that laggards will mention, specifically, more localite sources of information than they will mention cosmopolite sources of information in regard to innovative ideas and practices, was analyzed by a comparison of the total cosmopolite and local sources mentioned by the group. These totals were the result of frequency counts of cosmopolite and localite sources of information mentioned by each subject in response to the survey instrument.

Table 8
Total Cosmopolite and Localite Information Sources of Laggards

<table>
<thead>
<tr>
<th>Cosmopolite</th>
<th>Localite</th>
</tr>
</thead>
<tbody>
<tr>
<td>N =</td>
<td>%</td>
</tr>
<tr>
<td>N =</td>
<td>%</td>
</tr>
</tbody>
</table>
The figures and percentages included in each group or cell would determine whether the hypothesis was accepted or rejected.

Hypothesis number six, that innovators will mention a greater number of information sources in regard to innovative ideas and practices than will laggards was analyzed by totaling the number of information sources of all kinds mentioned by innovators, by totaling the number of information sources of all kinds mentioned by laggards, and comparing the totals.

Table 9
Total Information Sources Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th></th>
<th>Innovators</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>N =</td>
<td>N =</td>
</tr>
<tr>
<td>Impersonal</td>
<td>N =</td>
<td>N =</td>
</tr>
<tr>
<td>Localite</td>
<td>N =</td>
<td>N =</td>
</tr>
<tr>
<td>Cosmopolite</td>
<td>N =</td>
<td>N =</td>
</tr>
<tr>
<td>Total Sources</td>
<td>N =</td>
<td>N =</td>
</tr>
</tbody>
</table>

The total number of sources mentioned in each group or cell would determine whether the hypothesis is accepted or rejected.

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 from a breakdown of personal, impersonal, localite and cosmopolite sources into subgroups. The investigator felt it would be of interest to determine which of the
subgroup sources the subjects perceived as important sources of information for innovative practices and ideas.

The category of personal sources was broken down on the data collection instrument (Appendix D) into subgroups: teachers, administrators, supervisors, university personnel, commercial representatives, family, neighbors/friends, parents of students, students, and a general category of "others." A frequency count of each category or subgroup was made in relation to the innovative group and in relation to the laggard group.

Table 10
Personal Sources Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Personal Sources</th>
<th>Mentioned by Innovators</th>
<th>Mentioned by Laggards</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>Supervisors</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>University Person</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Commercial Rep</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Outside Speaker</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Representative of 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>Other</td>
<td>N = %</td>
<td>N = %</td>
</tr>
</tbody>
</table>
The category of impersonal sources was broken down on the data collection instrument into eight subgroups: Professional specialty magazine such as the English Journal for an English Teacher; general professional magazine such as the NEA Journal; magazines of a general nature outside the profession such as Newsweek; magazines not specified; book; newspaper; television; and a general category of "others." A frequency count yielded information regarding use of each of the subgroups by the subjects to gain information about innovative ideas and practices.

Table 11
Impersonal Sources Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Impersonal Sources</th>
<th>Mentioned by Innovators</th>
<th>Mentioned by Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Specialty Magazine</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>General Professional Magazine</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>General Magazine</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Magazine, 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>T.V.</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Other</td>
<td>N = %</td>
<td>N = %</td>
</tr>
</tbody>
</table>

The category of localite sources was broken down on the data collection instrument into four subgroups, all of which met the criteria of being indigenous to the subjects professional social system. The subgroups were: department meetings, faculty meetings; system meetings; and a general category of "others." A frequency count yielded
Information regarding use of each of the subgroups by the subjects to gain information about innovative ideas and practices.

Table 12
Localite Sources Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Localite Sources</th>
<th>Mentioned by Innovators</th>
<th>Mentioned by Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department 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>
</tbody>
</table>

The category of cosmopolite sources was broken down on the data collection instrument into 12 subgroups, all of which met the criteria of being foreign to the subject's professional social system. These groups were: university course; personal visitation; national meeting in professional specialty such as NCTE; national meeting sponsored by commercial interests; state-wide meeting in professional specialty; state-wide meeting in general professional interest; a state-wide meeting sponsored by commercial interest; an institute/workshop in professional specialty; an institution/workshop in general professional interest; an institute/workshop sponsored by commercial interests; and a general category of "others." A frequency count yielded information regarding use of each of the subgroups by the subjects to gain information about innovative ideas and practices.
Table 13
Cosmopolite Sources Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Cosmopolite Sources</th>
<th>Mentioned by Innovators</th>
<th>Mentioned by Laggards</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 Professional Specialty</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>National Meeting in General Professional Interest</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>National Meeting Sponsored by Commercial Interest</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>State Meeting in Professional Specialty</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>State Meeting in General Professional Interest</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>State Meeting Sponsored by Commercial Interest</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Institute/Workshop in Professional Specialty</td>
<td>N = %</td>
<td>N = %</td>
</tr>
<tr>
<td>Institute/Workshop in General Professional Interest</td>
<td>N = %</td>
<td>N = %</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>

Limitations on Data Interpretation

The data presented in the following chapter was collected under conditions which should be recognized for a more complete understanding of this study. Included are the source and reliability of the data, the design of the data collection instrument, and other difficulties
inherent in any study of educational innovation.

**Source of data.** Because this study re-examined in another framework data previously gathered, it is what Herbert Lionberger would call an "after the fact" study. The investigator is not concerned with this as a negative factor to the study; indeed, one of the problems with educational research seems to be that those involved in writing dissertations are forever striking out in new directions without building upon the foundations laid by previous studies. The idea of countless thesis lie sterile on the shelves of thousands of libraries, their germination forestalled by a compulsion on the part of educational researchers to do something "original." It is important, however, that the reader realize that the data used in this study were collected before the present study was conceived, and were re-examined in the context of the present study by the application of a new survey instrument.

The weakness of questionnaire investigations is a long lamented reality, particularly for educational researchers. When it comes to educational research in regard to innovation, the problem is even more acute, especially in comparison to the field of rural sociology, where innovativeness, or lack of it, is concrete and demonstrable. In education, innovativeness is often a matter of opinion rather than demonstrated "good works."

While this problem was not entirely overcome during the gathering of the data used in this study, the problem seems to have been alleviated to a large extent. The fact that each instrument was completed in a face-to-face interview has done much to eliminate wishful thinking and flights of fancy from entering into responses regarding innovation, and
to guarantee that respondents were honest in regard to their answers to the interviewer. This is particularly evident in listening to the sound tape recordings of the interviews and is reflected in the fact that many of the fifty laggard respondents were categorized as such because they admitted they had failed to adopt any innovations, had planned to adopt none, and were unable to even suggest that they had tried to innovate but had failed. Nevertheless, such problems as investigator bias, use of ambiguous language, lack of concrete proof of innovative behavior and other failures in objectivity, control and communication, may distort the results of this study.

