AN ABSTRACT OF THE THESIS OF

JERRY W. HUBER (Name of Student) for the degree DOCTOR OF PHILOSOPHY (Degree)

in EDUCATION (Major) presented on June 7, 1973 (Date)

Title: PROXIMITY THEORY AND INFORMATION-SYSTEM ACQUISITION TECHNIQUES

Abstract approved: Redacted for Privacy

Dr. Sylvia Lee

STATEMENT OF THE PROBLEM

Document-based educational information systems require systematic acquisition efforts that must be conscientiously undertaken to build an information system and to keep it current. These acquisition efforts can be influenced by several variables. The major thrust of this research was to investigate one of these variables, namely proximity. Simply stated, "What relationships exist between proximal distance and the effectiveness of acquisition techniques?"

DEFINITION

Proximity - nearness in time, place, and context. Related to familiarity, similarity, and recency. Cognitive proximity is the perception of nearness in time, place, and context.

HYPOTHESIS

The results of this study do not substantiate accepting the null hypothesis:

There is no significant difference in the: (1) number of VI/CM received, (2) their relative acceptability (as measured by a panel), or the (3) elapsed time for receipt of the VI/CM from randomly selected samples of respondents in the letter, phone, and personal visitation groups.

METHOD

This writer collected vocational instructional/curriculum materials (VI/CM) pertaining to a national curriculum survey project by visiting one randomly selected group of 49 resource people, telephoning another randomly selected group of 72 people, and mailing letters to a third group of 91 randomly selected people. The 121 documents that were collected were then reviewed by five judges to determine their applicability to the project goals.

Assessment of the effectiveness of individual acquisition techniques (visit, phone, or letter) was based on:

1. The actual number of documents collected by that particular technique.

2. The number of days that elapsed between the actual request and the receipt of the VI/CM.

3. The relative "applicability" of the VI/CM as rated by the panel of reviewers in terms of the stated project goals (outlined in Appendix C).

FINDINGS

1. Study results indicate that the visitation technique is by far the most effective means of acquiring VI/CM.

2. The mail technique is of a one-way communication type. It is the most economical for large numbers of sources, but it was also the least acceptable of the three techniques in terms of its yield.

3. The telephone technique allows for two-way communication. It has the capability of developing trust, cooperation, and cognitive proximity. However, as is the case with the mail technique, the phone technique requires that the resource person initiate some action after the conversation; i.e. he must gather the desired VI/CM and mail them. The person may or may not follow through with this action.

4. The visitation technique was demonstrated to be the most efficient technique used in this study. The two-way verbal and visual communication that characterizes visitation, together with the physical proximity of the surveyor to the resource person, allowed for the development of unit relationships which seemingly resulted in trust or cooperation.

CONCLUSION

This study is sufficiently suggestive to warrant belief in a positive relationship between acquisition-system effectiveness and the

formation of cognitive proximity between the resource person and the surveyor.

Proximity Theory and Information-System Acquisition Techniques

by

Jerry W. Huber

A THESIS

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Philosophy

June 1974

APPROVED:

Redacted for Privacy

Professor of Education in charge of major

Redacted for Privacy

Dean of School of Education

Redacted for Privacy

Dean of Graduate School

Date thesis is presented June 7, 1973

Typed by Joan Sokolowski for Jerry W. Huber

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PROXIMITY THEORY AND INFORMATION-SYSTEM ACQUISITION TECHNIQUES

CHAPTER I

INTRODUCTION

> At the rate at which knowledge is growing, by the time a child born today graduates from college, the amount of knowledge in the world will be four times as great. By the time that child is fifty years old, it will be thirty-two times as great, and 97 percent of everything known in the world will have been learned since the time he was born (Hillard, 1970).

In education, as in other fields, wave after wave of new information is thrust upon us. The result of this bombardment is an accelerated replacement of old knowledge with new, faster intellectual data-processing, and the disquieting realization of the impermanence of knowledge itself.

Impermanence of knowledge has had an effect on the classic knowledge container, the book. Books have in effect become transient. With the expansion of knowledge accelerating, each book contains a smaller and smaller amount of all that is known (Toffler, 1970). Such an increase in the production of books, and the consequential decrease in their assumed longevity, gives rise to the need for more rapid and systematic tracking of knowledge relevant to identified topical areas. It is to this need that information systems address themselves. They attempt to identify, acquire, classify, and disseminate knowledge pertinent to their defined topical area. Efforts to acquire vocational instructional/curriculum materials (VI/CM) by several organizations this writer has been connected with have identified the need for this study.

THE PROBLEM

Educational information systems require systematic initial and continual acquisition efforts that must be conscientiously undertaken to build an information system and to keep it current. Acquisition systems can be influenced by several variables. It was the intent of this study to investigate one of these variables, namely proximity. Simply stated, "What relationships exist between the proximal (or cognitive proximal) distance and the effectiveness of acquisition techniques used on randomly selected information sources?" While it is recognized that other variables may influence the yield of certain acquisition techniques, the proximity factor was intuitively determined to be the most influential to the potential yield. The purpose of this study was to determine if empirical data will indicate a positive, negative, or inconclusive relationship.

Background

Educational instructional/curriculum materials and particularly vocational instructional/curriculum materials (VI/CM) have not been excluded from the knowledge explosion. The recent emphasis on individualized instruction, new text formats, learning objectives, individually prescribed instruction, and programmed instruction has significantly contributed to the increased amount of VI/CM. Also, the continued development of traditional media such as textbooks, workbooks, references, study guides, lesson plans, correspondence courses, motion pictures, film loops, transparencies, television units, computer assisted instruction programs, dial-access information retrieval

systems, and, of course, teacher prepared materials have all added to the pool of resource materials.

Ordinary means of identifying and procuring these educational resources are becoming difficult. The difficulty stems from the inability of an individual teacher, a school, or even a state department of education to keep track of the flood of new VI/CM that are being, or have been, generated.

Efforts to identify and procure the increasing amounts of materials are uncovering more and more new sources. These new VI/CM generating sources are becoming more specific as to their area of concentration, are generally disseminating their material to a smaller population, and are geographically dispersed. As these VI/CM sources increase in number and increase their specialization, it is becoming more difficult, more time consuming, and more expensive to locate and obtain their materials (National Conference for the Study of Curriculum Development in Vocational and Technical Education, 1969).

It is evident that financial income to educational institutions is not keeping pace with increasing costs. Educational budget increases, operating budgets, and bond issues are being voted down with increasing regularity. One area of possible savings for such schools is the acquisition of curriculum materials. Immense stores of economical VI/CM are available to schools from federal and state agencies, private and non-profit associations, professional groups, and other schools. Many of these non-commercial groups generate VI/CM for the training of their own personnel. The majority of such material is on the secondary and post-secondary level. Even though these materials may not be specifically

written for traditional vocational education in the classroom, they do represent a potentially significant instructional source (Northwest Regional Educational Laboratory, 1970B). Many of these materials can be implemented into the classroom with minor revisions. Some materials can be adapted to a school's particular needs while other materials are particularly well suited to reference use.

The process of acquiring large quantities of VI/CM necessitates the formation of a systematic acquisition process. Although it may be possible to collect large quantities of VI/CM by serendipitious discovery, those VI/CM will most likely not be in accordance with the user's expectations. Hence, the user will assume that there are no such VI/CM available. In reality, the user may not have formulated his search statement properly, undertaken a systematic search effort, or attempted to identify all of the appropriate VI/CM sources.

Schools are centralizing their modern educational resources. Local resource centers are coming into being across the nation. They are evolving from changes in society and they are called by various names, such as instructional centers, media centers, learning resource centers. Regardless of their label, they are all information systems. Many of these centers are located in central locations, such as school district offices (Morphet and Jesser, 1968). The same concept applies to a university or to a regional information center that might serve several states. Such a center may produce resource materials that would augment the products of state and local centers. More importantly, the center should also serve as a "switching point" between information sources and potential users. This requires that the information center (i.e.

system) maintain access to other systems, including national information systems.

The formation of any such system to a large degree constitutes a communicating system with the communication requirement being the major element. The system requires information, but that information is at remote locations, so the problem becomes one of "how to get it." How-to-get-it is the acquisition function of the information system. An educational user (not unlike other users) begins his information acquisition effort by searching his memory for clues. He may also ask his colleagues or look through his personal collection of documents. As a last resort the normal educational user will go to his local library (i.e. school library or community library) hoping to find his information. However, some of the best documents for solving educational problems are often not owned by a library. This difficulty must always be reckoned with, even in libraries with the greatest collections of educational documents. It becomes particularly troublesome when the history of a particular subject area must be thoroughly investigated. The needed documents may be out of print. There may be a small number of copies scattered through collections known only to a few experts. The documents may be in manuscript form or records of which there is only a single copy. The difficulty is universal when very recent books, expecially those just off the press or about to come off, are

needed. Nor is this difficulty restricted to users in the United States.[1]

The complexity of the acquisition task for a particular user can range from the simple act of occasionally writing to a book publisher for a single item or to an elaborate process of keeping tabs on all relevant material being produced on a continual basis. It would be futile for an individual user to attempt the latter for large information systems are attempting to do that same thing. One such system is the Educational Resources Information Center, known as ERIC. It is approximately eight years old and has one sub-system devoted to vocational, technical, and career educational research and instructional materials. The V-T Clearinghouse, as it is know, is often too complicated for most educators to use.[2] It also has a rather lengthy turnaround time of three to nine months between the receipt of a document and the announcement of that document's availability in their various listings. These and other problems have led the more ambitious user groups to conduct their own searches and amass their own collection while utilizing ERIC as one source.

It should be noted that the ERIC V-T Clearinghouse (and possibly

---

[1]The Farmington Plan is one example of an acquisition experiment dealing with specialized information. In this case it is by voluntary agreement among foreign and American research libraries. Its objective is to obtain at least one copy of each new foreign book of interest to a U. S. research worker, list the book, and make it available through participating libraries and related groups. The experiment began in 1948 and has since expanded (Gibb, 1960).

[2]The ERIC V-T Clearinghouse has just released a training package for potential users. It is entitled "ERIC Instructional Package for Vocational Educators," V-T 018 425, The Center for Vocational Technical Education, Columbus, Ohio, 1973, by D. Miller and G. Beasley.

the other eighteen Clearinghouses) relies primarily upon unsolicited documents to keep their collection current. Until the Summer of 1972 they had undertaken relatively few concerted acquisition efforts wherein documents relating to a certain topic are actively solicited. This is understandable because ordinary means of identifying and procuring these resources are becoming more and more difficult. The difficulty stems from the inability of an individual school, state, or other group to keep track of the flood of new VI/CM that has been, and is being, generated. The following statements clearly illustrate the situation.

> There is a wealth of curriculum material in existence about which most vocational-technical teachers have little or no knowledge. This makes the problem of dissemination of information about curriculum material as important as that of the actual development. Immediate steps should be taken to collect, classify, and evaluate all curriculum materials pertinent to vocational-technical education and to disseminate this information to teachers. The accomplishment of this large task may require contractual agreements with several regional or State agencies. Until these steps are taken, it will be impossible to determine the current status of vocational-technical education and to identify the weak areas (National Conference for the Study of Curriculum Development in Vocational-Technical Education, 1969, page 12).

Within the sphere of problematic areas concerning VI/CM, vocational instructors are confronted with the following set of difficulties:

1. A great increase in the sheer number of available items of instructional material for our education courses from among which teachers must choose. There are more charts, more workbooks, more laboratory materials--more of everything than before in the traditional forms of presentation of instructional materials.

2. An increase in the number of new media by which instruction may be presented. Curriculum materials now available in the form of TV, motion pictures, teaching machines, programmed booklets, slides, filmstrips, and sound tapes. Thus there are on one hand, more materials presented by conventional media (books, workbooks, laboratory materials) and, on the other hand, an increasing number of items available in the form of new media.

3. A greater need for individualized instruction in the face of growing numbers of children to be educated. The range of ability among students becomes greater under a philosophy of education for all, in which attempts are made to discourage those of lesser ability from dropping out of school. This trend, in turn, calls for even more flexible curricula to meet the needs of all kinds of students.

4. A custom by which commercial organizations such as publishers and film makers determine what items are to be made available. Teachers and educational specialists can only choose from among available items the items they will use; they cannot specify the items which will be available (Briggs, et al., 1967, pages 1-3).

The U. S. Congress has recognized the need for making instructional materials as freely available as possible. They have made provisions for surveying federal sources of VI/CM by two separate pieces of federal legislation. Specifically, the 1968 Amendments to the Vocational Education Act of 1963, Title I, Part I, Section 191 (D) states that funds shall be appropriated by the Commissioner of Education "to survey curriculum materials produced by other agencies of the government including the Department of Defense." (Public Law 90-576, 1968).

The other provision for surveying federal sources of VI/CM was made possible by the 1968 Freedom of Information Act. Although this act was not specifically legislated for the purpose of making federally produced VI/CM available, it did encourage cooperation between federal agencies and others. This act states that:

> Any person should have clear access to agency records without having to state a reason for wanting the information and that the burden of proving withholding to be necessary is placed on the Government Agency (Public Law 89-487, 1968).

Both of these pieces of legislation have made it possible to identify, collect, classify, and list federally produced VI/CM. Information systems desiring such information now have the potential of

acquiring it. Federal sources are but one pool of available VI/CM. There are also commercial sources, educational research and development groups, professional associations, state and local groups, plus other information systems. This study is concerned with the process of acquiring documents from these and individual sources.

Statement of the Problem Situation

The establishment of a new information system requires the identification and acquisition of usable information for the potential user group. The acquisition process involves several factors, depending upon the size of the intended user group, the types and variety of information desired, and the resources available. Once preliminary guidelines have been established, the acquisition effort centers upon identifying and acquiring the necessary documents. It should be noted that an information acquisition system will not be a one-shot effort. It will rather be an on-going effort as long as it is desired that the information system remain current and up to date. If it is desired that the information system alter its services by providing information to a wider variety of users, or to another group of users with a different interest, then a new or expanded acquisition effort will be in order.

There are many acquisition techniques available to the surveyor concerned with collecting VI/CM. By necessity, his techniques will vary from those of the surveyor interested in obtaining data on people's opinions, attitudes, or other expressions of feelings. The "opinion surveyor" can use the time-tested techniques such as

questionnaires, opinion polls, and observations. However, what techniques are available to the VI/CM surveyor? He is after physical objects such as documents, and quite often he is unable to purchase them, assuming they are for sale. The acquisition effort involves contacting and attempting to obtain VI/CM from a large number of people and organizational groups. The obvious approach is to initiate personal contact, that is, to meet personally the person or group (agency member), establish personal interaction (or cognitive proximity, as discussed later), then seek the desired VI/CM through verbal and nonverbal communication. This technique would conceivably be most effective when the number of participants is rather low and they are located nearby. Close proximity and neighborliness help the formation of acquaintance and communication. One frequently accepted notion is that propinquity, or proximity, has a strong influence on one's friendship choices. Numerous studies have demonstrated the relationship of proximity and friendship choices (these will be discussed in Chapter II). In general, the literature supports the hypothesis (informally stated) that there is an inverse proportional correlation when comparing physical distance between two people and their attraction to one another. Consequently, the basic hypothesis of this study is (stated in null form):

> There will be no significant difference in the: (1) number of VI/CM received, (2) their relative acceptability (as measured by a panel), or the (3) elapsed time for receipt of the VI/CM from randomly selected samples of respondents in the letter, phone, and personal visitation groups.

Accordingly, this study has two objectives:

1. To determine empirically if one acquisition technique will have a significantly higher relative yield than the other two techniques.

2. To determine if there is a relationship between the degree of proximity inherent in a technique and the yield of that technique.

DEFINITION OF TERMS

It is useful at this point to elaborate upon the term "information system" since its definition and meaning are so essential to a complete understanding of this study. Other terms used in this report follow.

There is a variety of information systems in current use or at some stage of development, the most common being the mass news media. This information system is for the express purpose of acquiring and disseminating news (i.e., information).

There are also other, more specialized and less elaborate information systems, such as the ERIC system described above, the MEDLARS system for medical diagnostic and research information, and the National Technical Information Service for advanced engineering and scientific information. Large businesses have established information systems for purposes of providing immediate feedback on the market outlook, productions, sales, etc. Such systems rely heavily upon computers for acquiring, synthesizing, analyzing, and disseminating data. These "data-based" information systems differ from other information systems in that the data (usually in the form of numbers, symbols, or graphs) must be translated" before they become information that others may use.