Design and Data Collection Instrument and Study

The instrument used to gather the data for this study was designed to re-work data previously gathered in order to test the general hypothesis postulated by this study. The term "general hypothesis" is used here to denote the positive relationship between two conceptual variables such as innovativeness and cosmopolitaness. The instrument was designed to test the general hypothesis of the study by descriptive means rather than empirical. The categories used on the instrument were chosen to extract the maximum amount of information from the available data with relation to the six hypothesis of this study; to provide further specific data regarding types of sources of information; and to provide a method for frequency tabulation of results.
CHAPTER IV

THE DATA

The data analyzed in this chapter were gathered as described in Chapter III of this study. Sound recordings were listened to, and the response of the interviewee to the pertinent questions were recorded on the inventory sheet (Appendix D). The data were then transferred to a master sheet for tabulation.

Care was exercised to make the recording of data uniform. When several possible items could qualify for a particular sub-category, such as "national meeting of general professional interest," lists were made to insure that particular meetings (such as Association for Childhood Education International) were placed consistently in the same sub-category.

Some difficulty was encountered due to technical problems in the initial recording of information. As the data for this study was gathered from only a section of each master tape, and as the data used in this study had not been used in the Kettering study to determine degree of innovativeness, several tapes had inadequate information for this study even though having sufficient information on those sections which enabled identification of the fifty most innovative and fifty most laggard educators in the original study. Any tape lacking complete and clear information, either through technical or interview failure, was discarded from the sample used in this study. Because of this, the tapes of seven subjects categorized as laggard, and the tapes of nine subjects categorized as innovative, were excluded from this study. This reduced the number of innovative subjects from fifty to forty-one; the number of
laggard subjects from fifty to forty-three; and the total number of
subjects from one hundred to eighty-four.

Where appropriate, frequency distributions and mean averages were
constituted from the data available on the master sheet to investigate
the hypotheses set forth in this study. Percentages for each cell of
the frequency distributions were derived to make the data more compre-
hensible for the reader.

After a brief description of the population used in this study,
the frequency distributions and derived percentages for each hypothesis
will be reported, followed by related data made possible while consider-
ing the hypotheses.

Population. The innovative population included sixteen teachers,
sixteen administrators, seven teacher educators, and two persons from
fields closely related to education who had been educators; the laggard
population included eighteen teachers, sixteen administrators, six
teacher educators, and three persons from fields closely related to
education who had been educators.

Table 14
Population by Role

<table>
<thead>
<tr>
<th>Teachers</th>
<th>Innovators N = 16</th>
<th>Laggards N = 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators</td>
<td>N = 16</td>
<td>N = 16</td>
</tr>
<tr>
<td>Teacher Educators</td>
<td>N = 7</td>
<td>N = 6</td>
</tr>
<tr>
<td>Other</td>
<td>N = 2</td>
<td>N = 2</td>
</tr>
</tbody>
</table>

The age of the population was distributed as follows: eight
innovators and four laggards in the 20–29 year old group; seventeen
innovators and twelve laggards in the 30-39 year old group; eight innovators and ten laggards in the 40-49 year old group; four innovators and eight laggards in the 50-59 year old group; and 60 years old and above.

Table 15
Age Distribution of Innovators and Laggards

<table>
<thead>
<tr>
<th>Years Old</th>
<th>Innovators</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>N = 8</td>
<td>N = 4</td>
</tr>
<tr>
<td>30-39</td>
<td>N = 17</td>
<td>N = 12</td>
</tr>
<tr>
<td>40-49</td>
<td>N = 8</td>
<td>N = 10</td>
</tr>
<tr>
<td>50-59</td>
<td>N = 4</td>
<td>N = 8</td>
</tr>
<tr>
<td>60-</td>
<td>N = 4</td>
<td>N = 9</td>
</tr>
</tbody>
</table>

Hypothesis One

Hypothesis one was stated as follows:

1. The arithmetic average of the age of innovative educators is less than the arithmetic average of the age of laggard educators.

The data collected pertaining to this hypothesis appear below in Table 16.

Table 16
Mean Age of Innovators and Laggards

<table>
<thead>
<tr>
<th>Innovators</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.2 years</td>
<td>45.8 years</td>
</tr>
</tbody>
</table>

The forty-one subjects identified as innovative had a mean age of 40.2 years, while the forty-three subjects identified as laggard had a
mean age of 45.8 years. As the arithmetic average of innovative subjects is 5.6 years less than that of the laggard subjects, it was concluded that the arithmetic average of the age of innovative educators is less than the arithmetic average of the age of laggard educators. The hypothesis is thus accepted.

Hypothesis Two

Hypothesis two was stated as follows:

2. Innovators will mention, specifically, a greater number of impersonal sources of information than they will mention personal sources of information in regard to innovative ideas and practices.

The data collected pertaining to this hypothesis appear below in Table 17.

<table>
<thead>
<tr>
<th>Personal Sources</th>
<th>Impersonal Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 75 45%</td>
<td>N = 92 55%</td>
</tr>
</tbody>
</table>

Total N = 167

The forty-one subjects identified as innovators mentioned seventy-five personal sources of information and ninety-two impersonal sources of information in regard to innovative ideas and practices, for a total number of 167 sources in these two categories. Since innovators specifically mentioned a greater number of impersonal sources of information
Hypothosis three was stated as follows:

3. Laggards will mention, specifically, more personal sources of information than they will mention impersonal sources of information in regard to innovative ideas and practices.

The data collected pertaining to this hypothesis appear below in Table 18.

Table 18

Total Personal and Impersonal Information Sources of Laggards

<table>
<thead>
<tr>
<th>Personal Sources</th>
<th>Impersonal Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 60 43%</td>
<td>N = 78 57%</td>
</tr>
</tbody>
</table>

Total N = 138

The forty-three subjects identified as laggards mentioned sixty personal sources and seventy-eight impersonal sources of information in regard to innovative ideas and practices, for a total number of 167 sources in these two categories. Since laggards mentioned more impersonal sources of information than they mentioned personal sources of information (30% more), the hypothesis was rejected.
Hypothesis Four

Hypothesis four was stated as follows:

4. Innovators will mention, specifically, more cosmopolite sources of information than they will mention localite sources of information in regard to innovative ideas and practices.

The data collected pertaining to this hypothesis appear below in Table 19.

Table 19

Total Localite and Cosmopolite Information Sources of Innovators

<table>
<thead>
<tr>
<th>Localite Sources</th>
<th>Cosmopolite Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 17</td>
<td>N = 112</td>
</tr>
<tr>
<td>13%</td>
<td>87%</td>
</tr>
</tbody>
</table>

Total N = 129

The forty-one subjects identified as innovators mentioned seventeen localite sources and one hundred twelve cosmopolite sources of information in regard to innovative ideas and practices, for a total number of 167 sources in these two categories. Since innovators mentioned more cosmopolite sources of information (550% more) the hypothesis was accepted.

Hypothesis Five

Hypothesis five was stated as follows:

5. Laggards will mention, specifically, more localite sources of information than they will mention cosmopolite sources of information in regard to innovative ideas and practices.