This study acknowledges the presence of these and other various forms of information systems which may be in use. However, the predominant concern of this study is with "document-based" information systems. Document-based information systems may identify, acquire, synthesize, analyze and disseminate such "documents" as books, manuscripts, papers, pamphlets, other printed matter, and even some non-print items as films, audio tapes, etc. Document-based information systems supplant the efforts of traditional libraries by actively providing services to individual users and user groups having particular subject-matter requirements. Such systems serve more highly specialized needs than do traditional libraries. Consequently, the range of subject matter with which this type of information system deals tends to be more restricted and more current than that covered by the traditional library. It should be noted that even the traditional library represents a type of information system.

Throughout the remainder of this report the term "information system" will refer to document-based information systems for educational subject matter. Deviations from this definition will be noted.

The following terms and phrases, which occur quite frequently in this report, are defined for purposes of standardizing their use. Other terms or phrases used in the report are considered to be self-explanatory.

Acquisition system - a series of actions and methodologies designed to procure, solicit, purchase, or otherwise obtain materials (VI/CM in the case of this study) for a document-based information system.

Proximity - nearness in time, place, and context. Related to familiarity, similarity, and recency. Cognitive proximity is the perception of nearness in time, place, and context.

Vocational Instructional/Curriculum Materials (VI/CM) - may consist of documented processes describing an organized sequence of experiences and offerings planned for the purpose of facilitating occupational choices, preparing for employment, or making adequate preparation for a change in employment. An even broader meaning in this study is taken to mean products in ideational, verbal, or symbolic form such as instructions, curricula, courses, training programs, plans, or even concepts. Typically, these software products are contained in tangible packages, such as books, brochures, manuals, card decks, films, audio tapes, slides, video-tapes, etc.

ASSUMPTIONS

1. There is one variable which remains outside of the researcher's rigid control. That variable is the reaction that a surveyor's personal characteristics, appearance, etc. have upon the respondents. Therefore, it is necessary to assume that whatever reaction was elicited, that reaction was normally distributed throughout each of the three sample groups in this study.

2. It is also assumed that the respondents were typical of the group at large. More specifically, unique personal characteristics possessed by each of the 212 respondents are assumed to be representative of the total VI/CM generating population.

LIMITATIONS

This study was conducted in the states of Washington and Oregon. It does not necessarily mean that the results would be the same in another region of the United States.

Certain barriers to communication may have been present in this study which are outlined below.

First, status discrepancy and ambiguity between the interviewer and respondent may be one such barrier to effective communication. The respondent may have felt that acting in such a role would endanger his status, particularly if he noted a status discrepancy between himself and the interviewer, or if his status relative to the other person is ambiguous (Triandis, 1960).

Second, the interviewer and the respondent may not speak the same language, figuratively or literally. For example, the respondent's language may be excessively technical or loaded with jargon and private meanings. The possibility exists that the interviewer and the respondent are simply not communicating at the same level; the respondent may be giving a solution before the interviewer has articulated the problem, or the respondent may not be prepared to offer a solution when the interviewer is asking for one. Close proximity allows one to observe this condition and to re-explain the intent. The mail technique, however, allows no such opportunity for clarification due to lack of proximity. Thus, the potential for misrepresentation or misunderstanding is thought to be greatly increased.

A third barrier to effective communication may have been that of role perception and definition (Hastorf, Schneider, and Poletra, 1970).

To be able to act as a resource person to the interviewer, the respondent must be able to perceive himself as filling a "resource" role. He must also be able to define his role in these terms ("Why is he asking me for help; how can I help him; and why should I help him?").

The communication process is influenced by the above interpersonal variables. Additionally, there are individual personal characteristics which may or may not affect communication depending upon the degree of their perceived severity. They are the perceived credibility of the interviewer, his expertise, his attraction to the respondent, the power of the interviewer over the respondent, and the resources that the sender has that the receiver desires (Hall, 1966).

These limitations are part and parcel of this study. It is contended that such limitations will be allowed greater latitude to influence the results if a mail technique is used solely. On the other hand, the visitation technique allows the opportunity to stop, or reduce the severity of such influences, thereby achieving the desired results. This is best achieved by being in close physical and cognitive proximity to the respondent.

Since one single interviewer was used with all 212 respondents, it can be assumed that any unique personal characteristics which he may possess would be consistent for the five-week interview period; thereby, having a uniform and self-negating influence on the study results.

The following chapter will review the written evidence related to this study.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to examine the currently available literature related to proximity theory and its application to information-acquisition techniques. It should be borne in mind that proximity theory and information systems are concerned with the varied and complex characteristics of human personality and interaction. Thus, in this quest for published research many different fields were tapped, ranging from agriculture through mathematics to psychology and information science.

This chapter is divided into several parts; each has as its purpose the description of a unique application, or area of possible influence, for proximity theory. Each part also contains an examination of the relationship of proximity to that particular characteristic under consideration at the time.

The major purpose of this total study was to examine the viability and effectiveness of three information acquisition techniques and the relationship the proximity theory may have with each. The review of literature was directed toward answering the following questions:

1. Is there evidence to substantiate the relationship of the proximity theory to the three acquisition techniques?

2. Have related or equivalent studies previously been conducted using this, or similar approaches?

The literature summarized and the excerpts included selected for their value in clarifying the original theori research for the present study.

PROXIMITY

There is a number of techniques available to the researcher concerned with collecting data regarding people's attitudes, opinions, and other expressions of feelings. Questionnaires, opinion polls through the mass media, and observations are but a few examples. However, what techniques are available to a research group interested in obtaining contributions of physical objects from a large number of people and organizational groups? The physical objects under consideration for this study are contributions of vocational instructional/curriculum materials. One obvious approach to obtaining these desired contributions of physical objects is through an exchange of verbal dialogue. This technique is most efficient when the number of individuals is rather low and they are located nearby. It seems that the close proximity and neighborliness of individuals helps the formation of acquaintance and communication. There is a frequently accepted notion that proximity, or propinquity, has strong influence on individuals' friendship choices. More specifically, other things being equal, the closer two persons are located, the more likely it is that they will be attracted to each other (Berscheid and Walster, 1969) and that more effective "unit relationships" may develop (Heider, 1958).

Modern research on proximity began in the late 1940's with the Gestalt School and its penchant for observable phenomena. The concept

dealt mainly with the observable patterns associated with the interaction of two or more individuals. More recent theories of proximity deal with individual personal characteristics as they are related to that particular person's "personal distance" (Meisels and Dosey, 1971). Their studies tend to control the distance between people and analyze the effects of individual personal characteristics.

This study attempted to build from the foundation concept (proximity) and relate it to interview and solicitation effectiveness as measured by actual observable-discriminatory response to the request stimulus. The concept considered here was that personal characteristics are important, but physical and cognitive proximity must be evident before these variables are allowed to have significant and relatively consistent influence.

The first principle of the Gestalt laws of perception is proximity (Deese, 1964). In the psychological sense, proximity is described as a description of things in sensory experience. Things located together or close to one another in the visual or auditory field tend to be grouped together by the observer. Visual stimuli of the same relative form may be grouped according to their location, their frequency of occurrence, or both. Auditory proximity takes the form of a temporal grouping. Regular repetitive sounds can be grouped into rythmic patterns on the basis of temporal separation.

Havelock (1971), on the other hand, has defined proximity as a "nearness in time, place, context, familiarity, similarity, and recency." This definition is obviously more comprehensive in scope than that described by Deese.

VARIED APPLICATIONS OF PROXIMITY

Proximity concepts have been applied to mate-selection, friendship choices, information system user frequencies, physiological visual and auditory groupings (also known as perceptual grouping by proximity). Studies have been reviewed which show that medical doctors who are socially integrated in the medical community tend to use new drugs earlier (Havelock, 1971). Other studies indicate that individuals who interact with each other a good deal have more similar attitudes, and vice versa. The research literature also indicates that those people who are more similar in background (status, socioeconomic level, attitudes, etc.) tend to be susceptible to influence from one another. On the other hand, those who are from different status levels tend to communicate less and to have less personal influence with each other. This is analogous to "social-proximity" (Havelock, 1971).

Proximity theory seems to raise its interesting head in many and varied situations. Blackmore (1955) learned that the degree of effectiveness that an agricultural demonstration has in influencing potential adopters is correlated with the geographical proximity of the demonstration farm to the target farmer's property.

Various approaches have been undertaken to explain the concept of proximity. One unique approach is Nachman's mathematical study. Nachman (1968) shows "that if the classes U(q) and P(q) are used to introduce weak and strong proximity relations on the space of all subsets of X, where (X,q) is a proximity space, then proximal properties of these relations will show that any proximity space (X,q) is

generated by a class of uniformities which always contains a smallest element U(q)." In other words, Nachman has demonstrated mathematically that the relationship between the classes of variables which interact to allow proximity to become influential, are non-catalytic. Indeed, one interacting variable class U(q) will continue to have some effect throughout this particular social "reaction."

The significance of such an approach to proximity is speculated by this author to hold great promise. If the variable class U(q) can be identified and isolated with some degree of consistency in all proximal situations, then it will be possible to establish clinically controlled experimental situations.

FRIENDSHIP VS. PROXIMITY

Numerous studies have demonstrated the relationship of proximity and friendship choices. It has been shown that students tend to develop stronger friendships with those students who share their classes, or their dormitories, than with those geographically located only slightly farther away (Maisonneuve 1952, Willerman and Swanson 1952, Festinger 1953, Bryne and Buehler 1955, and Bryne 1961). Department store clerks and bomber crews who work next to each other have been found to develop closer relations than with similar individuals located only slightly farther away (Gullahorn 1952, Kipnis 1957, Zander and Havelin 1960).

Studies of the significance of proximity upon friendship formation have led to other important social implications. White persons given increased contact with Negroes become less prejudiced in settings as

varied as a meat packing plant (Palmore, 1955), a housing project (Deutsch and Collins, 1958), and in university classrooms (Mann, 1959).

Bossard's (1932) study indicates a high correlation between proximity and mate selection. The study was based on marriage license records in Philadelphia. Replication by Kennedy (1943), Abrams (1943), and Katz and Hall (1958) also indicate the importance of proximity in mate selection.

This compilation of studies described here supports the concept that there is an inverse proportional correlation when comparing physical distance between two people and their attraction to one another.

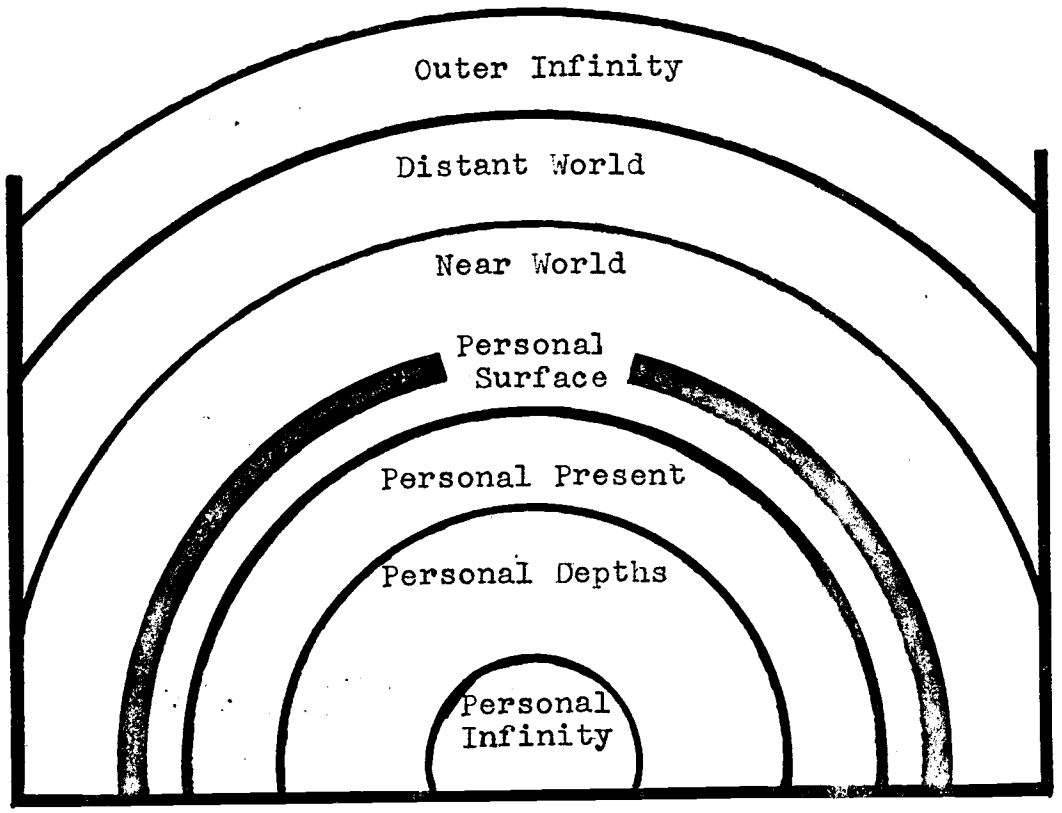
Interpersonal hostility is also affected by physical distance. Berscheid and Walster (1969) indicate that Detroit Police Department records show that the majority of robberies were performed by persons related to, or acquainted with, the victim. According to Hoover (1966), aggravated assaults and murders occur more frequently within the family or among friends and neighbors.

It follows that proximity will not assure a positive attraction. Proximity does seem to be, however, a necessary condition of attraction regardless of whether or not it is positive or negative attraction.

COGNITIVE AND PHYSICAL PROXIMITY

Cognitive proximity, or perceived distance, may be explained by the phenomena found in Stern's (1938) "personal dimension" concept. Stern does not offer clinical or experimental evidence for his position and he offers no precise quantification of these dimensions even though such quantification may be attempted. What is important is that Stern

identifies a relative polarity of inwardness and outwardness. A major characteristic of the inward-outward dimension is what he refers to as "personal present" which refers to the relative state of the individual when person and object are not in opposition. Stern's inward-outward dimension is topographically represented in Figure 1.



(This writer's
Topographical Representation of Stern's
"Inward-Outward Dimension")

Figure 1

"Inwardness" leads through the personal surface, close to the personal present to the personal depths representing the most "real" portions of the personality, and on to the personal infinity (unknowable) portions of the personality. "Outwardness" leads through near to

distant regions of the world onward to outer infinity. Most important here is the thought that near and far refer to both time and space, for a day can be distant as well as a star. But time and space are both psychological and physical. As Stern suggests, the casual traveling seatmate may be "distant" (close physical proximity, distant cognitive proximity), and yesterday may seem "distant" under certain circumstances. While on the other hand, the friend we are traveling to visit who is physically far away may be "near" (distant physical proximity, close cognitive proximity) and a day long ago may seem like only yesterday.

The interpersonal aspects of the personality and the objectively determinable "psychological distance" (or relative cognitive proximity) of inner and outer objects appear to be closely analogous to the cognitive proximity concept put forth here. It seems reasonable to contend that during a personal face-to-face meeting the interviewer would be closer to the "personal surface" of the participant than that same person would be over the telephone, or to a lesser degree with a letter.

This discussion is not offered as "proof" of cognitive proximity. It does, however, offer supporting rationale with roots in the early movements in psychology.

PROXIMITY AS RELATED TO PERSONAL CHARACTERISTICS

It is often contended that the characteristics that occur as a result of proximity could also be the result of individual personal characteristics. That is, a person may simply be attracted to another person's personality through one of the popular psychic forces.

However, it is the contention here that these psychic forces will not be influential unless they are within the other person's physical or conscious field, i.e. physical and/or cognitive proximity. This viewpoint may, however, be contested by "para-psychologists."

Patterson and Sechrest (1970) hypothesized that impression formation was a function of interpersonal physical distance in an interview. They found that a confederate would be rated less socially active as the distance between him and the subject increased. This hypothesis was significantly supported by the composite ratings of their study.

There is some indication that differences in approach tendencies may be a function of personal characteristics. The degree of liking for the stimulus person has been examined with regard to interpersonal distance. As the degree of liking increased, the separation between the subject and the imagined person decreased (Mehrabian, 1968).

Meisels (1971) indicates that there is a relationship between defensiveness and personal space or proximity. In almost any face-to-face encounter of two or more people, processes occur that are acquaintance-like. However familiar with one another the participants may already be, they acquire information about each other, assess one another's attitudes, and either reinforce existing states of orientation toward each other and toward the common world, change them, or develop new ones. The process of reciprocal scanning of each other's orientations is a vital part of the interactional behavior that goes on between persons. Thus it becomes a vital factor between a researcher and a respondent also. Note that this discussion is only concerned with face-to-face communication. Non-verbal communication is not

possible with communicative interaction where the participants are not face-to-face; i.e., the telephone and letter.

Some of the interaction variables would not be allowed to exert their influence from afar. It is not essential, but it is helpful, if close proximity is in effect before credibility, status, etc., can be determined. In the opposite vein, credibility, status, and perceived role-misrepresentation can thrive upon "unfamiliarity," i.e., it is easier to dispute someone you do not know.

PROXIMITY AS RELATED TO COMMUNICATIONS

Edward T. Hall (1966) coined the word "proxemics" to define the non-verbal "hidden dimension" in communication. The definition of proxemics is the study of how man communicates through structuring micro-space; the distance that man consciously or unconsciously maintains between himself and another person while he is interacting with them.

Watson and Grave's (1966) experimental study of the differences in proxemic behavior between Arabs and Americans, found that Hall's system of proxemic behavior was valuable in describing such non-verbal communication.

The particular effectiveness that normal communications may have lies in the personal relationship binding the participants and in the face-to-face quality of the interaction. The communication process can be timed for propitious occasions and repeated, if necessary; attention is assured, miscomprehension can be minimized, and appeals can be developed to fit the motivations and characteristics of the recipient.

Objections can be countered and arguments elaborated or strengthened; regard for the communicator deriving from the personal relationship will lend weight to his words. The benefits of social conformity and maintaining a satisfactory personal relationship may act as incentives to acceptance of the communication. In many instances, the process is initiated by a desire for information or advice. Under such circumstances, the initiator is motivated to be influenced and is likely to be influenced (Weiss, 1967).

Morton (1964) suggests that not only organizational but spatial mechanisms be used to facilitate knowledge transfer. Thus, physical distance and proximity becomes a mechanism to impede or increase communication between groups. He specifically discusses the utility of locating certain organizationally separated departments together in a building to facilitate knowledge flow, and he describes how such arrangements are employed in the Bell Telephone Laboratories.

Burns and Stalker (1961) also suggest that location can have a large impact on the amount of information flow to and from the group. Davis (1953) gives support to this position with empirical data from an industrial plant. He found that the group processing the least information was furthest away from the center of the organization.

A dyadic relationship, signifying the interaction of two people, is by far the most common type of two-way communication. It has the potential to support the deepest kinds of change in individuals. The patient-therapist and parent-child relationships are the obvious examples of the potency of dyadic interaction to influence individuals (Sears, 1951).

One of the advantages of this and other kinds of two-way oral communication is the immediacy of perceived reaction. Without this availability of feedback, two-way channels function no more effectively than do unidirectional ones. For example, psychologists rank personal discussions with colleagues as a more effective means of communicating than two-way written correspondence with the same people (American Psychological Association, 1964B). The affective proximity of the "other" and the "involving" capacity of the act of participation also elicit more complex and total responses within an individual. Some form of two-way communications medium or channel which permits involved interaction between the resource and the user is necessary for the ultimate action by an individual, a group, or a total system.

Dyadic relationships as defined by Sears (1951), such as those between parent and child, therapist and patient, supervisor and subordinate, teacher and pupil, presents evidence that the effectiveness of the communication in a dyad is related to the cognitive similarity of its members.

Communication occurs in a situation possessing quasi-physical, quasi-social, and quasi-psychological properties which induce and determine the course of behavior of communicators and interpreters. The content of the communication can be a determining characteristic in the communication situation. The intent of the communicator in producing specific content is not only concerned with expected effects on interpreters, but assumes they possess particular needs and perceptual capacities. In other words, in the act of producing content, the interpreters are always in the psychological field (cognitive

proximity) of the communicator. The communicator's perceptions of the interpreters may determine the character of the content he produces. The degree of specificity with which these presumed effects are defined by the communicator may vary widely from one communication situation to another, but clearly or vaguely they are dynamically a part of the communication situation. In face-to-face communications where communicator and interpreter are in each other's physical presence, the produced content is more likely to be adjusted to the immediate responses of the interpreter (Barnlund, 1968).

Triandis (1960) established that some communication can occur when the dimensional similarity used by two subjects are dissimilar, but their communication is greatly facilitated by dimensional similarity. This dimensional similarity is the degree to which two subjects agree when describing the attributes of the object of communication. The greater their agreement the more likely it is that they will communicate effectively. The theoretical model states that cognitive similarity leads to communication effectiveness, communication effectiveness leads to rewards, and thence to interpersonal attraction.

Familiarity, a type of psychological proximity, is undoubtedly an important quality in the successful information source, the successful message, and the successful medium, up to a point. But Gestalt psychologists have described a process of "leveling" in which familiar-sounding messages with new content are interpreted merely as repetition of old messages: the new content is thus "leveled" and not accurately received. Similarly, over-familiar resource systems may not be seen as potential repositories for new and useful information unless our

familiarity with them has included this type of history (Lancaster, 1971).

Among the communicative factors that have been reported in the literature are the effects of physical distance, or proximity, upon the frequency of human communication. In general, the effects of proximity upon personal interaction has been pursued independently by research workers from different disciplines and under somewhat different circumstances. Studies of interpersonal relations in relatively isolated neighborhoods reported by Merton (1948), Caplow and Forman (1950), and Festinger, et al. (1950), reveal that the location of housing units, along with the orientation of buildings and the availability of entranceways, are critical determinants of the communication patterns and friendships that develop among families living in these neighborhoods.

Within the smaller confines of the office, dormitory, and classroom, Lundberg, et al. (1949), Gullahorn (1952), Maisoneuve (1952), Bryne and Buehler (1955), and Blake, et al. (1956), have found the same forces at work. An inverse relationship has been found between the physical distance separating people and the likelihood of communication between them, with interaction increasing as distance decreases. This occurs unless there are physical barriers present that interfere with communication, such as filing cabinets, walls, or desks. In such situations, spatial factors appear to be very influential in regulating interaction and controlling friendships. The physical setting in which people interact probably sets limits upon and determines the frequency of communication in the early stages of interpersonal relations. Once

a social system evolves from that communication, however, and begins to elaborate itself, psychic forces are introduced that tend to polarize these channels of communication around high status figures. The patterns of interaction dictated by physical proximity are then altered or even reversed by the effects of emerging status.

PROXIMITY AS RELATED TO INFORMATION SYSTEMS

This portion of the chapter deals with research literature that is related to the major components of this study. The two major components identified here are information systems and proximity.

Literature concerning information systems is plentiful. There have been studies concerning user needs, user profiles, user abilities, information analysis and synthesis, information dissemination and utilization, and information system computerization to name just a few areas. Quite obviously, this study cannot investigate all these varied facets of information systems research. We are primarily concerned here with research relating to information-system acquisition techniques.

The proximity component of this study is concerned with research literature, or portions thereof, primarily dealing with proximity theory and its relationship to information acquisition systems. Other related research literature will be cited to affirm or refute particular points as the need arises.

Technological revolution has meant the greater and greater proximity for all of us to each other. This is perhaps the most profound consequence of the telephone, television, and the jet aircraft: They

bring people together. They vastly increase the potential for what Merton (1948) and Rogers (1962) call "cosmopoliteness," the degree to which a person moves in and out of his home community and makes contact with outside groups.

As noted elsewhere, the most effective resource systems are those which have easy access and linkage to other resource systems. Proximity is a major aid in bringing about this linkage and hence in promoting effective dissemination and utilization. Resource systems should also be proximate to users both geographically and psychologically, i.e., the user should perceive them as accessible.

It follows that proximity to various resource systems is important for users. However, the proximity of users to one another is also important because it increases the likelihood that users will be aware of common interests and needs, and will pool their internal resources. It also increases the likelihood that innovators in the user system will be in contact with opinion leaders, and that opinion leaders will be in contact with everybody else.

Proximity can be construed as familiarity to the user and relatedness and congruity with user needs. It may also mean similarity and congruity with past innovations which the user has adopted (Havelock, 1971).

While Slater (1968) found that "academic types" use informations systems more regularly than businesses, personal contacts were also used by these people more regularly to obtain information than were mechanized systems. Could this not occur because they "feel closer communicatively" to the personal contact than they do to the

"impersonal" mechanized systems, i.e., cognitive proximity?

Hodges and Angelet (1968) have noted that the more distant an information source is from a user (in terms of geographical immediacy) the less this source will be utilized. However, if the user is certain he will be able to find information he seeks, he will be willing to seek out information from more "distant" sources if the "immediate" familiar sources fail him.

Carter (1966) has summed up the attributes of a successful information dissemination policy. One of his characteristics indicates that interpersonal communication between successful innovation adapters is characterized by a person-to-person informality.

Information resources come in many forms: they may be available as printed materials, people, or products. Knowing when, where, and how to acquire them are essential skills for the educational change agent to have. Before intelligent decisions can be made about upcoming changes, it is necessary to know what has already been done, its success, and its availability. The task of information acquisition can be handled competently if the searcher determines what he needs before he plans and starts an acquisition strategy. The acquisition strategy must make sense in terms of his needs.[3]

It has also been found from innumerable studies in different settings that proximity is a powerful predictor of utilization. People

---

[3]It is imperative at this point that the reader keep in mind that this study is only discussing resource acquisition, not resource evaluation or utilization. This particular study is concerned with "how to get it," not "what to do with it once it is obtained." As this study determines that one way of "getting it" is better than another then it will also be concerned with the reasons.

inevitably learn from one another when they live as neighbors, when they bump into one another and have the chance to observe and stimulate one another by reason of being in the same place at the same time. Hence, users who have close proximity to resources are more likely to use them. Anything which is "handy," i.e. easily accessible; is more likely to be used. This generalization applies to people and things but also, at least by analogy, to thinking processes (familiarity, recency, similarity, etc.). Proximity is also one of the factors which makes linkage to information systems more possible and hence more probable.

PROXIMITY AS RELATED TO TELEPHONING

Early research suggests that telephone interviews may be less valid than face-to-face interviews (Larsen, 1952). On the other hand, more recent data tends to contradict this view (Coombs and Freedman, 1964; Hochstim, 1963; Northrup and Deniston, 1967; and Schmiedeskamp, 1962). The results of these studies suggest that the consistency of response is not as great with telephone interviews as with face-to-face interviews.

At the present time there are both advantages and disadvantages in the use of telephone interviews for data collection. On balance, however, the telephone (perhaps supplemented by another method when necessary) appears preferable in situations where limited funds for investigation are a constraint, where a pool of staff time is already available for interviewing, and where precise estimates of population parameters are not crucial.

PROXIMITY AS RELATED TO ONE-WAY INFORMATION SYSTEMS

Most knowledge is packaged and disseminated in such a manner that the potential user has little or no opportunity to influence the originator or to change the nature of the message. The user is a receiver, only; not a sender, and he cannot enter into a dynamic relationship with the sender. He can accept the message, or ignore it; sometimes he can even turn it on or off, but he cannot alter the essentially one-way character of the medium. There is, however, probably no more effective way to transmit large quantities of information to large numbers of people in the shortest possible time, and with the least expense.

The use of direct mail (a frequent example of one-way information systems) to advertise or to inform people of new products or processes seems to have its greatest potential among specialized target audiences for whom it may serve a secondary, supportive role to other communication media. Its advantage is its effectiveness as a secondary in-put for material communicated over the mass media. Within a consumer population of high purchasing potential, market researchers have studied content and format variables in direct-mail advertisements (Lucas and Britt, 1963). The usual purpose of such study is the identification of the most appealing layout, so that it may be used in a nationwide campaign. "Although a substantial amount of money is spent annually on mailed advertisements, researchers have not found this medium to have any particular advantage over the other media used for advertising" (Havelock, 1971).

One generalization that can be made from previous research, and

which is most likely still valid, is that oral presentation of material is more effective than printed presentation in changing attitudes (Wilke, 1934; Knower, 1935 and 1936; and Hovland, 1954).

SUMMARY

It is apparent that a reduction in real or imagined proximal distance increases the probability of receiving information about another person and of receiving rewards or punishment from the other (Berscheid, 1969).

The active role in discussions leads to more involvement on the part of the user than does his passive role as the receiver of a one-way transmission. What proximity appears to allow, and what distance prevents, is an opportunity to obtain information and accumulate experience regarding the rewards or punishment we are likely to receive from the other person.

Newcomb (1956) reasons that the information which proximity permits is more likely to be favorable than unfavorable. There is an additional reason why close proximity may develop a positive rather than a negative attitude toward someone or something. Unit relationships are those perceived as belonging together. Members of a family, a person and his clothes, an interviewer and a respondent, and so on, can be considered as units. Objects perceived as close together spatially tend to be considered as a unit. His balance theory contends that "people strive to make their sentiment relationship harmonious with their perception of the unit relationships existent between 'objects.'"

Disregarding what specific information is exchanged, it is conceivable that the factor of proximity may produce a feeling of unit formation between two people. Feelings of being in a unit relationship with another may then induce tendencies to cooperate with the other. Perceptions that one is, or will be, in close proximity with another may result in a climate conducive to the formation of cooperation within the unit, prior to the actual knowledge of the possible rewards which may be obtained in the interaction.

The process of conducting information acquisition campaigns requires the formation of unit relationships to obtain the expected goals. The searcher should observe how the resource person is relating to him, the extent to which he defers to authority, and his reticence to disagree or otherwise speak-up. He will be able to derive much valuable diagnostic information not only from listening to the person, but also from observing how he reacts. The searcher can thus adjust his request to what he perceives to be an acceptable request for the respondent. This additional information and latitude would ordinarily be possible only in face-to-face, two-way communication.

One determining factor of unit relationships is the postulated concept of "cognitive proximity." Proximity is described as "the closer two individuals are located geographically, the more likely it is that they will be attracted to each other" (Berscheid, 1969). Havelock (1971) defines proximity as a "nearness in time, place, context, familiarity, similarity, and recency." If this reasoning is extended, it is conceivable that "cognitive proximity" can be described as: The closer two individuals feel together communicatively, the more likely

it is that they will cooperate with one another. In view of these reported proximal relationships, the application of proximity theory put forth in this study is consistent with current thinking.

What cognitive proximity appears to allow, and cognitive distance prevents, is an opportunity to obtain information and accumulate experience regarding the rewards or punishment a respondent is likely to receive by actively participating. Cognitive proximity may allow an increased probability of receiving information about a person or his desired objectives. This communicative interaction is necessary for the formation of unit relationships and the consequential degree of expected cooperation. The application of proximity analysis to dyadic communication and, in particular, to the comparison of information acquisition techniques has been the intent of this study.

Of all the techniques used for the acquisition and dissemination of new knowledge, the two-way channels seem to be the least studied and the least used, but potentially the most rewarding. The expense of research on two-way designs should no longer be allowed to remain a barrier to their investigation.

Chapter III provides the reader with a discussion of the study procedures and data handling methods.

CHAPTER III

STUDY DESIGN

This chapter is devoted to a description of the research procedures utilized during the conduct of this study. The reader is referred to Figure 2 for a schematic of the study procedures. Specifically, this chapter outlines the research design which was used to test the hypothesis that "there will be no significant difference in the number of VI/CM received, their relative acceptability (as measured by a panel), or the elapsed time for receipt of the VI/CM from randomly selected samples of respondents in the letter, phone, and personal visitation groups."

PROBLEM IDENTIFICATION

The problem of how best to assure collection of VI/CM was identified as a result of work with the Special Groups project conducted by the Northwest Regional Educational Laboratory during 1971 and 1972. The project was organized to conduct a national survey to collect VI/CM. Given the time constraints for a collection activity, there was a need to identify the most successful means for executing a thorough acquisition effort.

The literature review yielded no specific studies on how best to secure collection of instructional materials from a variety of source agencies spread over an extensive geographical area. However, since such an activity calls for cooperation between two parties, the research on interpersonal cooperation provided the author some

STUDY PROCEDURES CHART

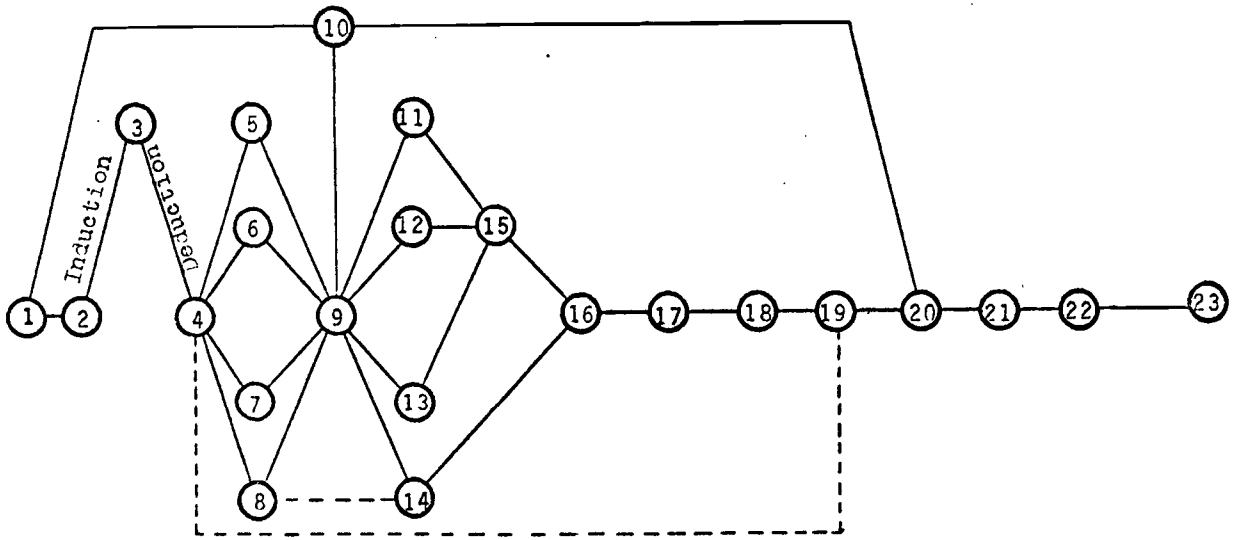


Figure 2

1. Felt Need
2. Define Problem
3. Theorize
4. Hypothesize
5. Identify Population
6. State Limitations
7. State Assumptions
8. State Criteria
9. Organization of Study
10. Survey of Literature
11. Mail Requests
12. Phone Requests
13. Visitations
14. Form Review Panel
15. Combine Data
16. Review Panel Evaluation
17. Arrange Data
18. Computer Analysis
19. Draw Conclusions
20. Write-up
21. Review
22. Finish
23. Submit to Literature

guidance. It was believed that the amount of personal interaction established between the surveyor and each respondent might significantly affect the results of the acquisition effort.