The data collected pertaining to this hypothesis appear below in Table 20.
Table 20
Total Localite and Cosmopolite Information Sources for Laggards

<table>
<thead>
<tr>
<th>Localite Sources</th>
<th>Cosmopolite Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 15</td>
<td>N = 81</td>
</tr>
<tr>
<td>16%</td>
<td>84%</td>
</tr>
</tbody>
</table>

Total N = 96

The forty-three subjects identified as laggards mentioned fifteen localite sources and eighty-one cosmopolite sources of information in regard to innovative ideas and practices, for a total number of ninety-six sources in these two categories. Since laggards mentioned more cosmopolite sources of information (440% more) than localite sources, the hypothesis was rejected.

Hypothesis Six

Hypothesis six was stated as follows:

6. Innovators will mention a greater number of information sources in regard to innovative ideas and practices than will laggards.

The data collected pertaining to this hypothesis appear in Table 21.
Table 21

Total Information Sources Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Source Type</th>
<th>Innovators</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>N = 75</td>
<td>N = 60</td>
</tr>
<tr>
<td>Impersonal</td>
<td>N = 92</td>
<td>N = 78</td>
</tr>
<tr>
<td>Localite</td>
<td>N = 17</td>
<td>N = 15</td>
</tr>
<tr>
<td>Cosmopolite</td>
<td>N = 112</td>
<td>N = 81</td>
</tr>
<tr>
<td>TOTAL SOURCES</td>
<td>N = 296</td>
<td>N = 234</td>
</tr>
</tbody>
</table>

The forty-one subjects identified as innovators mentioned a total of 296 sources of information in regard to innovative practices and ideas, or an average of 7.2 apiece. The forty-three subjects identified as innovators mentioned a total of 234 sources of information in regard to innovative practices and ideas, for an average of 5.4 apiece. Adjusting the population figures so that they are equal, innovators mentioned a larger total number of sources as well as a larger average number of sources than did laggards. The hypothesis is accepted.

Other Analysis

This study resulted in large amounts of data consequential to that necessary for examination of the hypothesis particularly in regard to role of population, age of population, and information sources by specific
sub-category. These data will be presenting in the following pages.

**Role of Population.** A frequency count of sources mentioned by innovators and laggards with role groupings yielded the following data:

Table 22

<table>
<thead>
<tr>
<th>Role</th>
<th>Innovators</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Total Sources</td>
</tr>
<tr>
<td>Teacher</td>
<td>16</td>
<td>131</td>
</tr>
<tr>
<td>Administrator</td>
<td>16</td>
<td>167</td>
</tr>
<tr>
<td>Teacher Educator</td>
<td>7</td>
<td>81</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>22</td>
</tr>
</tbody>
</table>

In each role category, innovators mention a greater number of sources of information than do laggards. Additionally, both innovative and laggard administrators mention a greater number of sources than do teachers. The number of teacher educators and "other" subjects is considered too low to yield any conclusive data in regard to role.

**Information sources by specific category.** Each of the four general categories of information sources (personal, impersonal, localite and cosmopolite sources) was arbitrarily divided into sub-categories in order to facilitate recording of data. A frequency count was made in relation to each of the sub-categories, resulting in data regarding the importance of each of the sub-categories in relation to individual members of the population. These frequency distributions, and percentages derived from them, are reported below, and are useful in determining
which of the sub-categories the subjects perceived as important sources of information for innovative practices and ideas.

Personal sources. The category of personal sources consisted of twelve arbitrarily chosen sub-categories as follows: teacher, administrator, supervisor, university person, commercial representative, family, neighbor/friend, parent of student, student, outside speaker, state department of education representative, and a general category of "other." A frequency count of the number of subjects who mentioned these categories yielded the following data:

Table 23
Personal Sources by Sub-Categories
Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Category</th>
<th>Mentioned by Innovators</th>
<th>Mentioned by Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>N = 23 56%</td>
<td>N = 14 33%</td>
</tr>
<tr>
<td>Administrators</td>
<td>N = 12 29%</td>
<td>N = 16 37%</td>
</tr>
<tr>
<td>Supervisors</td>
<td>N = 9 22%</td>
<td>N = 11 25%</td>
</tr>
<tr>
<td>University Person</td>
<td>N = 3 7%</td>
<td>N = 3 6%</td>
</tr>
<tr>
<td>Commercial Representative</td>
<td>N = 0 0%</td>
<td>N = 1 2%</td>
</tr>
<tr>
<td>Outside Speaker</td>
<td>N = 1 2%</td>
<td>N = 1 2%</td>
</tr>
<tr>
<td>State Department of Education Repres.</td>
<td>N = 0 0%</td>
<td>N = 0 0%</td>
</tr>
<tr>
<td>Family</td>
<td>N = 5 12%</td>
<td>N = 0 0%</td>
</tr>
<tr>
<td>Neighbor/Friend</td>
<td>N = 9 21%</td>
<td>N = 6 13%</td>
</tr>
<tr>
<td>Parents of Students</td>
<td>N = 7 17%</td>
<td>N = 4 9%</td>
</tr>
<tr>
<td>Students</td>
<td>N = 1 2%</td>
<td>N = 1 2%</td>
</tr>
<tr>
<td>Other</td>
<td>N = 5 12%</td>
<td>N = 3 6%</td>
</tr>
</tbody>
</table>
Neither innovators nor laggards mentioned state department of education representatives as important sources of information. Only innovators mentioned the categories of family, while only laggards mentioned the category of commercial representative. In order of decreasing importance, innovators mentioned the following as important personal sources of information: teacher; administrator; supervisor, and neighbor/friend; parent of student; family; university person; and student and outside speaker. In order of decreasing importance, laggards mentioned the following as important personal sources of information: administrator; teacher; supervisor; neighbor/friend; parents of student; university person; and student, outside speaker and commercial representative. The category of "other" included scattered personal information sources for which no category had been provided.

Impersonal sources. The category of impersonal sources consisted of eight arbitrarily chosen sub-categories as follows: professional specialty magazine; general professional magazine; general magazine; unspecified magazine; book; newspaper; television; and a general category of "other." A frequency count of the number of subjects who mentioned these sub-categories yielded the following data:
Table 24
Impersonal Sources by Sub-Categories
Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Category</th>
<th>Mentioned by Innovators</th>
<th>Mentioned by Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Specialty Magazine</td>
<td>N = 32 78%</td>
<td>N = 34 79%</td>
</tr>
<tr>
<td>General Professional Magazine</td>
<td>N = 31</td>
<td>N = 30 69%</td>
</tr>
<tr>
<td>General Magazine</td>
<td>N = 9</td>
<td>N = 4 9%</td>
</tr>
<tr>
<td>Magazine, Not Specified</td>
<td>N = 3</td>
<td>N = 2 4%</td>
</tr>
<tr>
<td>Book</td>
<td>N = 5</td>
<td>N = 1 2%</td>
</tr>
<tr>
<td>Newspaper</td>
<td>N = 9</td>
<td>N = 5 11%</td>
</tr>
<tr>
<td>Television</td>
<td>N = 0</td>
<td>N = 1 2%</td>
</tr>
<tr>
<td>Other</td>
<td>N = 3</td>
<td>N = 1 2%</td>
</tr>
</tbody>
</table>

Innovators did not mention television as an impersonal source of information. All other sources of information were mentioned by innovators and laggards. In order of decreasing importance, innovators mentioned the following as important impersonal sources of information: professional specialty magazine; general professional magazine; general magazine and newspaper; and magazine of an unspecified nature. Innovators mentioned "other" impersonal information sources three times. In order of decreasing importance, laggards mentioned the following as important impersonal sources of information: professional specialty magazine; general professional magazine; newspaper; general magazine; magazine of an unspecified nature; and book and television. Laggards mentioned "other" impersonal information sources once.

Localite sources. The category of localite sources consisted of four arbitrarily chosen sub-categories as follows: department meeting;
faculty meeting; system meeting; and a general category of "other."

A frequency count of the number of subjects who mentioned these sub-categories yielded the following data:

Table 25
Localite Sources by Sub-Categories
Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Localite Sources</th>
<th>Mentioned by Innovators</th>
<th>Mentioned by Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Meeting</td>
<td>N = 0 0%</td>
<td>N = 2 4%</td>
</tr>
<tr>
<td>Faculty Meeting</td>
<td>N = 2 4%</td>
<td>N = 1 2%</td>
</tr>
<tr>
<td>System Meeting</td>
<td>N = 15 36%</td>
<td>N = 11 25%</td>
</tr>
<tr>
<td>Other</td>
<td>N = 0 0%</td>
<td>N = 1 2%</td>
</tr>
</tbody>
</table>

Innovators failed to mention department meetings as a source of information. All other sources of information were mentioned by innovators and laggards. Innovators mentioned system meeting as the most important localite source of information, followed by faculty meeting. Laggards also mentioned system meeting most frequently, followed by department and then by faculty meeting. Innovators did not mention any additional types of localite information sources, and laggards mentioned such sources only once.

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

A frequency count determined that the responses in this category were distributed as shown in the following table:

Table 26
Cosmopolite Sources by Sub-Categories
Mentioned by Innovators and Laggards

<table>
<thead>
<tr>
<th>Cosmopolite Sources</th>
<th>Mentioned by Innovators</th>
<th>Mentioned by Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Course</td>
<td>N = 19 46%</td>
<td>N = 10 23%</td>
</tr>
<tr>
<td>Personal Visitation</td>
<td>N = 0 0%</td>
<td>N = 0 0%</td>
</tr>
<tr>
<td>National Meeting, Professional Specialty</td>
<td>N = 29 70%</td>
<td>N = 28 65%</td>
</tr>
<tr>
<td>National Meeting, General Interest</td>
<td>N = 10 24%</td>
<td>N = 7 16%</td>
</tr>
<tr>
<td>National Meeting, Commercial Interest</td>
<td>N = 1 2%</td>
<td>N = 0 0%</td>
</tr>
<tr>
<td>State Meeting, Professional Specialty</td>
<td>N = 16 39%</td>
<td>N = 16 37%</td>
</tr>
<tr>
<td>State Meeting, General Interest</td>
<td>N = 11 26%</td>
<td>N = 6 13%</td>
</tr>
<tr>
<td>State Meeting, Commercial Interest</td>
<td>N = 2 4%</td>
<td>N = 0 0%</td>
</tr>
<tr>
<td>Institute/Workshop, Professional Specialty</td>
<td>N = 20 48%</td>
<td>N = 12 27%</td>
</tr>
<tr>
<td>Institute/Workshop, General Interest</td>
<td>N = 3 7%</td>
<td>N = 0 0%</td>
</tr>
<tr>
<td>Institute/Workshop, Commercial Interest</td>
<td>N = 1 2%</td>
<td>N = 1 2%</td>
</tr>
<tr>
<td>Other</td>
<td>N = 0 0%</td>
<td>N = 1 2%</td>
</tr>
</tbody>
</table>

Neither innovators or laggards mentioned personal visitation as an important cosmopolite source of information. Laggards also failed to mention national or state meetings sponsored by commercial interests, and institutes/workshops of a general nature as important sources of information. In order of decreasing importance, innovators mentioned
the following as important cosmopolite sources of information: national meeting in their professional specialty; institute/workshop in their professional specialty; university course; state meeting in their professional specialty; state meeting in general professional interest; national meeting in general professional interest; institute/workshop in general interest; state meeting by commercial interests; and national meeting and institute/workshop by commercial interests. Laggards mentioned, in order of decreasing frequency, the following cosmopolite sources of information: national meeting in professional specialty; state meeting in professional specialty; institute/workshop in professional specialty; university course; national meeting in general professional interest; state meeting in general professional interest; and institute/workshop by commercial interests as well as "other" cosmopolite sources for which there was no sub-category.

A final analysis of the data provided information as to the frequency with which the various sub-categories were repeated by individuals in the population. In order of decreasing importance, from left to right, the most frequently perceived sources of information for innovators and laggards are shown in Tables 27 and 28.
Table 27
Popularity of Sub-Categories by Innovators

<table>
<thead>
<tr>
<th>Sub-Categories</th>
<th>Times Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Interest Magazine</td>
<td>66</td>
</tr>
<tr>
<td>General Professional Magazine</td>
<td>55</td>
</tr>
<tr>
<td>National Meeting, Professional Specialty</td>
<td>47</td>
</tr>
<tr>
<td>Teacher</td>
<td>25</td>
</tr>
<tr>
<td>State Meeting, Professional Specialty</td>
<td>21</td>
</tr>
<tr>
<td>Institute/Workshop, Professional Specialty</td>
<td>20</td>
</tr>
<tr>
<td>University Course</td>
<td>18</td>
</tr>
<tr>
<td>System Meeting</td>
<td>15</td>
</tr>
<tr>
<td>General Magazine</td>
<td>15</td>
</tr>
<tr>
<td>State Meeting, General Professional Interest</td>
<td>14</td>
</tr>
<tr>
<td>Administrator</td>
<td>12</td>
</tr>
<tr>
<td>National Meeting, General Professional Interest</td>
<td>11</td>
</tr>
<tr>
<td>Supervisor</td>
<td>10</td>
</tr>
<tr>
<td>Neighbor/Friend</td>
<td>7</td>
</tr>
<tr>
<td>Newspaper</td>
<td>6</td>
</tr>
<tr>
<td>Parent of Student</td>
<td>5</td>
</tr>
<tr>
<td>Book</td>
<td>5</td>
</tr>
<tr>
<td>University Person</td>
<td>3</td>
</tr>
<tr>
<td>Unspecified Magazine</td>
<td>2</td>
</tr>
<tr>
<td>Institute/Workshop, General Professional Interest</td>
<td>1</td>
</tr>
<tr>
<td>Faculty Meeting</td>
<td>1</td>
</tr>
<tr>
<td>State Meeting Sponsored by Commercial Interest</td>
<td>1</td>
</tr>
<tr>
<td>Outside Speaker</td>
<td>1</td>
</tr>
<tr>
<td>National Meeting Sponsored by Commercial Interest</td>
<td>1</td>
</tr>
<tr>
<td>Institute/Workshop Sponsored by Commercial Interest</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 28
Popularity of Sub-Categories by Laggards