PROBLEM RESTRICTION

Since the personal visitation technique would provide the greatest opportunity for such personal interaction between the collecting agent and the material's developer, the researcher chose to compare its effectiveness with two other acquisition methods: (1) collection of materials through phone solicitation, and (2) collection of materials by letter solicitation.

The following null hypothesis was formulated:

There will be no significant difference in the number of VI/CM received, their relative acceptability to the project (as measured by a panel) or the elapsed time to receive the VI/CM from randomly selected samples of respondents in the letter, phone, and personal visitation groups.

DISCUSSION OF STUDY DESIGN

Economic necessity dictated restricting the geographic area of personal visits. Therefore, permission was obtained from the Special Groups Project Director to reserve the states of Washington and Oregon for the present study.

Various groups (Appendix A) were contacted for referrals. Letters (Appendix B) were sent to all groups believed to have knowledge of

vocational curriculum development activities for disadvantaged and handicapped groups. Reply forms were enclosed with the letter of inquiry. This process was conducted on a nationwide basis. Those persons and groups having such knowledge replied by providing names, titles, addresses, and phone numbers on the reply forms. The reply forms were then returned in self-addressed stamped envelopes. In this manner a nationwide list of over 3,000 potential sources was compiled. This list yielded 212 potential sources in Washington and Oregon. Thus, the population was identified as being comprised of 212 sources thought to be generating VI/CM for disadvantaged and handicapped student groups.

The evaluation criteria chosen to measure effectiveness of each collection technique for this study involved three items:

1. Applicability - a measure of whether the collected material was deemed pertinent to the Special Groups Project as specified in the project resumé (Appendix C).

2. Document Count - the number of VI/CM received from each contact via each acquisition technique.

3. Elapsed Time - the time between the request (visit, phone, or letter) and the receipt of the VI/CM.

The applicability criterion (1) was devised as an attempt to learn which survey technique would yield material most nearly complying with the project specifications. Obviously, a great amount of unrelated material could have been collected and counted. It should also be

noted that this criterion was not specifically concerned with assessing the relative instructional quality of each training package, book, etc. Indeed, this would require an experimental comparison for each of the VI/CM, a task obviously beyond the scope of this study. Instead, it was determined that a panel of judges be formed. Each of the five panel members would analyze each of the collected VI/CM and rank them in response to the five questions on a data-form (Appendix D).

The document-count criterion (2) was used to help indicate the most successful acquisition technique. A tally of documents received from each contact was recorded. Every item was given an equal unit of measure, i.e. a pamphlet counted as one document, as did a textbook or a learning package. The distinction between the relative merits of a pamphlet and a textbook, for example, would be made by the review panel.

The elapsed-time criterion (3) was used as a measure of the time that elapsed between the requests for VI/CM and the actual receipt of the material. This criterion was determined to be a useful measure of the success of an acquisition technique in that the documents (VI/CM) would be of little use to the project if they were received after the completion of the search effort. The actual number of days that passed between the request and the receipt of the VI/CM is the unit of measure for this criterion.

It is recognized that a potential user may conceive of the need for certain information and then take certain steps to acquire it. However, that user will still have to identify his need, restrict the scope of his information search, identify his sources, organize his

acquisition efforts, and initiate them. These activities are existent to varying degrees in all information acquisition efforts. This study is concerned with the effectiveness of the acquisition techniques after the "conceptualizing" has been solidified, that is, after the actual request for information has been made.

Certain tests were performed to determine if there were differences in the sample group. It was conjectured that there may be a difference between states, i.e. Oregon might have been more or less "cooperative" than Washington. The chi-square analysis determined that there was no significant difference (Appendix K). It was also conjectured that the vocational persons and groups might provide a higher yield than the non-vocational persons and groups (see Appendix J for a classification of these two groups). The chi-square analysis indicated that the acquisition techniques had the same relative effectiveness with each of the two groups (Appendix K).

Lastly, there was a possibility that the respondents would be more willing to contribute those documents that were "readily available." A test of this possibility indicated that the acquisition techniques had the same relative effectiveness with documents that are "readily available" or "not readily available" (Appendix J).

DISCUSSION OF STUDY ACTIVITIES

The first task of the study was to identify the group upon which the study would be conducted. Selltiz, et al. (1959) indicates that the most direct method of selecting informants is to ask strategically placed administrators working in the area one wishes to study. These

administrators are in the best position comparatively, to point out the most informative, experienced, and analytical respondents. The likelihood of their being good informants is, of course, increased if they are recommended by more than one source, particularly if the different sources are known to have dissimlar areas of concern.

The process of selecting participants for this study quite closely followed the approach set forth by Selltiz. Letters were sent to known people (or administrative positions) in the agencies listed in Appendix A. As stated earlier, this study involved only the people in the States of Washington and Oregon. Consequently, out of approximately 3,000 people nationwide, 212 of them were in these two States. This group of 212 people was then randomly separated (using a random-number table) into three groups. It was necessary to keep the "visit" group as small as possible, while still maintaining statistical significance with the total sample size. Therefore, the visit group contained 49 people (approximately 23 percent of the total group) dispersed across the two states (illustrated in Appendix F). During the course of the study, the author personally visited each of the 49 persons in the visit group. A secretary called each person in advance and arranged for an appointment. When the secretary was asked for the purpose of the meeting, she was instructed to tell the person that it was for the purpose of discussing curriculum development. At no time was the secretary to disclose that copies of their curriculum materials were being sought.

The telephone group contained 72 people (approximately 34 percent of the total group) who were located in Washington and Oregon. An

organized interview schedule was used in all personal visitations, telephone calls, and as a basis in developing the mail requests.

The remaining group of 91 people (approximately 42 percent of the total group) had the actual letters of request for VI/CM mailed to them (refer to Appendix G for an example of such a letter). As indicated in the letter (Appendix G) an orange and white mailing label was enclosed with each letter to provide postage-free mailing of their VI/CM to the Northwest Regional Educational Laboratory. These labels were also made available to persons in the telephone group. The visit group did not require such assistance since their VI/CM were collected at the time of the visit.

In all 212 contacts it was this author alone who made the actual requests. The requests varied only as to the medium used, i.e. personal visit, telephone, or letter. This was done to maintain relative consistency throughout the study.

The nature of this study necessitated the development of an interview outline in order to obtain the VI/CM from respondents. The two basic types of interview outlines most commonly used are the standardized and un-standardized types. In the standardized interview outline the interviewer is expected not to deviate from a pre-arranged list of questions when interviewing a respondent (Kahn and Cannell, 1957).

On the other hand, some variation may be desirable for the sake of naturalness in the interview situation; a disadvantage of the standardized format is that the interviewer is not free to follow the respondent's natural flow of conversation. Consequently, the un-standardized interview permits the interviewer to vary his questions from respondent

to respondent as long as he gets information on certain points during the course of the interview (Institute for Social Research, 1969). This approach has the advantage of being more natural and flexible than the standardized interview. Thus, it would be more conducive to the formation of cognitive proximity. It was for this reason that the unstandardized interview outline was developed and used in this study.

When compiling the interview outline, and actually conducting the interviews, all efforts were made to conform with the recommendations of the Institute for Social Research (1969). Their experience in conducting surveys indicated that there are three factors which help bring about respondent receptiveness. These three factors are as follows:

> The respondent needs to feel that his acquaintance with the interviewer will be pleasant and satisfying.
>
> The respondent needs to see the survey as being important and worthwhile.
>
> Barriers to the interview in the respondents mind need to be overcome (Institute for Social Research, 1969).

By considering these factors, the interview outline (Appendix H) was compiled. A cursory review of the interview outline will disclose that if it were to be read verbatim to a respondent, a stilted and confusing conversation would ensue. The interview outline merely provided a guideline to the author when conducting the actual interviews and when drafting the form letter.

PILOT STUDY OF INTERVIEW STRUCTURE

The interview structure was tested upon some respondents in a separate survey. It should be noted that the respondents involved in this pilot study were not in the study population. Most of them were

in the Midwest and Eastern United States. Respondents in the pilot study were distributed as follows:

Visit---six people randomly encountered on another project, in the southeastern United States.

Phone---Forty-two people telephoned in the southeastern United States.

Letter--Twelve letters written to random people in the Midwest.

This pilot study pointed out "awkward" portions or areas of the interview process which required excessive talking or verbosity. In this manner, the pilot study served to allow modification of the interview structure and made it more appropriate for use with the total study group. It eliminated the possibility and inappropriateness of altering the interview structure during the course of the actual study.

REVIEW PANEL

It was determined that the qualifications of these panel members should involve teaching experience with disadvantaged and/or handicapped students. The qualifications of the panel members are included in Appendix I. Instructions for the panel evaluation process are included in Appendix E. A list of 15 qualified persons in Washington and Oregon was compiled. From this list, a group of five reviewers was selected. Their teaching experience covered the subject areas and different target populations represented by materials collected in this study. Their names were purposely withheld from the author and other project

staff connected with the study. This was necessary in order to avoid possible favoritism and biases from either group. The actual review of the VI/CM was supervised and monitored by a secretary acting under strict and explicit instructions (Appendix E). Panel members were brought in individually on a consulting basis. They were instructed to review the VI/CM and fill out data forms (Appendix D) giving their reaction to each VI/CM. No two panel members worked together (in the same room or on the same day) in materials assessment. This was done to prevent the possibility of one panel reviewer being significantly biased by another panel member. The tabulation and analysis of responses are given in Chapter IV. Further statistical analysis is also reserved for Chapter IV.

CHAPTER IV

DATA ANALYSIS

INTRODUCTION

In the previous chapter the procedures and sources of data for this study were described. This chapter presents the findings and analyzes the results. It is divided into six parts. The first part discusses the processes of "adjustment" that were performed on the sample group. The second part is devoted to a discussion of the "document-count" criteria. The third part is devoted to a description of the "elapsed-time" criteria; followed by a discussion of the relative "acceptability" criteria in the fourth part. A description of the various statistical analyses which is the fifth part is then followed by the chapter summary.

SAMPLE ADJUSTMENT

It would have been desirable to keep the three sample groups equal in size, that is, the 212 resource people should have been divided into three groups of approximately 71 people per group. However, as mentioned in Chapter III, financial restrictions required that the visit group be kept as small as possible; while still maintaining statistical significance with the total sample size. The visit group, therefore, contained 49 people; the phone group, 72; and the mail group contained 91 people (refer to Table 1).

While this disproportionate distribution of the individual sample

TABLE 1. SAMPLE ADJUSTMENT PROCEDURES AND COMPARISON

	(A) People Actually Contacted	Approximate Percentage of the Total Sample Group	Adjusted Percentage of the Total Sample Group	(B_1) Actual Number of VI/CM Collected	(Z_1) Adjusted Number of VI/CM Collected	(B_2) Average Number of "Acceptable" VI/CM	(Z_2) Adjusted Number of "Acceptable" VI/CM
	49 visited	23%	33.3%	89	128	71.4	103.0
	72 phoned	34%	33.3%	17	17	11.4	11.2
	91 letters	43%	33.3%	15	12	9.6	7.5
Total	212 people	100%	99.9%	121	157	92.4	121.7

Adjustment formula: $\left[\frac{(Y - 3)}{A}\right] B = Z$

Where:

Y=212=The number of respondents in the total sample group.

B_1=The people actually contacted via an individual technique; i.e. visited, phoned, or through the mail.

B_2=The average number of "acceptable" VI/CM (those having a score of more than three).

Z_1=The adjusted number of VI/CM; i.e. the number that "might have been collected" if exactly one-third of the total sample group had been contacted (assuming straight-line projection).

Z_2=The adjusted number of "acceptable" VI/CM; i.e. the number that might have been collected if exactly one-third of the total sample group had been contacted (assuming straight-line projection).

sizes is logical, it does raise the question of the mathematical adjustments that should be applied to the resulting data. The question that one might ask is "How can a comparison of the results of the three groups be made when they are not equal in size?" The answer is that it made no difference in this study. Even with the disproportionate sizes of the groups, there was still an inverse correlation. That is, the smallest group (visit) yielded the "best" results and the largest group (letter) yielded the "worst" results with the phone group in between. Therefore, the following discussion has three purposes:

1. to acknowledge that this situation has been recognized and dealt with;
2. to provide some insight into what <u>might</u> have happened if the groups were equal in size; and
3. to point out the fact that <u>actual</u> as opposed to <u>adjusted</u> numbers were used in the calculations of this study and the reasons for so doing.

The adjustments give the potentiality of equal treatment to each acquisition technique. Although in this particular study the differences in the resulting data were amplified, it was just as possible that the differences could have been reduced. This discussion is presented here purely for its noteworthy merits.

Remaining statistical analysis in this study is concerned with <u>actual</u> rather than adjusted measurements. This is primarily due to two reasons. The first reason is that adjusted numbers are projections of the actual empirical numbers. In order for a projection of this kind to be made, it must be assumed that straight-line progressions would

result. Since this assumption cannot be verified and it is not the intent of this study to test this assumption, only actual data will be utilized unless otherwise noted. The second reason for using actual rather than adjusted data is that the panel of reviewers could not have judged the acceptability of documents that had not been collected, i.e. the difference between the actual document count and the "adjusted document count."

DOCUMENT-COUNT CRITERION

The most obvious means of obtaining one indication of a certain acquisition technique over another is to count the number of documents obtained by each technique. This criterion was the most easily computed of the three criteria used. Table 2 summarizes these findings.

TABLE 2. DOCUMENT-COUNT CRITERION

	People actually contacted	Actual number of VI/CM collected	Adjusted number of VI/CM collected
	49 visited	89	128
	72 phoned	17	17
	91 letters	15	12
Total	212 people	121	157

It should be noted that some respondents gave more than one document when contacted.

The null hypothesis stated "That there would be no significant difference in the number of VI/CM received,...from randomly selected samples of respondents in the letter, phone, and personal visitation

groups."

Since the computed chi-square value of 190.69 (DF = 2 at the 0.01 significance level) is greater than the tabular chi-square value of 9.21 the null hypothesis is rejected. This would indicate that certain techniques yielded significantly more VI/CM than the others (as is obvious from Table 2). This difference would be much more amplified if the adjusted figures were used instead of the actual figures.

ELAPSED-TIME CRITERION

An additional criterion that was used for measuring the relative effectiveness of the acquisition techniques was "elapsed time." This criterion was determined by the author to be a useful measurement of the effectiveness of information systems. Effectiveness of information acquisition systems cannot be seriously measured unless the elapsed time to acquire information is known. Time, in this case, is the number of days that pass between a request to another information source for VI/CM and the actual receipt of the VI/CM from that source.

Table 3 provides a tabulation of the number of days between the request (via visit, phone, or the day a letter was mailed) and the receipt of the material. It was conceivable that VI/CM would continue to be received several months after a request was made. Therefore, a maximum allowable time for receipt was arbitrarily established at six weeks. Documents received after that time were not included in this study.

When using a numerical count of days, it is necessary to consider that people usually work a five-day week, the post offices are open six

days a week, and there are obviously seven days in a week in which the mail is transported.

Actual requests for VI/CM were made during the five day work week. It is conceivable, however, that when a respondent was contacted by phone or letter, he may have mailed his VI/CM on a Saturday or week day. The problem becomes one of determining which "days" should be counted or should all the days be recorded. The reader will find that this author chose the latter course. Table 3 includes tabulation of all days.

The visitation technique is unique in that requests for, and receipt of, the VI/CM were made on the same day. This is because the surveyor would make the request and leave with the VI/CM in hand if there were any to be had.

TABLE 3. COMPARISON OF ELAPSED TIME VS. TECHNIQUE

	Five Day Work Week	Six Day Work Week	Seven Day Week
Visit	1	1	1
Phone	12.2	14.5	16.9
Mail	18.2	21.9	25.4

The null hypothesis stated "That there would be no significant difference in ..., the elapsed time for receipt of the VI/CM from randomly selected samples of respondents in the letter, phone, and personal visitation groups."

The computed chi square value of 64.8 (DF = 2 at the 0.01 significance level) is greater than the tabular chi-square value of 9.21; the null hypothesis is rejected.

This would indicate that certain techniques yielded VI/CM "quicker" than other techniques (as shown in Table 3). Although the "seven-day week" was used in this calculation, the results would be proportionately similar if the "five-day work week" and the "six-day mail week" had been used.

RELATIVE-ACCEPTABILITY CRITERION

This criterion was the most difficult to tabulate and compute. It was felt that some means should be devised to determine if one acquisition technique collected VI/CM of a higher relative acceptability than another technique. Instead of determining the ability of the VI/CM to provide classroom instruction of a high quality (which would require an experimental comparison of each VI/CM), a more useful measurement would be "How applicable is each VI/CM to the stated project goals?" (which are identified in Appendix C). This evaluation was done by the panel of reviewers who recorded their responses on a five-question data-form utilizing a five-point Likert type scale. Five reviewers evaluated each of 121 VI/CM providing a total of 605 data-forms. Tallies of their responses were then analyzed to provide indications of the relative acceptability of the VI/CM collected by each acquisition technique.

Table 4 provides a summary of the reviewers' responses on their data-forms when compared to the acquisition techniques.

TABLE 4. COMPARISON OF REVIEWER RESPONSES VS. TECHNIQUE

	Reviewer ID Code					
	A	B	C	D	E	Average
Visit	4.33	3.59	3.96	4.37	4.06	4.06
Phone	4.51	2.91	3.94	4.05	3.48	3.78
Mail	4.28	2.39	3.60	4.32	3.79	3.68

The null hypothesis states "That there will be no significant difference in the...relative acceptability (as measured by a panel) of the VI/CM from randomly selected samples of respondents in the letter, phone, and personal visitation groups."

Since the computed chi-square value of 17.2 (DF = 2 at the 0.01 significance level) is greater than the tabular value of 9.21, the null hypothesis is rejected. This would indicate that certain techniques yielding VI/CM were rated more acceptable by the panel (as shown in Table 4).

The following analysis is a summation of the rating scores that all the panel members gave. The tally compares the aggregate rating scores with the acquisition techniques. For example, Table 5 indicates that the visitation technique was given a score of five, 1,330 times out of a possible 3,025 times (five reviewers X 121 VI/CM X five questions = 3,025).

TABLE 5. SUMMATION OF ALL SCORES VS. TECHNIQUE

	5	4	3	2	1
Visit	1,330	277	354	97	178
Phone	191	37	90	47	59
Mail	191	27	47	30	70

Chi-square = 111.888 DF = 8

The applicability criterion of the null-hypothesis stated that there was no significant difference between the ratings that the review panel would give the documents and the acquisition technique with which they were obtained.

Since the computed chi-square value of 111.888 (DF = 8 at the 0.01 significance level) is greater than the tabular chi-square value of 20.090, the null hypothesis is rejected. This would indicate that the ratings given by the panel have a positive correlation with the techniques used in obtaining the documents.

Since the reviewers' responses are ratings, it was determined that a cut-off point be established to determine if some of the collected VI/CM were "more" applicable than others. Consequently, each VI/CM given a rating greater than 3.0 was classified as "more acceptable." Table 6 shows how many of the 121 collected VI/CM documents were rated with a score of greater than 3.0 by the reviewers.

TABLE 6. COMPARISON OF VI/CM RATED 3.0 OR MORE VS. TECHNIQUE

	Number of Documents Rated 3.0 or More by each Reviewer					Average	Percentage of the total 121 Collected VI/CM	Percentage of those VI/CM Collected by this Technique
	A	B	C	D	E			
Visit	85	60	63	78	71	71.4	59%	80%
Phone	17	7	7	14	12	11.4	9.5%	67%
Mail	12	3	9	13	11	9.6	8%	64%

Of all the 121 collected VI/CM, 76.5 percent of them were judged to be "more acceptable" (rating greater than 3.0) by the five-member panel.

An analysis of the five reviewers and their responses to the five questions was conducted. This was done in an effort to determine if the reviewers "followed a pattern" when responding to the five questions. A one-factor analysis of variance test was conducted on these data because mathematical means (equidistant data) are dealt with in this comparison.

The tabular "F" (for lesser mean square of 603 and a greater mean square of 4) is 3.36 at the 0.01 significance level. This tabular value is less than any of the computed "F" values for all five comparisons in Table 7. Consequently, the concept (which, simply stated, is that there was no significant difference between reviewers and their responses to the five questions) is rejected. There is a difference between the reviewers and their responses to the questions, thereby indicating that there was not a "consensus of opinion" regarding the documents in general.

TABLE 7. COMPARISON OF REVIEWERS VS. THEIR RESPONSES TO THE FIVE QUESTIONS

Question Number	Reviewer ID Code (n = 121)					Computed "F" Value for each Question
	A	B	C	D	E	
One	4.19008	2.91736	3.85124	4.22314	4.05833	19.5070
Two	4.38843	3.80992	3.90909	4.31405	4.15000	4.5460
Three	4.33884	3.64463	3.66942	4.15702	3.94167	6.4517
Four	4.52893	3.57851	3.72727	4.34711	3.85000	12.0226
Five	4.42149	2.76033	3.85950	4.75207	4.27500	47.5481

Table 8 graphically depicts the variability of responses by the five reviewers. Question five has the widest variability ranging from a high score of 4.752 to a low score of 2.760. This indicates that the reviewers agreed less on question five than the other four questions. Question five was stated thusly, "Do you believe that there is a significant need for this type of material?"

The reviewers seemed to agree fairly evenly on questions two, three, and four respectively; particularly on question two which was stated thusly, "Do you believe the organization and/or format of this material is easy to follow?" There was the least variability of ratings by the reviewers on this question.

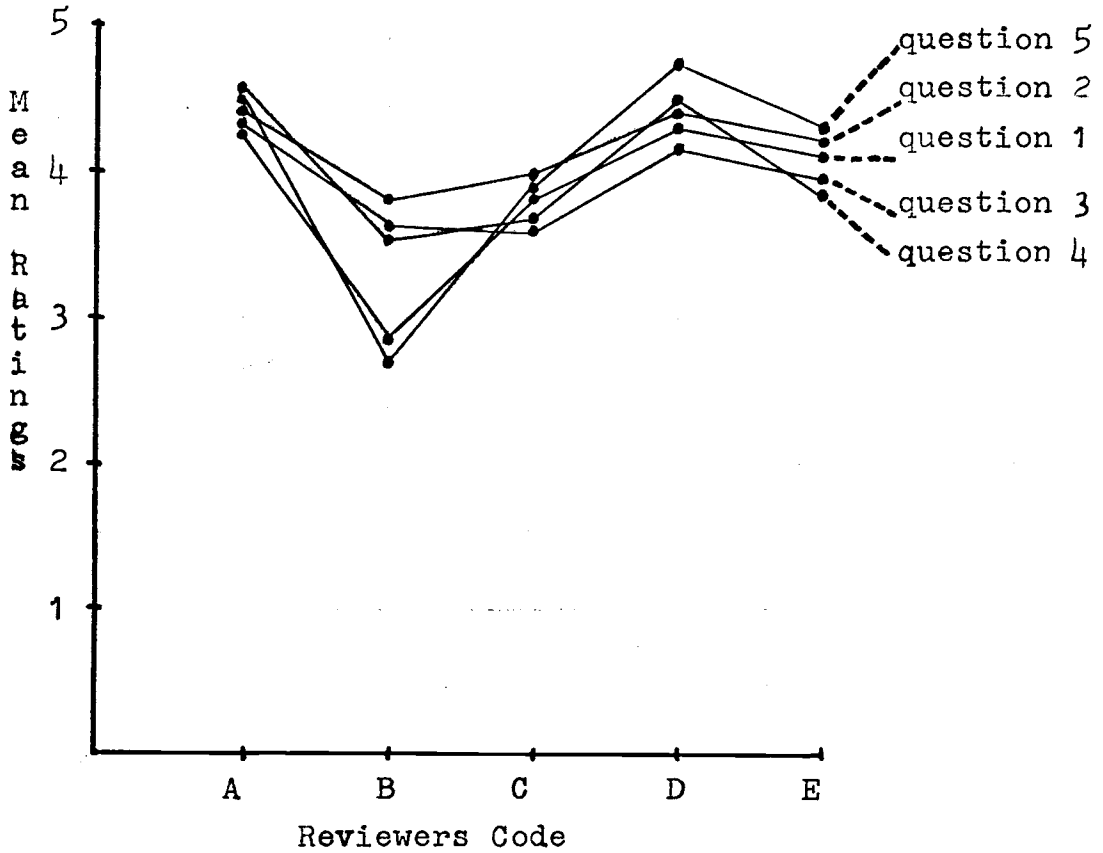
Individual reviewers varied in their reactions to the questions. Reviewer "C" varied the least in his range of responses. His scoring ranged from a mean of 3.909 (for question two) to a low of 3.669 (for question three). At the other extreme was reviewer "B." His scoring ranged from a mean of 3.810 (for question two) to a low of 2.760 (for question five). It is evident from this graph and the corresponding data that the collected documents were generally rated "above average" (more than 3.0 on the 5 point Likert-type scale) and that the reviewers varied in their responses.

SUMMARY

This chapter has been devoted to a discussion of the collected data, data analysis, and preliminary outcomes. Further conclusions and implications will be discussed in detail in Chapter V.

Three criteria were used in this study to measure the relative

TABLE 8. VARIABILITY OF RESPONSES BY THE FIVE REVIEWERS



Question Number	Mean Response	Variability
One	3.848	1.306
Two	4.114	0.579
Three	3.950	0.694
Four	4.006	0.950
Five	4.014	1.992

effectiveness of each of three acquisition techniques. Table 9 summarizes the findings by comparing the three criteria with the three acquisition techniques.

TABLE 9. COMPARISON OF TECHNIQUE VS. STUDY CRITERIA

	Total Number of Collected VI/CM	Average Number of "Most Acceptable" VI/CM	Average Number of Elapsed Days
Visit	89	71.4	1
Phone	17	11.4	14.5
Mail	15	9.6	21.8

Table 9 is offered merely as a summary. Other potential variables were investigated; none of which were determined to have had a significant influence on this study.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The purpose of this study was the investigation of the relationship between proximity theory and vocational-education information-system acquisition techniques.

The process of acquiring vocational instructional/curriculum materials (VI/CM) for purposes of establishing a central clearinghouse of such items is, in reality, the formation of a specialized information-acquisition system.

Most established information systems of this nature rely on unsolicited document intake. They also rely upon on-going systems that they have formulated with one or more sources which will automatically provide them with documents as they are produced. This study is primarily concerned with the factors influencing the formation of a vocational-education information-acquisition system, whether it be the initiation of an on-going system or simply a "one-shot" survey of existing VI/CM. It is hoped, however, that the processes investigated here will be helpful to others who may wish to form document-based information acquisition systems. Such systems need not necessarily be concerned with vocational instructional/curriculum materials. Medical, legal, contemporary literature, and other specialized information systems may also benefit from the logical formation of an acquisition system.

The processes and techniques of acquiring such solicited documents are postulated to be significantly influenced by the development of unit

relationships (Heider, 1958) between the information source and the surveyor. Of course, the inverse of this postulate is that if unit relationships are not formed, then there will be less relative success. The development of unit relationships is further believed to be at least partially dependent upon the physical and cognitive proximity between the two people in question. The act of developing proximity to any further degree is thought to be correlated with the type and amount of communication between the surveyor and the source. That source may be an individual person or a representative of some larger group. Three acquisition techniques compared in this study utilized oral, written, and visual (facial expression, etc.) communication.

Hypothesis

The basic hypothesis of this study which was not accepted is (stated in null form):

> There will be no significant difference in the: (1) number of VI/CM received, (2) their relative acceptability (as measured by a panel), or the (3) elapsed time for receipt of the VI/CM from randomly selected samples of respondents in the letter, phone, and personal visitation groups.

Study Dimensions

This study had four major dimensions. They are:

1. Investigation of a relationship between proximity theory and vocational-education information-acquisition techniques.

2. Formation of a review panel to analyze the collected documents, compilation of their results, and a general determination of the relative acceptability of the collected documents to the stated project goals.

3. Analysis of data using the chi-square statistical treatment to determine if significant differences existed among the acquisition techniques.

4. Formation of implications to be considered in the development of information-acquisition systems for vocational instructional/curriculum materials.

This study was accomplished by devising and executing three different acquisition techniques based on the theory that physical and/or cognitive proximity will render the visit technique more effective than the telephone or letter techniques respectively.

VI/CM were collected from randomly selected groups by visiting 49 resource people, telephoning 72, and mailing letters to 91. The 121 documents that were collected were then reviewed by a panel of five reviewers. Each panel member reviewed each document and responded to a five-question data-form with a five point Likert-type scale. One data-form was completed by each reviewer for each of the 121 collected documents (five reviewers X 121 documents = 605 data-forms completed).

Relative effectiveness of each acquisition technique was measured by:

1. The actual number of documents collected by that particular technique.

2. The number of days that elapsed between the actual request and the receipt of the vocational instructional/curriculum materials.

3. The relative "applicability" of the vocational instructional/curriculum materials as rated by a panel of five reviewers in terms of the stated project goals.

Major data analysis in this study utilized the chi-square analysis which identified the differences in effectiveness among acquisition techniques. The one-way analysis of variance was conducted to determine the existence of response patterns by the reviewers. No patterns were discernible.

CONCLUSIONS

1. Data from this study conflict with reports of low refusal rates in other investigations using telephone interviews (Parten, 1950; Schmiedeskamp, 1962; Coombs and Freedman, 1964; Hochstim, 1963). This study, on the other hand, involved the requesting of physical objects (VI/CM, documents, audio-visual materials, etc.) and involved a follow-up activity (packaging and mailing the materials) on the part of the individuals contacted.

2. The visit technique clearly surpassed the other two techniques when measuring which method collected the largest number of

"most acceptable" VI/CM as reviewed by the panel.

3. When measuring which technique collected the largest number of "most acceptable" VI/CM, as reviewed by the panel, the phone and mail techniques did not differ significantly from one another.

4. The mail technique is the least effective of the three techniques in terms of collected VI/CM. Physical proximity is not present and cognitive proximity is difficult to establish with the mail technique.

5. The telephone technique allows for two-way verbal communication. It may, thus, have the capability of developing trust, cooperation, and cognitive proximity. However, as is the case with the mail technique, the phone technique requires that the resource person initiate some action after the conversation; that is, he must gather the desired VI/CM and mail them. The person may or may not follow through with this action. Also the telephone technique does not allow for visual communication. Its cost benefits can be considered sufficient for moderate numbers of sources. It may be possible for two previously unacquainted people to establish cognitive proximity over the phone if they find themselves to be involved in common experiences or environments.

6. An examination of past studies, literature, and the results of this study reveal a consensus of results supporting a positive

relationship between proximity and the relative effectiveness of the three information-acquisition techniques used here.

RECOMMENDATIONS

With the limitations imposed by the sample, the characteristics of the particular treatments, and the methodology employed, the following recommendations appear warranted.

1. Visitation techniques should be used for resource groups who will be expected to cooperate over long periods of time, who are known to possess large quantities of desirable information, and who are able to influence other resource people. Direct cost benefits can be difficult to justify. Indirect cost benefits however, will often warrant the use of the visitation technique in terms of yield, anticipated future relations, and the establishment of confidence, trust, and cooperation.

2. A study could be directed toward analyzing the cost-effectiveness for each of the acquisition techniques used here and various other combinations that may be developed.

3. Each acquisition technique can be divided and studied in an effort to maximize its effectiveness. For example, several:
   a. letter techniques can be compared.
   b. phone techniques can be compared.
   c. visit techniques can be compared.

4. Conduct a study to determine if all information being sought is, in actuality, collected by the acquisition technique used on that group. A visit or return visit would be required to all contacts to ascertain the "completeness" of the donations they made; i.e. people may not mail all of their material because they have too much, so they select only a few to send. The findings could then be used to determine a "predictability index" for use in future acquisition efforts. The predictability index could inform a surveyor that if he were to use a certain technique on a group, he could anticipate that he would only collect X percent of all the available information.