<table>
<thead>
<tr>
<th>Sub-Categories</th>
<th>Times Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Interest Magazines</td>
<td>64</td>
</tr>
<tr>
<td>General Professional Magazines</td>
<td>56</td>
</tr>
<tr>
<td>National Meeting, Professional Specialty</td>
<td>40</td>
</tr>
<tr>
<td>Administrator</td>
<td>17</td>
</tr>
<tr>
<td>State Meeting, Professional Specialty</td>
<td></td>
</tr>
<tr>
<td>System Meeting</td>
<td>14</td>
</tr>
<tr>
<td>Teacher</td>
<td></td>
</tr>
<tr>
<td>Institute/Workshop, Professional Specialty</td>
<td></td>
</tr>
<tr>
<td>Supervisor</td>
<td>11</td>
</tr>
<tr>
<td>General Magazine</td>
<td></td>
</tr>
<tr>
<td>University Course</td>
<td>10</td>
</tr>
<tr>
<td>National Meeting, General Professional Interest</td>
<td>9</td>
</tr>
<tr>
<td>State Meeting, General Professional Interest</td>
<td>7</td>
</tr>
<tr>
<td>Neighbor/Friend</td>
<td>6</td>
</tr>
<tr>
<td>Newspaper</td>
<td>5</td>
</tr>
<tr>
<td>Parent of Student</td>
<td>4</td>
</tr>
<tr>
<td>University Person</td>
<td>3</td>
</tr>
<tr>
<td>Unspecified Magazine</td>
<td></td>
</tr>
<tr>
<td>Department Meeting</td>
<td>2</td>
</tr>
<tr>
<td>Commercial Representative</td>
<td></td>
</tr>
<tr>
<td>Outside Speaker</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td></td>
</tr>
<tr>
<td>Television</td>
<td>1</td>
</tr>
<tr>
<td>Book</td>
<td></td>
</tr>
<tr>
<td>Faculty Meeting</td>
<td></td>
</tr>
<tr>
<td>Institute/Workshop Sponsored by Commercial Interest</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER V

Study Summary, Conclusions and Recommendations

The focus of this descriptive study was an attempt to determine whether certain theories developed by rural sociologists concerning the age and sources of information of innovative and laggard farmers has any meaning in regard to innovative and laggard educators. These theories are:

1. Innovators are generally younger than laggards (hypothesis one)

2. Impersonal sources of information are more important than personal sources of information for innovators than for laggards (hypothesis two and three)

3. Cosmopolite sources of information are more important than localite sources of information for innovators than for laggards (hypothesis four and five)

4. Innovators utilize a greater number of information sources than do laggards (hypothesis six).

This chapter will consist of a summary and critique of the study methods which were used to gather the data presented in Chapter IV, organized around the above four theories; an interpretation and a discussion of the data of this study, and the conclusions drawn from it; and recommendations for future investigations which might follow this study.

Summary and Critique of Study Methods

The problem that this investigation concerned itself with was whether findings of rural sociologists concerning the age and sources of information could be paralleled using educators rather than farmers. Six specific hypotheses were constructed for investigation:
1. The arithmetic average of the age of innovative educators is less than the arithmetic average of the age of laggard educators.

2. Innovative educators will mention, specifically, a greater number of impersonal sources of information than they will mention personal sources of information in regard to their knowledge of innovative ideas, products, or practices.

3. Laggard educators will mention, specifically, more personal sources of information than they will mention impersonal sources of information in regard to their knowledge of innovative ideas, products and practices.

4. Innovative educators will mention, specifically, more cosmopolite sources of information than they will mention localite sources of information in regard to their knowledge of innovative ideas, products and practices.

5. Laggard educators will mention, specifically, more localite sources of information than they will mention cosmopolite sources of information in regard to their knowledge of innovative ideas, products, and practices.

6. Innovative educators will mention, specifically, a greater number of information sources than will laggard educators in regard to their knowledge of innovative ideas, products or practices.

The extent to which the work of the rural sociologists, in regard to age and sources of information of farmers, had any validity for educators was determined by whether each of the six hypothesis was accepted or rejected in the course of this study.

Studies concerned with the age and sources of information of innovators (and by implication, this term includes non-innovators) have a long history in the field of rural sociology, and a rather short and sketchy history in the field of education.

Rural sociological studies on age (Ryan and Gross, 1943) (Copp, 1956) (Lionberger and Coughenour, 1957) and others] and on sources of information [(Copp, Sill and Brown, 1956) (Wilkening, 1952) (Rogers and
Burdge, 1961 and 1962) have established precedent for procedures used in this study. The use of the personal field interview is a time-honored one in rural sociology; it is not a common technique in education, where survey studies have tended to be of the mailed questionnaire variety. Secondly, rural sociological studies have defined the parameters of the main information categories used in this study (Rogers, 1962, Chapter VI) and have provided a basis for the sub-categories used in this study (Copp, Sill and Brown, 1958) (Rogers and Beal, 1958) (Beal and Behlen, 1957).

Very little has been done by educators to investigate the sources of information used by innovators, although several studies have investigated the age of innovators, with conflicting results. (Bridges and Reynolds, 1968) (Wygal, 1966) (Leas, 1962).

The subject, procedures, and methods of this study, then, have ample precedent in the field of rural sociology. This study was not intended to be conclusive or definitive, but to be a sign post at what is hoped will be the beginning of a road of investigation into the characteristics of educators which will be as extensive as the highway that has been constructed by rural sociologists in regard to the characteristics of farmers. The procedures and methods of this study were valid, though not esoteric or empirically oriented. Problems were encountered, most of which arose from the nature of what was being investigated, and which are inherent in all educational studies. Specifically, the very serious limitations inherent in the use of questionnaires, even when used in a face-to-face confrontation, have undoubtedly distorted the results of this study; in addition, the data of this study are based
on what people think about what they are asked, rather than on the observation of the investigators. Innovators may or may not have participated in the actions which caused them to be labeled innovators; laggards may have been more innovative than they could recall under the pressure of the interview upon which the data of this study was based. In addition to questions concerning the fidelity of information provided by the subjects of this study, ambiguous questions by interviewers, the size of the sample of this study, and the interrelatedness of certain specific categories, should warn the reader against making definitive, global or sweeping conclusions. Specific problems will be discussed in the course of this chapter.

In spite of the limitations of this study, none of which is unusual for this type of study, the author believes this effort has provided interesting and valuable information for further research, particularly in the area of sources of information of educators. If the analogy may be excused, one may note that while the flying buttresses and soaring steeples of a cathedral are spectacular and interesting, they can only exist because someone, sometime, placed single foundation stones for them to rest upon. This study, it is hoped, will serve as a beginning.

Discussion of Data and Conclusions

Each theory will be dealt with by examining the specific hypothesis which relates to it, discussing the meaning of the data of the hypothesis, and drawing conclusions concerning the theory.