BIBLIOGRAPHY

Abrams, R. 1943. Residential propinquity as a factor in marriage selection. American Sociological Review, 8, pp. 288-294.

American Psychological Association. 1964, A. The discovery and dissemination of scientific information among psychologists in two research environments. Washington, D. C.: American Psychological Association.

_____. June, 1964, B. A preliminary study of information exchange activities of foreign psychologists and a comparison of such activities with those occurring in the United States. Washington, D. C.: American Psychological Association.

Bailey, Willard F. and Jerome Moss. 1966. A comparison of mail-techniques for stimulating interest in occupational education research. Minnesota Research Coordinating Unit in Occupational Education, University of Minnesota, Minneapolis. 12 p.

Barnlund, Dean C. and C. Harland. 1963. Propinquity and prestige as determinants of communication networks. Sociometry, vol. 26, pp. 467-479.

Berscheid, E. and E. H. Walster. 1969. Interpersonal attraction. Addison-Wesley Publishing Company. 129 p.

Blackmore, John et al. 1955. Test-demonstration farms and the spread of improved farm practices in southwest Virginia. Knoxville: Tennessee Valley Authority Report, pp. 53-55.

Blake, Robert, Clifton Rhead, Bryant Wedge, and Jane Mouton. June, 1956. Housing architecture and social interaction. Sociometry, vol. 19, pp. 133-139.

Blankenship, A. B. 1943. Consumer and opinion research. New York: Harper, 238 p.

Bossard, J. H. S. 1938. Residential propinquity as a factor in mate selection. American Journal of Sociology, 38, pp. 219-224.

Briggs, L. J., P. L. Campeau, R. M. Gagne, and M. A. May. 1967. Instructional media: a procedure for the design of multi-media instruction. A critical review of research and suggestions for future research. Pittsburgh: Center for Research and Evaluation in Application of Technology in Education (CREATE), American Institutes for Research. 176 p.

Brightman, R. W., B. J. Luskin, and T. Tilton. 1968. Data processing for decision-making, an introduction to third-generation information systems. The Macmillan Company, 468 p.

Bryne, D. 1961. The influence of propinquity and opportunities for interaction on classroom relationships. Human Relations, 14, pp. 63-70.

_____, and John Buehler. July, 1955. A note on the influence of propinquity upon acquaintenceships. Journal of Abnormal and Social Psychology, vol. 51, pp. 147-148.

Burns, T. and G. M. Stalker. 1961. The management of innovation. London, Tavistock. 269 p.

Caplow, Theodore and Robert Forman. June 1950. Neighborhood interaction in a homogeneous community. American Sociological Review, vol. 15, pp. 357-366.

Carter, Mary Duncan and John Wallace Bonk. 1959. Building library collections. The Scarecrow Press, Inc., New York. 259 p.

Collins, Andrew. 1970. The interview: an educational tool. E.R.I.C. Clearinghouse on Educational Media and Technology, Stanford University, California. 16 p.

Coombs, Lolagene and Ronald Freedman. 1964. Use of the telephone interview in a longitudinal fertility study. Public Opinion Quarterly, vol. 27, pp. 112-117.

Davis, K. 1953. Management communication and the grapevine. Harvard Business Review, vol. 31, pp. 43-49.

Deese, James. 1964. Principles of psychology. Boston, Aleyn and Bacon, Inc. 489 p.

Deutsch, M. and M. E. Collins. 1958. The effects of public policy in housing projects upon interracial attitudes. In: Readings in social psychology, ed. by E. Maccoby, T. M. Newcomb, and E. E. Hartley, 3rd ed. New York: Holt, pp. 612-623.

Downie, N. M. and R. W. Heath. 1965. Basic statistical methods. 2nd ed. New York: Harper and Row Publishers. 325 p.

Dosey, Michael A. and Murray Meisels. 1969. Personal space and self-protection. Journal of Personality and Social Psychology, vol. 11, no. 2, pp. 93-97.

Dreger, Ralph Mason. 1962. Fundamentals of personality. Philadelphia and New York: J. B. Lippincott Company. 388 p.

Educational Resources Information Center (E.R.I.C.). July, 1969. A comparative study of the literature on the utilization of scientific knowledge. Final report. United States Office of Education. 507 p.

Fano, Robert M. 1961. Transmission of information: a statistical theory of communications. Published jointly by M.I.T. Press and John Wiley and Sons, Inc., New York. 389 p.

Far West Laboratory for Educational Research and Development. 1968. Educational research and development information systems requirements: a task force report. Berkeley, California. 54 p.

Fearing, Franklin. 1953. Toward a psychological theory of human communication. Journal of Personality, vol. 22, pp. 71-88.

Festinger, L. 1953. Group attraction and membership. In: group dynamics: research and theory, ed. by D. Cartwright and A. Zander. Evanston, Illinois: Row and Peterson. 642 p.

_____, Stanley Schachter, and Kurt Back. 1950. Social pressure in informal groups. New York: Harper. 197 p.

Foa, V. G. and E. B. Foa. 1972. Resource exchange: toward a structural theory of interpersonal communication. In: studies in dyadic communications, ed. by A. W. Siegman and B. Pope. New York: Pergammon Press, pp. 291-326.

Forston, Robert F. and Charles U. Larson. June, 1968. The dynamics of space: an experimental study in proxemic behavior among Latin Americans and North Americans. The Journal of Communication, vol. 18, pp. 109-116.

Gentle, Edgar C., Jr. (ed.). 1965. Data communication in business: an introduction. New York: American Telephone and Telegraph Company. 163 p.

Gibb, I. P. March 1960. Foreign book procurement--the decennial Farmington Plan survey and afterwards. Journal of Documentation, vol. 16, no. 1.

Glass, G. V. and J. C. Stanley. 1970. Statistical methods in education and psychology. Prentice-Hall, Inc. 596 p.

Gullahorn, John. February, 1952. Distance and friendship as factors in the gross interaction matrix. Sociometry, vol. 15, pp. 123-134.

Gross, Herbert S. 1972. Toward including listening in a model of the interview. In: studies in dyadic communication, ed. by A. W. Siegman and B. Pope. New York: Pergammon Press, pp. 281-290.

Hall, Edward T. 1963. A system for the notation of proxemic behavior. American Anthropologist, vol. 65, pp. 10003-1026.

_____. 1966. The hidden dimension. Garden City, New York: Doubleday, p. 157.

Hastorf, Albert, David J. Schneider, and Judith Poletra. 1970. Person perception. Addison-Wesley Publishing Company. 113 p.

Havelock, Ronald G. 1971. Planning for innovation through dissemination and utilization of knowledge. Institute for Social Research, University of Michigan, Ann Arbor, Michigan. 490 p.

_____. 1970. A guide to innovation in education. Ann Arbor, Michigan: Institute for Social Research, University of Michigan.

Heider, F. 1958. The psychology of interpersonal relations. New York: Wiley. 322 p.

Hillard, Robert. 1970. Educational broadcasting specialist for the Federal Communications Commission. As quoted in Alvin Toffler's, Future Shock, New York: Random House, Inc., p. 141.

Hochstim, Joseph R. May, 1963. Evaluation of three approaches to information collection in an epidemiologic study of cervical cytology. California Department of Public Health (mimeo).

Hoover, J. Edgar. August, 1966. Crime in the United States. Uniform Crime Reports. Washington, D. C.: U. S. Department of Justice.

Hovland, C. I. 1954. Effects of the mass media of communications. In: handbook of social psychology, vol. II, ed. by G. Lindzey. Cambridge: Addison-Wesley Publishers, pp. 1062-1103.

Hull, William L. and Gregory Benson, Jr. February 1972. Installing a coordinated information network in a state education agency: a case study of the decision process in New York. Columbus, Ohio: Center for Vocational and Technical Education, Ohio State University. 96 p.

Institute for Social Research. May, 1969. Interviewer's manual: survey research center. Ann Arbor: The University of Michigan. 98 p.

Isaac, Stephen and W. Michael. 1972. Handbook in research and education. San Diego: Robert R. Knapp, Publisher. 186 p.

Jackson, Isabel H. (Editor). 1966. Acquisition of special materials. San Francisco, California: San Francisco Bay Region Chapter, Special Libraries Association. 222 p.

Kahn, R. and C. Cannell. 1957. The dynamics of interviewing: theory, technique, and cases. New York: Wiley. 368 p.

Katz, A. M. and R. Hill. 1958. Residential propinquity and marital selection: a review of theory, method, and fact. Marriage and Family Living, 20, pp. 327-335.

Kegeles, S. S., C. F. Fink, and J. P. Kirscht. Fall 1969. Interviewing a national sample by long-distance telephone. The Public Opinion Quarterly, vol. 33, no. 3, pp. 412-419.

Kennedy, R. 1943. Premarital residential propinquity. American Journal of Sociology, 48, pp. 580-584.

Kipnis, D. M. 1957. Interaction between members of bomber crews as a determinant of sociometric choice. Human Relations, 10, pp. 263-270.

Knower, F. H. 1936. Experimental studies of changes in attitudes, part II: a study of the effects of printed arguments on changes in attitudes. Journal of Abnormal and Social Psychology, vol. 30, pp. 522-532.

_____. 1935. Experimental studies of changes in attitudes, part I: a study of the effect and oral argument on changes of attitude. Journal of Social Psychology, vol. 6, pp. 315-347.

Lancaster, F. W. January-February 1971. The cost-effectiveness analysis of information retrieval and dissemination systems. Journal of the American Society for Information Science, vol. 22, no. 1, pp. 12-27.

Larsen, Otto N. August, 1952. The comparative validity of telephone and face-to-face interviews in the measurement of message diffusions from leaflets. American Sociological Review, vol. 17, no. 4, pp. 471-476.

Loomis, James L. 1949. Communication, the development of trust and cooperative behavior. Human Relations, vol. 12, pp. 305-315.

Lucas, D. B. and S. H. Britt. 1963. Measuring advertising effectiveness. New York: McGraw-Hill. 399 p.

Lueck, A. L., J. M. Tierney, and Ann T. Dodson. May 1967. The role of searching services in an acquisitions program. Dayton, Ohio: University of Dayton Research Institute, 9 p.

Lundberg, George, Virginia Hertzler, and Lenore Dickson. February 1949. Attraction patterns in a university. Sociometry, vol. 12, pp. 158-169.

Maisonneuve, Jean. February 1952. Selective choices and propinquity. Sociometry, vol. 15, pp. 135-140.

Mann, J. H. 1959. The effect of interracial contact on sociometric choices and perceptions. Journal of Social Psychology, 50, pp. 143-152.

Mehrabian, A. 1968. Relationship of attitude to seated posture, orientation, and distance. Journal of Personality and Social Psychology, vol. 10, pp. 26-30.

Meisels, Murray and Michael A. Dosey. September 1971. Personal space, anger-arousal, and psychological defense. Journal of Personality, vol. 39. College Station, Durham, North Carolina: Duke University Press, pp. 333-344.

Merton, Robert. 1948. The social psychology of housing: In: current trends in social psychology, ed. by Wayne Dennis. Pittsburgh: University of Pittsburgh Press, pp. 163-217.

Morphet, Edgar L. and D. L. Jesser (Editors). 1968. Planning for effective utilization of technology in education. Denver, Colorado: Institute for Designing Education for the Future. 372 p.

Morton, Jack A. May 1964. From research to technology. International Science and Technology, vol. 29, pp. 82-92.

Moss, Jerome. September 1967. Selecting and developing a research problem, technical report no. 2. Research Coordinating Unit, University of Minnesota, vol. 1, no. 2. 14 p.

Nachman, Louis Jack. 1968. Weak and strong constructions in proximity space. The Ohio State University, Ph.D. dissertation. 143 p.

National Advisory Council on Vocational Education. June 21, 1971. Fifth report. Washington, D. C., p. 2.

National Commission on Technology, Automation, and Economic Progress. February 1966. Technology and the American economy. Washington, D. C.: U. S. Government Printing Office, vol. 1, pp. 103-105.

National Conference for the Study of Curriculum Development in Vocational and Technical Education. 1969. A guide for the development of curriculum in vocational and technical education. Division of Vocational Education at the University of California at Los Angeles, p. 12.

Newcomb, T. M. 1961. The acquaintance process. Holt, Rinehart, and Winston, Inc. 303 p.

_____. 1956. The prediction of interpersonal attraction. American Psychology, 11, pp. 575-586.

_____. 1953. An approach to the study of communicative arts. Psychological Review, vol. 60, pp. 393-404.

Northrup, Robert M. and O. Lynn Deniston. 1967. Comparison of mail and telephone methods to collect program evaluation data. Public Health Reports, vol. 82, pp. 739-745.

Northwest Regional Educational Laboratory. 1971A. Vocational technical project report. Portland, Oregon. Pamphlet.

_____. August 1971B. Vocational instructional materials for technical education available from Federal agencies. Washington, D. C.: U. S. Government Printing Office. 98 p.

Olmsted, Michael S. 1967. The small group. New York: Random House, 159 p.

Palmore, E. B. 1955. The interaction of Negroes into white departments. Human Organization, 14, pp. 27-28.

Parten, Mildred. 1950. Surveys, polls, and samples; practical procedures. New York: Harper. 624 p.

Patterson, Miles L. and Lee B. Sechrest. June 1970. Interpersonal distance and impression information. Journal of Personality, vol. 38. College Station, Durham, North Carolina: Duke University Press, pp. 161-166.

Public Law 89-487. November 1968. Freedom of information act, compilation and analysis of departmental regulations implementing 5 U. S. C. 552. Washington, D. C.: U. S. Government Printing Office, p. 2.

Public Law 90-576. October 1968. Amendments to vocational education act of 1963, title I, section 191(D). Washington, D. C.: U. S. Government Printing Office.

Reza, Fazlollah M. 1961. An introduction to information theory. New York: McGraw-Hill Book Company, Inc. 496 p.

Rogers, Everett M. 1962. Diffusion of innovations. New York: The Free Press of Glencoe, Inc. 367 p.

Rosnow, Ralph L. and Edward J. Robinson (eds.) 1967. Experiments in persuasion. New York and London: Academic Press. 519 p.

Sanders, Donald H. 1968. Computers in business: an introduction. New York: McGraw-Hill Book Company. 395 p.

Schmiedeskamp, J. W. 1962. Reinterviews by telephone. Journal of Marketing, vol. 26, pp. 28-34.

Sears, R. R. 1951. The theoretical framework for personality and social behavior. American Psychology, vol. 6, pp. 476-483.

Selltiz, Claire, Marie Jahoda, Morton Deutsch, and Stuart Cook. 1959. Research methods in social relations. Holt, Rinehart, and Winston. 622 p.

Shannon, Claude E. and Warren Weaver. 1949. The mathematical theory of communication. Urbana: University of Illinois Press. 117 p.

Siegman, A. W., T. Bless, and B. Pope. 1970. Verbal indices of interpersonal imbalance in the interview. University of Maryland Press, ED-044-735. 8 p.

Skager, R. W. and C. Weinberg. 1971. Fundamentals of educational research. Glenview, Illinois: Scott-Foresman and Company, pp. 77-80.

Smith, Alfred G. 1966. Communications and status: the dynamics of a research center. The Center for the Advanced Study of Educational Administration. 58 p.

Snedecor, George and W. Cochran. 1967. Statistical methods. Ames, Iowa: The Iowa State University Press. 593 p.

Sommer, Robert and Franklin D. Becker. 1969. Territorial defense and the good neighbor. Journal of Personality and Social Psychology, vol. 11, no. 2, pp. 85-92.

Stern W. 1938. General psychology from the personalistic standpoint. (Translated by H. D. Spoerl.) New York: Macmillan. 193 p.

Systems Development Corporation. 1968. Reference manual for educational information service centers. Falls Church, Virginia. 121 p.

Tagiuri, Rerato and Luigi Petrullo (eds.) 1958. Person perception and interpersonal behavior. Stanford University Press. 390 p.

Taylor, C. I. and Joel H. Magisos. 1971. Guide for state vocational-technical education information dissemination systems. Columbus, Ohio: Center for Vocational and Technical Education, Ohio State University. 209 p.

Toffler, Alvin. 1970. Future shock. New York: Random House. 505 p.

Triandis, Harry C. 1960. Cognitive similarity and communication in a dyad. Human Relations, Tavistock Publishers, Ltd., vol. 13, pp. 175-183.

Tribus, Myron and Edward C. McIrvine. September 1971. Energy and information. Scientific American, vol. 224, no. 3, pp. 179-188.

Veazie, Walter H., Jr. and Thomas F. Connolly. June 1971. The marketing of information analysis center products and services. Washington, D. C.: E.R.I.C. Clearinghouse on Library and Information Sciences. 33 p.

Wallace, Sidney. February 1971. Implications of information systems for vocational education. Portland, Oregon (unpublished paper, Oregon State University).

Watson, O. Michael and Theodore D. Graves. 1966. Quantitative research in proxemic behavior. American Anthropologist, vol. 68, pp. 971-985.

Weaver, C. H. and G. L. Weaver. November 1965. Information theory and the measurement of meaning. Speech Monographs, vol. 32, pp. 435-447.

Wilke, Walter H. 1934. An experimental comparison of the speech, the radio, and the printed paper as propaganda devices. New York: Archives of Psychology, no. 169. 32 p.

Willerman, B. and L. Swanson. 1952. An ecological determinant of differential amounts of sociometric choices within college sororities. Sociometry, 15, pp. 326-329.

Zander, A. and A. Havelin. 1960. Social comparison and interpersonal attraction. Human Relations, 13, p. 21-32.

Zimbardo, Philip and Ebbe B. Ebbesen. 1970. Influencing attitudes and changing behavior. Addison-Wesley Publishing Company. 162 p.

APPENDICES

APPENDIX A

LIST OF GROUPS CONTACTED FOR REFERRALS

These groups were contacted to obtain referrals to those people actually involved in the generation of VI/CM.

1. Regional Offices, H.E.W. - O.E. (10)
2. State Directors of Vocational Education (55)
3. State Directors of Special Education (54)
4. State Directors of Association for the Blind (33)
5. State Officers for Manpower Development & Training (44)
6. Directors of Community Mental Health (52)
7. Directors of Migrant Education (48)
8. Directors of Indian Education (10)
9. Bi-lingual Education (44)
10. Vocational Rehabilitation (54)
11. State Directors, Office of Economic Opportunity (51)
12. Opportunity Industrialization Centers (60)
13. Bureau of Indian Affairs--Area Offices (9)
14. Bureau of Indian Affairs--Field Employment Asst. Ofc. (3)
15. Service Employment & Redevelopment (SER)
16. Coordinators of Area Manpower Programs (CAMPS) (14)

Contact was also made with the following groups:

Civil Service

President's Committee to Hire Handicapped

National Council on Indian Opportunity

N. E. A.

Youth Development & Juvenile Delinquency (SRS)

Cuban Refuge Program

President's Committee on Opportunities for Spanish Speaking Peoples

Library of Congress, Division of Blind & Physically Handicapped

Public Service Careers--Civil Service

Developmental Disabilities--SRS

Job Corps Curriculum Unit

SRS--R&D

President's Council on Aging

Bilingual Education

Marriott Corporation

Bureau of Prisons--Education Division

President's Council on Disadvantaged

Bureau of Educationally Handicapped

- Deaf Division
- Vocational Education Division
- R&D Division
- Instructional Services Division

C.E.C. Clearinghouse

E.R.I.C.

S.E.I.M.C.--R.M.C.

N.C.E.R.D.

D.V.T.E.

Department of Commerce

D.C.E.

- Program Support Division
- Right to Read Program Division

Office of Economic Opportunity

Surgeon General's Office of:

- Army
- Navy
- Air Force

Veteran's Administration

Department of Labor

A.F. of L.--C.I.O.

Various curriculum development groups in colleges and universities

Local, national, and international labor unions

Commercial publishing groups

Professional associations

APPENDIX B

LETTER AND FORM SENT TO AGENCIES REQUESTING REFERRALS

Northwest
Regional
Educational
Laboratory

500 Lindsay Building · 710 S.W. Second Avenue
Portland, Oregon 97204 · Telephone (503) 224-3650

Recently we mailed a request to you regarding a project the Northwest Regional Educational Laboratory is presently conducting for the U. S. Office of Education to identify instructional materials which are applicable to vocational programs for the disadvantaged or handicapped. As you are aware, considerable emphasis has been placed on the need for this type of activity in the 1968 Vocational Education Amendments.

A nationwide search will attempt to survey all possible sources of such material. The materials will be collected, screened, annotated and classified; and lists of these materials will be distributed to selected educators across the nation.

Our recent letter requested your assistance in identifying the individuals in your state who are knowledgeable concerning programs and personnel developing or using job training materials for the handicapped. While your return may be on its way to us now, it has not been received as of December 31, 1971. If you have already replied, please accept our thanks for your cooperation. If not, we hope you will fill out the enclosed form and return it to us today. Your assistance will enable us to compile a comprehensive listing that will improve vocational opportunities for children in all states. We are anxious to see that all states are represented. Won't you take just a moment to fill out the enclosed forms so that we may reach this goal?

I am enclosing a project resume, reply forms and a stamped self-addressed envelope to facilitate your reply. We look forward to hearing from you in the near future.

Sincerely,

Redacted for Privacy

Douglas C. Towne, Project Director
Vocational - Technical Education Project

tc

Northwest
Regional
Educational
Laboratory
400 Lindsay Building • 710 S.W. Second Avenue • Portland, Oregon 97204 • Telephone (503) 224-3650

VOCATIONAL INSTRUCTIONAL MATERIALS FOR SPECIAL POPULATION GROUPS: Suggested Contacts

_____

Name and title of person completing this form

_____

State

In the space provided below, please list the names of persons our project staff should contact in your state when searching for vocational instruction materials for disadvantaged or handicapped students. These individuals would be knowledgeable concerning programs or personnel who develop or utilize these materials. Any comments on areas of specialization or present job responsibilities for designated personnel will be most helpful.

I. _____ (_____) _____
Name (Area Code) Phone

_____ _____
Job Title Department or Institution

_____
Street Address City State Zip Code

Comments: _____

_____

_____

- -

II. _____ (_____) _____
Name (Area Code) Phone

_____ _____
Job Title Department or Institution

_____
Street Address City State Zip Code

Comments: _____

_____

_____

IE

(See reverse side)

III. _____ (____) _____
Name (Area Code) Phone

_____ _____
Job Title Department or Institution

_____
Street Address City State Zip Code

Comments: _____

_____

_____

- -

IV. _____ (____) _____
Name (Area Code) Phone

_____ _____
Job Title Department or Institution

_____
Street Address City State Zip Code

Comments: _____

_____

_____

- -

V. _____ (____) _____
Name (Area Code) Phone

_____ _____
Job Title Department or Institution

_____
Street Address City State Zip Code

Comments: _____

_____

_____

- -

VI. _____ (____) _____
Name (Area Code) Phone

_____ _____
Job Title Department or Institution

_____
Street Address City State Zip Code

Comments: _____

_____

_____

APPENDIX C

PROJECT RESUMÉ

SEARCHING FOR VOCATIONAL MATERIALS FOR HANDICAPPED AND/OR DISADVANTAGED STUDENTS

The handicapped or disadvantaged student entering a program in career exploration or occupational development faces two major problems. First, his teacher (and often his classmates) may not have first hand experience with the kinds of special problems he must cope with in everyday life. Second, relatively few vocational programs have identified and subsequently utilized appropriate instructional materials in classroom work with these students. The goal of this project is to aid vocational teachers in meeting the special needs of handicapped and/or disadvantaged students. This will be accomplished by providing teachers with listings of classroom tested instructional materials which have been successfully used in occupational programs for the target populations.

WHAT WILL WE DO?	WHAT ARE WE LOOKING FOR?	WHAT AREAS WILL WE COVER?	
1. We will search out, collect, annotate and classify materials presently being used in occupational programs for the disadvantaged and/or handicapped. 2. We will compile listings of these materials, with evaluative data included, to be distributed throughout the United States to vocational educators directly involved with the education of the disadvantaged and/or handicapped.	We are seeking materials that can be readily utilized by the classroom teacher without excessive modification. We are particularly interested in those materials presently being used successfully in occupational programs for the handicapped or disadvantaged. The following kinds of materials will be collected: Textbooks, workbooks Motion Pictures Filmstrips--8mm loops Transparencies Reference materials (pamphlets, books, periodicals) Television units Programmed Texts Books, Study Guides Correspondence courses Lesson and unit plant CAI (computer assisted instruction) programs DAIRS (dial access information retrieval systems)	Agricultural Education Consumer Education Distributive Education Occupational Information Co-operative education Work Study Programs Trade and Industrial Occupations Vocational Rehabilitation Home Economics Education Business Education Health Occupations Pre-Vocational Education Technical Education Office Occupations Education Communication Skills Reading Programs Math for Everyday Living	Materials listed by this project will be appropriate for use with one of the following areas of handicap or disadvantagement: Disadvantaged 1. ethnic minorities 2. the poor: rural, ghetto, technologically unemployed 3. rehabilitation candidates: prisoners, addicts, alcoholics, veterans, physically or mentally handicapped Handicapped 1. Mentally retarded 2. bio-medically physically handicapped 3. speech, hearing or sight impaired Manpower Development Training Centers New Careers Residential Schools

FOR FURTHER INFORMATION

Dr. D.C. Towne, Director
Mr. A.D. Stoller, Project Co-ordinator
Ms. Sydney Wallace, Staff Specialist
Special Population Groups Project

Northwest Regional Educational Laboratory
500 Lindsay Building
710 S.W. Second Avenue
Portland, Oregon 97204
Telephone (503) 224-3600

APPENDIX D

VI/CM EVALUATION FORM FOR USE BY REVIEW PANEL

SPECIAL GROUPS
EVALUATION FORM

Code Number _____
Accession Number ____
purple ___
red ___
green ___

I. Description of Material:

II. How usable do you believe this material is for the vocational or basic education of disadvantaged or handicapped students?

very useful		maybe used partially		not useful

Comments:

III. Do you believe the organization and/or format of this material is easy to follow:

very easy		can follow with effort		cannot follow

Comments:

IV. Do you believe that the material can accomplish its intended educational goal?

yes		maybe		no

Comments:

V. Do you believe that the learning level of this material is appropriate for its intended target audience?

yes		maybe		no

Comments:

VI. Do you believe that there is a significant need for this particular type of material?

yes		maybe		no

Comments:

APPENDIX E

EVALUATION PANEL INSTRUCTIONS AND PROCEDURES

INSTRUCTIONS TO STAFF FOR ORGANIZING THE PANEL
ASSESSMENT OF SPECIAL GROUPS MATERIALS

1. When selecting the teachers who will be on the panel, attempt to get representation from each of the areas of education concerned, i.e., a teacher representing special education, vocational education, remedial education, disadvantaged groups (the Portland Residential Manpower Center or Vocational Village would have someone for this category), and handicapped groups. Obviously, one teacher may represent two areas.

2. During the orientation of each panel member to the task, give each member a code letter from A to E which they will mark on each evaluation form they fill out. This way we can collect all of letter "A's" evaluation forms, for example, and see if his or her evaluations are following a trend that could bias the study. Giving them a code letter may help them feel less conspicuous and prompt them to give more honest replies. It will also be easier and quicker for them to write a letter on each form than their names.

3. During the panel members' orientation (or before) I need the following information on each panel member to see if their experiences, position, education, etc. produces any trends in their evaluations.

   A. What subjects they teach.

   B. Who they teach (student age group, type of student, etc.).

   C. How many student contact hours per week.

D. Do they have assigned duties other than teaching? If so, how much time do these duties require, and what are the duties.

E. Qualifications and experiences (How much education? How long have they been teaching? Have they ever worked with other types of students?).

4. During the orientation of each panel member, use some documents from other states (not from my collection, but representative of them) to use for the panel member to:

   A. Get a feeling for what we are attempting to do.

   B. Have a trial run at evaluating.

   C. Help establish additional criteria.

   Don't let these sample documents or their evaluation forms be mixed in with my documents and forms.

5. The panel members may use my criteria if they wish or they can alter it to their own satisfaction (within reason) if they wish. However, this should be done before each member begins evaluation of the documents from my collection and it should be applied to the evaluation done by the other panel members. If alteration is desired by a member then the alteration of criteria will have to be accomplished before anyone begins assessing the VI/CM. You may wish to mail them a sample form before they come in to assess the documents.

6. On the evaluation form you will note that there is room for comments. The panel members should be encouraged to write down any

positive or negative comments they may think of regarding the particular document under evaluation at that time.

7. As you know, we should not inform the panel members that this is a study. They are simply evaluating materials.

8. There should be one evaluation form filled out for each accession (purple, red, or green) number.

9. The panel members should review every single document in my collection.

10. As you realize it is very important that the panel members write down the accession number on the evaluation form and check off whether it is a purple, red, or green number on the document they are evaluating.

Example:

Accession no. 0058-1.2
purple _____
red _____
green _____

11. Item I on the evaluation form is to:

A. Help in the identification of the document.

B. To see if the panel member understands what he is evaluating.

12. Item II is attempting to determine if the material is in conformity with our stated objectives, i.e., the criteria listed on the yellow "project resumé" (Appendix C) handout.

13. Item III attempts to identify well-done material, fully or partially completed material, or material that is too complicated to adopt as it presently exists.

14. Item IV attempts to learn if the material is making or implying claims which it cannot fulfill.

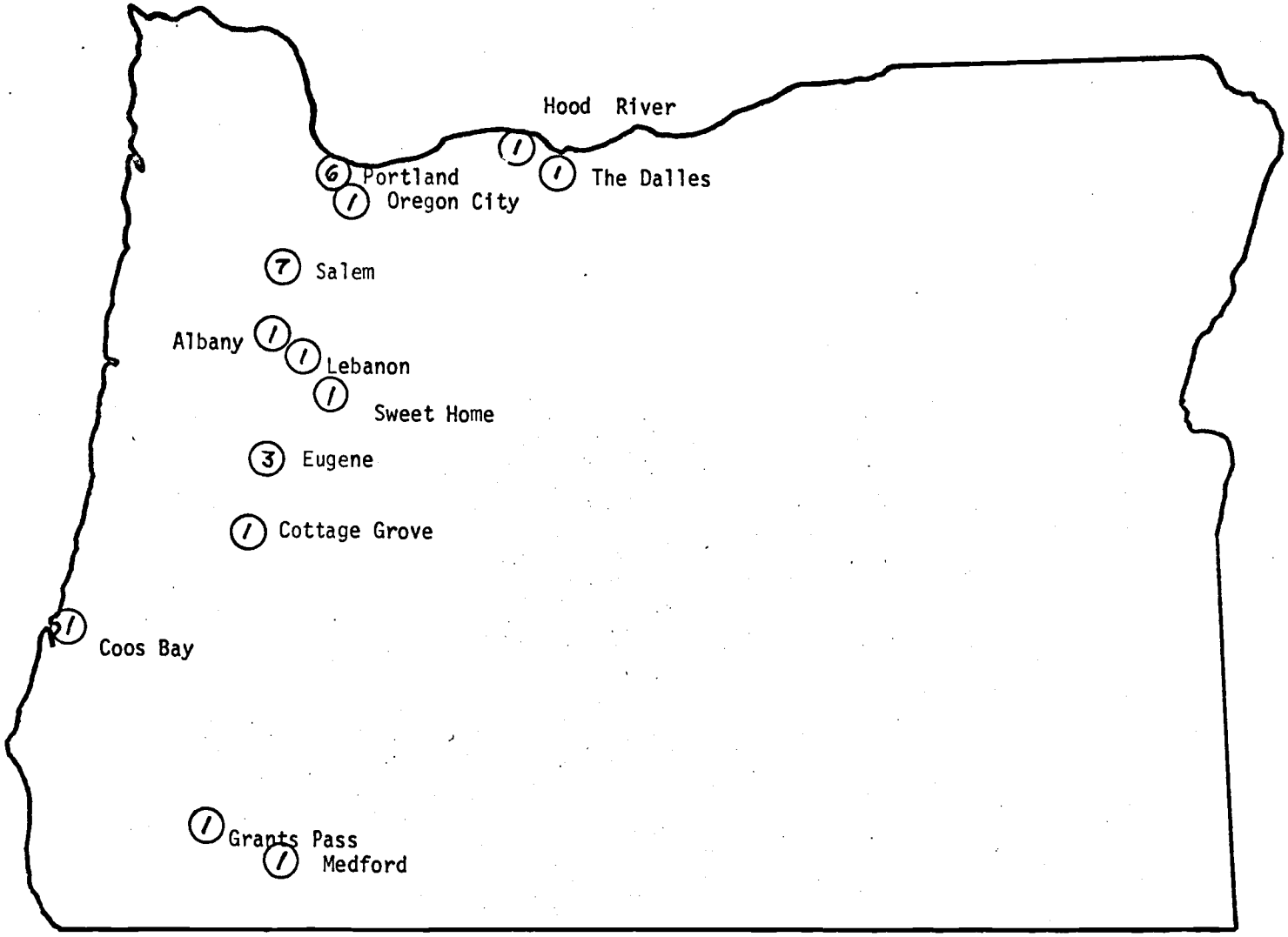
15. Item V attempts to learn if the material has appropriate reading or comprehension level for the implied group of students that it is directed towards.

16. Item VI attempts to learn if the material is the "same old stuff," creative approach to an old problem, or new material needed for emerging needs.