**Theory one.** Innovators are generally younger than laggards. (Specific hypothesis: the arithmetic average of the age of innovative educators is less than the arithmetic average of the age of laggard educators.)
The two groups, innovators and laggards, were compared in terms of mean age. Considering the conflicting results of other studies along this line, the difference in the arithmetic average of the two groups (5.6 years) was surprising.

Since the composition of the two groups of educators is almost identical in terms of role (see Table 14) the difference in mean average would not seem to be linked to role of the subject. It is interesting to note that the distribution of age (see Table 15) demonstrates a progressive reversal of innovator-laggard category. The 20-29 year old group has twice as many innovators as laggards (8-4) while the 60 and above group has twice as many laggards as innovators (9-4). It would seem then, that the general hypothesis, that innovators are generally younger than laggards, is as true for the educators of this sample as rural sociologists claim it to be true for farmers.

A word of caution is in order based on Rogers (1962) who found that innovators often were not asked about their innovations until long after they had completed the innovative behavior. It may be, then, that the innovators of this study are even younger, at the time of their innovative behavior, than appears.

**Theory two.** Impersonal sources of information are more important than personal sources of information for innovators than for laggards. *(Specific hypothesis two: Innovators will mention, specifically, a greater number of impersonal sources than they will mention personal sources of information in regard to innovative ideas and practices.)*

Specific hypothesis three: Laggards will mention, specifically, more personal sources of information than they will mention impersonal
sources of information in regard to innovative ideas and practices.)

While innovators, as predicted by the rural sociologists, relied more on impersonal sources of information than on personal sources of information, thus confirming specific hypothesis two, laggards unexpectedly did the same, rejecting specific hypothesis three. The latter result, which differs from the findings of the rural sociologist, may be due either to a difference in the nature and habits of educators, as compared to farmers; or due to a weakness in the study.

It may be possible to speculate that impersonal sources, as defined in this study and in rural sociological studies, are inherently more a part of an educator's life than their counterparts might be with farmers. Educators probably belong to more professionally oriented groups, all of which have publications which are distributed with membership. In addition, educators by nature of their work, are probably more print-minded than farmers. It is interesting to note in this regard that "professional interest magazine" is the most popular sub-category for both innovators and laggards. The high response in this category may be the result of the phrasing of the interview question, which mentioned journals as a specific possible answer, but it is more probably the result of the fact that most educators belong to magazine publishing professional organizations.

It is also interesting that innovators mentioned a greater total number of personal and impersonal sources than did laggards. While the investigator has no way of knowing to what extent the mentioned sources affect innovation, the higher number of sources mentioned by innovators in both categories may indicate a greater awareness of innovation.
Thus, while impersonal sources of information are more important than personal sources for innovators, this study also indicates that impersonal sources are also more important than personal sources for laggards. Further work needs to be done to determine whether the importance of impersonal sources for laggard educators is a natural outgrowth of their profession.

The popularity of the sub-categories of personal and impersonal sources are of interest. The marked popularity in the personal source category of teachers and administrators, and to a lesser extent supervisors, reflects the dominant effect of the peer group for both innovators and educators, a finding which might warrant attention by educational researchers, and a matter which has concerned rural sociologists in their studies (Copp, Sill and Brown, 1958). The low rate of reference to university persons and representatives of state departments of education may be worth pursuing also, especially for those worthies of both groups who believe they are influential in affecting educators. Of interest also is the relatively high rate of mention by innovators of neighbor/friend and parents of students. Innovators undoubtedly feel a more wide-ranging influence for sources of information than do laggards.

This is true for impersonal sources also. Innovators see as influential a more far-ranging group of categories than do laggards. Even so, it is evident that according to the results of this study, the predominant information sources for educators are professional magazines. Of particular interest is the low rating of what in some circles is the most influential media of our age—television. Whether this is because
educators are print-oriented, or because television is not fulfilling its promise, is left to the reader's conjecture, and hopefully, further study.

**Theory three.** Cosmopolite sources of information are more important than localite sources of information for innovators than for laggards. (Specific hypothesis four: Innovators will mention, specifically, more cosmopolite sources of information than they will mention localite sources of information in regard to innovative ideas and practices. Specific hypothesis five: Laggards will mention, specifically, more localite sources of information than they will mention cosmopolite sources of information in regard to innovative ideas and practices.

While innovators, as expected, did mention more cosmopolite sources of information, thus confirming specific hypothesis four, laggards mentioned almost exactly the same ratio of cosmopolite sources to localite sources as did innovators, thus rejecting specific hypothesis five. However, though fewer in number, innovators mentioned a far greater number of cosmopolite sources than did laggards, indicating to some extent that such sources were more important to them than to laggards.

The findings of this study in regard to this hypothesis were undoubtedly influenced by the fact that the interview inventory was weighted against localite responses. The interviewer, to clarify the question put to the subject, used examples of brief assemblages (annual conferences and institutes) that gave the interviewer a mind set away from what this study considered as "localite sources." Responses were thus weighted in favor of cosmopolite types of meetings.

In spite of this, localite sources were mentioned by both groups,
and were mentioned more frequently by laggards (16%) than by innovators (13%). Unfortunately, the total number of responses in the "localite" sub-category precludes any attempt at making a definitive judgement regarding the relative importance of localite sources for innovators and laggards. For both groups, system meetings was the category that drew most response. Nevertheless, the fact that laggards mentioned localite sources more frequently than did innovators may be an indication that they consider such sources more important than do innovators, and should be pursued in further studies.

Of note in regard to responses to the category of cosmopolite sources is the high incidence in both innovative and laggard groups of "national meeting in professional specialty" as a source of information. This can be partially accounted for by the fact that the subjects for the original Kettering study were drawn from lists of persons attending this type of meeting. However, the same was true of lists of those attending NDEA institutes, yet innovators see this as a much more important source (48%) than do laggards (12%). State meetings, a professional specialty the lists of which were not used in the original study, are also prominent sources of information for both groups. Innovators see university course work as a much more important information source (46%) than do laggards (23%). This, coupled with the incidence of NDEA institutes as sources of information, lends evidence to the theory of rural sociologists (Copp, 1956) that innovators utilize those sources that require greater effort.

**Theory four.** Innovators utilize a greater number of information sources than do laggards. (Specific hypothesis six: Innovators will
mention a greater number of information sources in regard to innovative ideas and practices than will laggards.)

Innovators mentioned a higher total number of sources of information and a higher average number of information sources than did laggards, thus confirming the hypothesis held by the rural sociologists. A breakdown of the population by role finds innovators mentioning more sources than laggards in every role category with innovative teacher-educators mentioning the most sources per individual, followed by innovative administrators, laggard administrators, innovative teachers, laggard teacher educators, and laggard teachers (see Table 22). There is undoubtedly a positive connection between role and information sources for educators, just as there is a positive connection between degree of innovativeness and information sources. This connection may be traced to the fact that the active attitude which causes an individual to rise in his profession also causes him to seek out sources of new ideas, or it may be that those more highly placed in the profession have by virtue of their role a greater accessibility to information sources.

Summary, Conclusions, and Recommendations

On the basis of this study, innovative educators would appear to be younger in age than laggard educators, and would seem to utilize a greater number of information sources than do laggard educators. In addition, innovative educators find impersonal sources of information of more importance to them than personal sources of information, and they utilize localite sources of information to a lesser extent than they utilize cosmopolite sources of information.
While the above findings are those predicted by the research done in rural sociology, educators failed to behave as predicted in two regards. Although laggard educators differ markedly from their innovative colleagues in respect to age and total number of sources used, they are similar to their innovative colleagues in that they mention impersonal sources of information, and utilize localite sources of information to a lesser extent than cosmopolite sources. It should be pointed out, however, that overall, laggard educators mention cosmopolite sources less than do innovators, thus perhaps hinting at a confirmation of the theory of the rural sociologists that innovators tend to be more cosmopolite than laggards.

The study also provides some interesting perspective avenues of study in regard to specific sources of information mentioned by both innovators and laggards, both of which groups tend to hold the same information sources in the highest regard. The fact that publications of special professional interest seemed most influential in the minds of both groups as sources of information; that fellow professionals were so often important as sources of information for both groups; that outside or cosmopolite influences such as commercial representatives, outside speakers, personal visitations and university persons were not mentioned frequently by either group; all these may indicate a reason for the slowness of the change process in education, in that it hints at a parochial, in-house influence in respect to the forces of change. While this is not surprising in regard to the classroom teacher, who is often doomed to spend his professional life within the four walls of his assigned teaching station without benefit of a travel expense budget,
it does raise serious questions concerning the influence of such organizations as schools of education and commercial enterprises to effect change in education under present conditions. If one additionally considers the fact that the educators chosen for this study were picked from lists of "cosmopolite" sources, such as national meetings and institutes, and were thus prone to mention such meetings as sources of information, one can only imagine that educators not chosen from such lists would turn out to be even more parochial in regard to the information sources they might mention.

Undoubtedly the orientation of educators to reading, and their membership in professional groups which publish magazines, caused the subjects of this study, particularly the laggard group, to cite special interest magazines as important sources of information. In addition, because educators so often find themselves in such close proximity to their fellow professionals, often working for years in the same building, it is not surprising that they should mention fellow educators as important sources of information.

Of additional interest is the apparent importance of the educator's specific professional field as a vehicle of interest. Meetings and institutes mentioned most frequently were those of a specific nature, either having to do with the discipline or area taught by the subject, or having to do with a subject's professional position, such as meetings of administrators, or meetings of principals.

Recommendations

The basis for recommendations for further work in the area of this study must lie in the knowledge that the education profession must know
more about the characteristics of its members and the process of change if it is to realize its full potential. To ignore and leave unexamined the voluminous work done by the rural sociologists which may provide theories as launching points for educational researchers would be wasteful of both time and energy, particularly so in the light of the sophistication and amount of research that has been done regarding the adoption of new ideas and practices by the rural sociologists. Educators must also build the same sort of research tradition regarding the processes of both group and individual change, and should use as a basis the work done in the discipline of rural sociology, as well as other disciplines.

The rural sociologists can lay claim to several major accomplishments which in turn deserve replication in the field of education. Some of this body of knowledge constituted a basis for this study. Rural sociologists, though years ahead of educational researchers in this field, also point to serious deficiencies or unexamined areas in their work, all of which are reflected in this study.

Further work based upon this study should take the form of short, limited research problems to investigate some of the questions raised by this study. Such research problems might include:

1. An investigation to determine whether impersonal sources are more important than personal sources to the laggard educator, and why this finding is different from that of the rural sociologists.

2. An investigation to determine whether cosmopolite sources are more important than localite sources to laggard educators, and why this finding is different from that of the rural sociologists.

3. An investigation that would test the hypotheses of this study using information sources that were not interrelated, or which would take such interrelatedness into account.
4. An investigation which would link specific innovative behaviors to specific information sources.

5. An investigation that would test the hypotheses of this study after determining the population of innovators and laggards, through observed performance rather than through verbalizations.

6. A series of investigations that would determine the effectiveness of the sub-categories of information sources used in this study (i.e., teachers, professional interest magazines, university persons, television, etc.) and why such sub-categories were or were not effective as information sources. It would be useful to do such a study using the adopter and adoption categories developed by the rural sociologists (see below).

More generally, additional studies in education on the adoption of innovations should build upon the achievements of the rural sociologists. Rural sociologists generally mention such achievements as including the following:

1. The introduction and use of the stage concept of diffusion, particularly in regard to the function of particular information sources. The stage concept of diffusion developed by the rural sociologists is the five stage awareness, interest, evaluation, trial and adoption process. This concept should be tested in regard to education, and if found valid, further studies in the field of education should take it into account.

2. The definition of an adoption pattern, categorizing adopters on a more sophisticated and meaningful scale than the gross division used in the present study of innovator and laggard. Further studies might utilize previously tested adopter scales such as Gross' four stage ranking of earliest acceptors, relatively early acceptors, relatively late acceptors, and latest acceptors; or the more refined scale developed by Rogers which includes innovators, early adopters, early majority, late majority, and laggards. Such adopter scales should be tested in regard to their usefulness in educational studies, and incorporated into educational studies on the process of innovation.

3. The rural sociologists have developed a large body of information in regard to the role of information
sources relative to the adoption process, of which this study was an offshoot. Their investigations concerning media and special functionaries needs investigation by educators. The finding in this study that television was hardly mentioned as an information source by educators is of interest, and warrants further investigation to determine the reasons for such a development. In addition, the conclusion that teachers, administrators, and supervisors were frequently mentioned as sources of information might naturally lead to investigation regarding the specific effect of special functionaries in the innovative process. No less important are the implications that may be inferred from the fact that commercial representatives and university persons were seldom mentioned as sources of information by the subjects of this study.

4. The rural sociologists have also developed theories regarding the function of social groups and status factors in respect to the innovative process. This has probably been the area of greatest concern to educators in recent years, and has led to a good deal of examination of the role of the administrator in the change process. More attention needs to be paid to the conclusions of the rural sociologists in these areas, and further work needs to be done in respect to teachers, as well as to other members of the group which comprises educators. It may be theorized that teachers, for example, under present conditions really have the final say in the implementation of an innovation, and the increasing power of teacher's unions may make teachers even more influential in the innovative process. In addition, the present study uncovers evidence that teachers cite fellow teachers, not administrators, as important sources of information. The validity of this should be investigated, as its implications for the innovative process, and indeed for the very structure of the education profession, are far-ranging.

Rogers (1962, chapter 11) lists fifty-two further generalizations regarding the diffusion of innovations that have come from the work of the rural sociologists, any of which might well be of concern to educators studying the change process, and four of which provided a basis for the present study. These generalizations are invaluable for any educator who wishes to begin a study of the innovative process as it relates to
education, in that they focus the work done to date in the discipline of rural sociology.

Of equal value are some of the goals which the rural sociologists have yet to realize. These include the need to standardize the method and procedure of research on innovation in order to make results of such research more communicable; the necessity to test data derived from "after the fact" studies by means of research carried out under experimental conditions; the necessity to undertake research to determine "why" people innovate in the ways they do, or fail to innovate; and a need to bring about an interrelatedness of several academic disciplines in order to assault the complex problem of why and how people change, which was a function of this study.

In a rapidly changing world, the profession of education needs practicing members who can deal effectively with change. To do this, educators should develop a body of knowledge which could be employed in a rational way in the training, employment, and in-service functions of the profession. If, for example, innovators are younger than laggards, then age ought to be a factor, along with others, in staffing schools. If innovators are more cosmopolite, then decisions should be taken to expand the horizons of teachers and administrators; subscription to professional magazines might be made a contractual obligation; travel budgets for staffs might be increased; and sources of information not presently employed by laggards might be used for remedial purposes. It is hoped that this study, and others like it, will lead to an illumination of the matter of the process of change, and help education to meet the challenges of the present and the future efficiently and decisively.
Appendix A: Diffusion Agents Selected for Study

<table>
<thead>
<tr>
<th>PUBLICATIONS</th>
<th>BRIEF ASSEMBLAGES</th>
<th>EXTENDED ASSEMBLAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary English</td>
<td>ASCD Annual Meeting</td>
<td>NDEA Summer Institute (University of Virginia)</td>
</tr>
<tr>
<td>The National Elementary Principal</td>
<td>NAESP Annual Meeting</td>
<td>NDEA Summer Institute (Middlebury College)</td>
</tr>
<tr>
<td>School Science and Mathematics</td>
<td>ACEI Annual Meeting</td>
<td>NDEA Summer Institute (Howard University)</td>
</tr>
<tr>
<td>The Instructor</td>
<td>IRA Annual Meeting</td>
<td>NDEA Summer Institute (Albright College)</td>
</tr>
<tr>
<td>The Saturday Review</td>
<td>ASCD Regional Institute (Denver)</td>
<td>NDEA Academic Year Institute (University of Georgia)</td>
</tr>
<tr>
<td></td>
<td>ASCD Regional Institute (Detroit)</td>
<td>NDEA Academic Year Institute (University of Buffalo)</td>
</tr>
<tr>
<td></td>
<td>ASCD Regional Institute (Minneapolis)</td>
<td>NDEA Academic Year Institute (Bank Street College)</td>
</tr>
<tr>
<td></td>
<td>ASCD Regional Institute (Washington, D.C.)</td>
<td>NDEA Academic Year Institute (New York University)</td>
</tr>
</tbody>
</table>
## 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 sub sample.
# Appendix C: 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) Bachelors degree
     - (c) Less than 30 hours of graduate study
     - (d) Masters degree
     - (e) Less than 90 hours of graduate study
     - (f) Doctoral degree

6. My purpose in visiting you is to inquire about your experiences 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 experiences 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.

Do you have any questions?

Before we begin, I would like to make two suggestions concerning the interview. First, don't 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 can't 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 ___________________________?
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 in your work.

(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 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 usefullness 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 ______________.
How did you become aware of___________________________.

(Interviewer: Wait for a response. If none if forthcoming suggest readings, people, meetings, conferences, etc.. Get specific responses.)
INNOVATIONS OF INTEREST BUT NOT ADOPTED

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 someday?

(Interviewer: Follow same directions as in d.)

g. Explain why you haven't 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 (1 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 Saturday Review?
   a. Yes
   b. No
Appendix D

<table>
<thead>
<tr>
<th>NAME</th>
<th>NO.</th>
<th>TAPE#</th>
<th>FOOTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE OF POSITION</td>
<td>PLACE</td>
<td>INN</td>
<td>NON</td>
</tr>
<tr>
<td>#1 Experience Tchr</td>
<td>super or admin</td>
<td>tchr</td>
<td>educ</td>
</tr>
</tbody>
</table>

### PERSONAL SOURCES

- Teachers 11111
- Administrators 11111
- Supervisor 11111
- University person 11111
- Commercial Represent 11111
- Outside speaker 11111
- Rep from State Ed Dept 11111
- Family 11111
- Neighbor/Friend 11111
- Parents of Students 11111
- Students 11111
- Other 11111

### IMPERSONAL SOURCES

- Magazines
  - Prof Interest 11111
  - General prof 11111
  - General 11111
  - Not specified 11111
- Books 11111
- Newspapers 11111
- Television 11111
- Other 11111

### LOCALITE SOURCES

- Department Meetings 11111
- Faculty meetings 11111
- System meetings 11111
- Other 11111

### COSMOPOLITE SOURCES

- University course 11111
- Personal visitation 11111
- National Meeting
  - professional specialty 11111
  - professional general 11111
  - commercial 11111
- Institute/workshop
  - professional specialty 11111
  - professional general 11111
  - commercial 11111
  - Other 11111

### NOTES:

- Total Sources
BIBLIOGRAPHY


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


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.


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.


A STUDY OF THE AGE AND SELECTED SOURCES OF INFORMATION OF INNOVATIVE AND LAGGARD EDUCATORS

(May, 1970)

Mark G. Gulesian, B. A., Tufts University
M. Ed., University of Massachusetts
Ed. D., University of Massachusetts
Directed by: Dr. Emma Cappelluzzo

Fifty innovative and fifty laggard educators were evaluated regarding their age and their sources of information, in an attempt to test the validity for the field of education of certain theories of rural sociologists. General objectives of the study were to determine:

(1) whether innovative educators are generally younger than laggard educators, (2) whether impersonal sources of information are more important than personal sources of information for innovators than for laggard educators, (3) whether cosmopolite sources are more important than localite sources of information for innovative educators than for laggard educators and (4) whether innovative educators utilize a greater number of information sources than do laggard educators.

Methodology. 836 participants in a study conducted for the Kettering Foundation were analyzed to determine the fifty most innovative and the fifty most laggard. Personal sound taped interviews of these 100 educators were then analyzed in regard to data concerning age and information sources to determine the validity of the following hypothesis: (1) the authentic average of innovative educators is less than the arithmetic average of the age of laggard educators, (2) innovative educators will mention, specifically, a greater number of impersonal sources of information than they will mention personal sources of information, (3) laggard educators will mention, specifically, more personal sources of information than they will mention.
impersonal sources of information, (4) innovative educators will mention, specifically, more cosmopolite sources of information than they will mention localite sources of information, (5) laggard educators will mention, specifically, more localite sources of information than they will mention cosmopolite sources of information and (6) innovative educators will mention, specifically, a greater number of information sources than will laggard educators.

Results. Four of the hypotheses were confirmed. Innovators were younger than laggards, used more impersonal and cosmopolite sources than personal and localite sources, and mention a greater number of sources of information than did laggards, thus confirming theories developed by the rural sociologists. Laggards, however, also used more impersonal and cosmopolite sources than personal and localite sources, although laggards mentioned impersonal and cosmopolite sources to a less degree than did innovators. Information was generated concerning the relative importance of specific information sources within the larger categories of personal, impersonal, localite and cosmopolite sources of information.