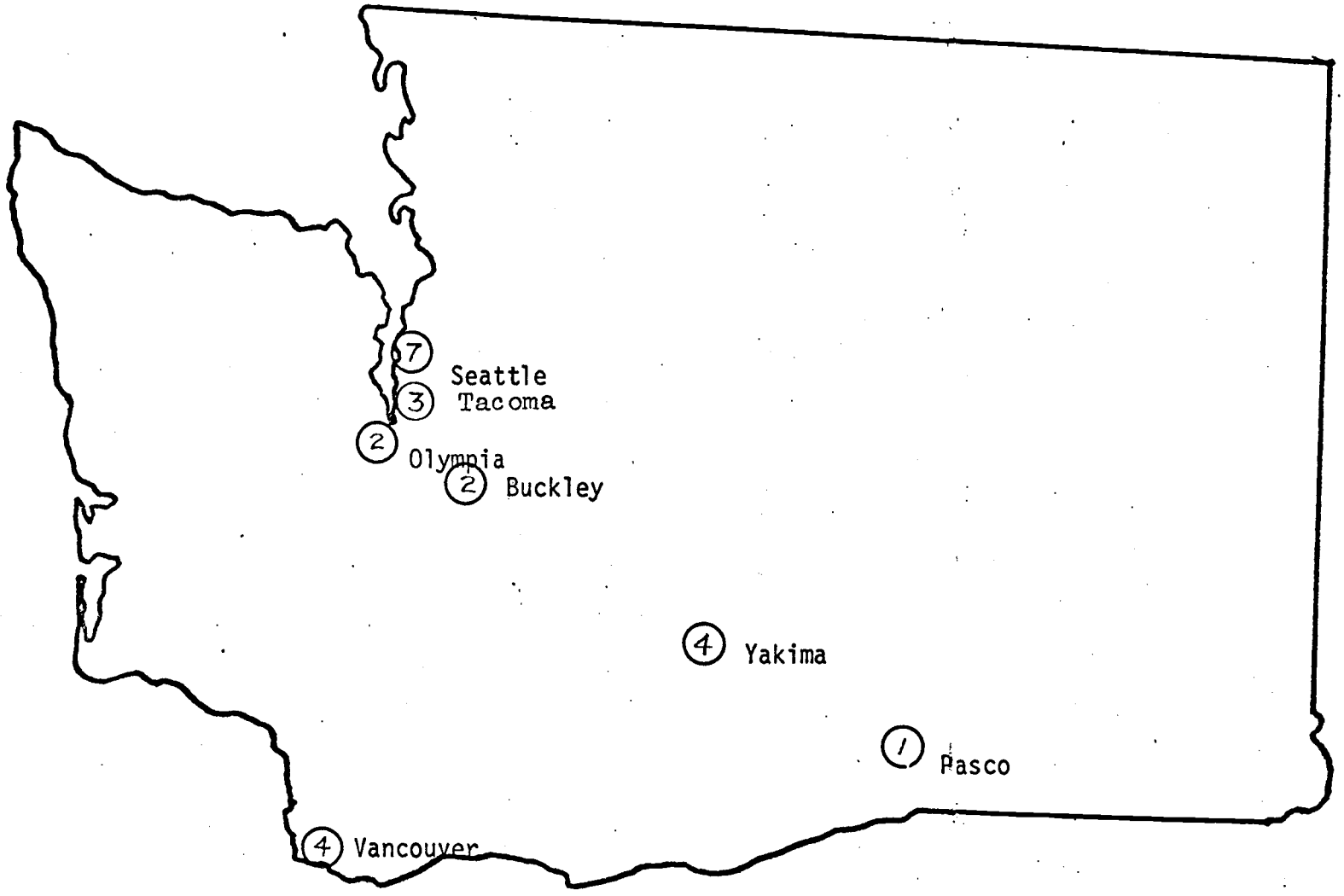
17. Do not disclose the identities of the panel members to project staff.

APPENDIX F

VISITATION LOCATIONS



Cities on Visitation Schedule



Cities on Visitation Schedule

APPENDIX G

LETTER REQUESTING VI/CM FROM MAIL GROUP

Northwest
Regional
Educational
Laboratory

Lindsay Building · 710 S.W. Second Avenue
Portland, Oregon 97204 · Telephone (503) 224-3650

Dear Educator:

We are engaged in a project to collect and catalog all teacher-produced vocational instructional materials for disadvantaged or handicapped students. We are also seeking these materials from other sources including commercial companies. This project is a cooperative effort of the Division of Vocational and Technical Education and the Division of Manpower Development and Training, Bureau of Adult, Vocational and Technical Education, U. S. Office of Education.

In order that we may properly catalog the materials, it is necessary that we obtain two copies of each item. We would appreciate your cooperating with us in our efforts to produce a comprehensive listing and hope that this request is not too burdensome. Enclosed for your use is an orange and white mailing label that is addressed to us. Please attach this label to your package for postage-free mailing of your materials.

We realize it may not be possible for you to ship us all the vocational materials you have developed. However, we would appreciate receiving those which you would like to share with other educators of the disadvantaged and the handicapped. In addition, it would be helpful if you could indicate those materials which had to be omitted, for example, films or videotapes. These materials will not be reproduced or redistributed in any form so this collection will pose no threat to your potential copyright.

Many teachers compile a list of commercial instructional materials which they have found useful in their instructional programs for the disadvantaged or handicapped. If you have such a listing which you could enclose along with your materials, it would be most helpful.

We thank you in advance for your cooperation in helping us prepare a comprehensive and usable catalog. We believe that an awareness of accessible and effective vocational instructional materials will increase a teacher's ability to plan for handicapped and disadvantaged students.

Sincerely,

Redacted for Privacy

INSTRUCTIONAL MATERIALS FOR SPECIAL GROUPS

Jake Huber, Staff Specialist
Vocational-Technical Materials Project

Enclosure

bw

APPENDIX H

INTERVIEW OUTLINE

INTERVIEW STRUCTURE

I. Introduction--Jake Huber, NWREL in Portland

II. Referred--Your name was referred to us by_____ as a person involved with (disadvantaged or handicapped) students.

III. Project Description--NWREL is working on a project funded by the USOE to collect and classify vocational instructional curriculum material for disadvantaged and handicapped students.

IV. Request

A. We would like to know more about the kinds of things you are doing in your program.

Response_____

_____

B. Yes, this is the kind of program we are interested in. As I mentioned, we have been funded to create listings of materials to carry on programs like yours. We would like to identify these materials for other teachers by describing them in our listings. To do this we need to identify the materials you use and we will need samples of the materials.

C. Are these documents readily available? Yes_____.
If not....

D. Can we list the materials and invite communication with you?
Yes_____ If not....

E. Can we have one copy to show to our project officer (there will be no listing and no unsolicited communication).

V. Mailing Address--please forward these materials to:

Jake Huber
Northwest Regional Educational Laboratory
710 SW 2nd Avenue
Portland, Oregon 97204

If you have items which cannot be sent because of mailing difficulties, would you identify them for us and we will make arrangements to preview them.

4/6/72

APPENDIX I

PANEL MEMBER'S QUALIFICATIONS

PERSONAL DATA SHEET

A
Participant Number

1. Please give the name and address of the school where you teach (have taught).

CANBY UNION HIGH SCHOOL

CLACKAMAS COMMUNITY COLLEGE

2. In what subject areas do you have teaching experience?

Subject	Number of years taught
Director of Guidance + Career Ed.	3 yrs.
Director of Guidance	6 yrs.
Counselor	8 yrs.
Social Science Instructor	3 yrs.
Total Ed. Exp.	11 yrs.

3. Describe your professional training (Degrees held, hours beyond present degree, certification beyond present degree, certification as teacher, counselor, supervisor, administrator, etc.).

A.B. degree - M.Ed. degree (Guidance & Psychology)
Doctoral Candidate OSU - Voc. Ed. major, Psy. minor
5 year certificate - Social Studies
Std. Counseling norm

4. Which of the following groups of students have you worked with? Indicate grade level.

✓ Mexican-Americans 9-12
Indian-Americans
Black-Americans
Chinese or Japanese
Cuban or Puerto Rican
European immigrants
✓ Marginally literate (adults)
Slow learners
✓ Economically disadvantaged 9-12
rural ✓
urban ✓
Aurally handicapped
Auditorily handicapped
Visually handicapped
✓ Mentally handicapped 9-12
✓ educable

trainable
Physically handicapped
✓Emotionally or behaviorally disturbed 9-12

5. Describe the average number of hours per week you teach during an average year.

0

6. Describe any additional duties you perform in terms of time required.

Director of Guidance & Career Ed. - spent time in administrative activity with responsibility for all counseling & vocational education.

7. Describe previously unmentioned work experiences which have equipped you to meet the educational and social needs of the disadvantaged or handicapped learner.

I am certified to give Wechsler exam and have had the EMR dept. as part of my dept. Have worked with disadvantaged in N.D.E.A. counseling institutes.

PERSONAL DATA SHEET

B
Participant Number

1. Please give the name and address of the school where you teach (have taught).

Have been at Jefferson High School - Portland
Will be at Adams High School - Portland

2. In what subject areas do you have teaching experience?

Subject	Number of years taught
Classroom - Primary	16
Special Ed. (M.R.) Elem.	5
Special Ed. (M.R.) Secondary	7
Elementary Admin.	2

3. Describe your professional training (Degrees held, hours beyond present degree, certification beyond present degree, certification as teacher, counselor, supervisor, administrator, etc.).

B. S. El. Ed.
M.A.
Sp. Ed. (M.R. Certification)
Adm. Credentials
Counseling Certification

4. Which of the following groups of students have you worked with? Indicate grade level.

Mexican-Americans ✓ all grades + H.S.
Indian-Americans ✓ "
Black-Americans ✓ "
Chinese or Japanese
Cuban or Puerto Rican
European immigrants
Marginally literate adults
Slow learners ✓ Elem.
Economically disadvantaged ✓ Elem.
rural ✓
urban ✓
Aurally handicapped
Auditorily handicapped
Visually handicapped
Mentally handicapped ✓ 5-12
✓ educable

trainable
Physically handicapped
Emotionally or behaviorally disturbed ✓ 3 + 4

5. Describe the average number of hours per week you teach during an average year.

20 hrs. instruction in building: 20 - work exp.

6. Describe any additional duties you perform in terms of time required.

7. Describe previously unmentioned work experiences which have equipped you to meet the educational and social needs of the disadvantaged or handicapped learner.

PERSONAL DATA SHEET

C
Participant Number

1. Please give the name and address of the school where you teach (have taught).

Portland Residential Manpower Center
Supervise vocational educ.

2. In what subject areas do you have teaching experience?

Subject	Number of years taught
Drafting	12
Carpentry	15

3. Describe your professional training (Degrees held, hours beyond present degree, certification beyond present degree, certification as teacher, counselor, supervisor, administrator, etc.).

B.S. - Engineering
M.Ed. - Education
Have 105 upper division cr. beyond B.S.
5 yr. std. teach. cert.
5 yr. Voc. DIR. cert.

4. Which of the following groups of students have you worked with? Indicate grade level.

Mexican-Americans 16-22 yr. old
Indian-Americans " " " "
Black-Americans " " " "
Chinese or Japanese —
Cuban or Puerto Rican 16-22 yrs. old
European immigrants —
Marginally literate adults 16-22 yr. old
Slow learners —
Economically disadvantaged 16-22 yr. old
rural Same
urban Same
Aurally handicapped —
Auditorily handicapped Same
Visually handicapped —
Mentally handicapped Same
✓ educable

✓ trainable
Physically handicapped —
Emotionally or behaviorally disturbed same

5. Describe the average number of hours per week you teach during an average year.

Do not teach - Supervise.

6. Describe any additional duties you perform in terms of time required.

Asst. Center Director - Counsel - Supervise basic education

7. Describe previously unmentioned work experiences which have equipped you to meet the educational and social needs of the disadvantaged or handicapped learner.

3 yrs. - Supervisor of Trade & Ind. Educ., Oregon Bd. of Educ; Taught Ind. Arts, 17 yrs. to slow learners; Journeyman (Carpenter).

PERSONAL DATA SHEET

D
Participant Number

1. Please give the name and address of the school where you teach (have taught).

Portland Public Schools

631 N.E. Clackamus, Portland, Oregon

2. In what subject areas do you have teaching experience?

Subject	Number of years taught
Language Arts	1
Social Studies	1
Self-contained	5
Adult Basic Ed.	1
College	1

3. Describe your professional training (Degrees held, hours beyond present degree, certification beyond present degree, certification as teacher, counselor, supervisor, administrator, etc.).

M.A. Education + 6 hrs.
Certificated teacher and counselor

4. Which of the following groups of students have you worked with? Indicate grade level.

Mexican-Americans _____
Indian-Americans _____
Black-Americans 5
Chinese or Japanese 4
Cuban or Puerto Rican _____
European immigrants _____
Marginally literate adults _____
Slow learners 5
Economically disadvantaged _____
rural _____
urban _____
Aurally handicapped _____
Auditorily handicapped _____
Visually handicapped _____
Mentally handicapped _____
_____ educable

_____ trainable
Physically handicapped _____
Emotionally or behav-
iorally disturbed _____

5. Describe the average number of hours per week you teach during an average year.

Approx. 50

6. Describe any additional duties you perform in terms of time required.

Administrative

7. Describe previously unmentioned work experiences which have equipped you to meet the educational and social needs of the disadvantaged or handicapped learner.

Director of Career Opportunities Program. Program for economically disadvantaged adults (paraprofessionals).

PERSONAL DATA SHEET

E
Participant Number

1. Please give the name and address of the school where you teach (have taught).

Junction City High School - Junction City, Oregon
Rainier School for the Mentally Retarded, Buckley, Wash.

2. In what subject areas do you have teaching experience?

Subject	Number of years taught
Remedial English & Math	2
Co-op Work Exper.	2
Social & Adult Living Skills	2

3. Describe your professional training (Degrees held, hours beyond present degree, certification beyond present degree, certification as teacher, counselor, supervisor, administrator, etc.).

B.A., M.S. + 20 Certified to teach speech, social studies and special education

4. Which of the following groups of students have you worked with? Indicate grade level.

Mexican-Americans
Indian-Americans ✓ 9-12
Black-Americans
Chinese or Japanese
Cuban or Puerto Rican
European immigrants
Marginally literate adults ✓
Slow learners ✓ 9-12
Economically disadvantaged ✓ 9-12
rural ✓
urban
Aurally handicapped
Auditorily handicapped ✓ 9-12
Visually handicapped
Mentally handicapped ✓
9-12 educable

✓ trainable	1-12
✱Physically handicapped	✓ 1-6
✱Emotionally or behaviorally disturbed	✓ 1-12

5. Describe the average number of hours per week you teach during an average year.

40

6. Describe any additional duties you perform in terms of time required.

Home visits, counseling, scheduling, club advisor - 20

7. Describe previously unmentioned work experiences which have equipped you to meet the educational and social needs of the disadvantaged or handicapped learner.

Work in clinical settings w/* groups. U. of O. & U. of W.

APPENDIX J

VOCATIONAL VS. NON-VOCATIONAL LIST

VOCATIONAL

Vocational Rehabilitation Agencies
Vocational Village
Residential Manpower Centers
Seattle Opportunity Industrialization Center
Goodwill Industries Rehabilitation Centers
Community Colleges
High Schools
Vocational Teachers and Administrators in Local Education Agencies

NON-VOCATIONAL

Oregon State School for the Deaf
EMR Teachers
State Specialist for the Blind
Mid-Columbia Community Action Council
Yakima Valley School Psychologist
Seattle Blind School
Seattle Hearing and Speech Center
Vancouver School for the Deaf
Forest Service
University of Oregon/Women's Center
Valley Migrant League
Civilian Conservation Centers
Special Education Instructional Materials Centers

This list is not meant to be all inclusive of the different types of agencies and groups contacted. It is merely provided as an example of vocational vs. non-vocational dichotomy. Those groups and agencies that do not have vocational education as their primary objective were included in the non-vocational section. This author used subjective judgement and personal familiarity with the agencies in determining on which list to place each agency.

APPENDIX K

ANALYSES OF POSSIBLE SAMPLE DIFFERENCES

It was conjectured that there may be a difference between States, i.e. Oregon may be more or less "cooperative" than Washington.

TABLE 1. OREGON VS. WASHINGTON

	Number of Documents Received		
	Visit	Phone	Mail
Oregon	22	7	3
Washington	67	10	12

Chi-square = 2.353 DF = 2

Table 1 shows that there was no significant difference between the techniques used to collect the documents and the states from which they came. Consequently, this analysis indicates that the techniques have the same relative effectiveness in each state.

It was also conjectured that there may be more "cooperation" rendered by vocational persons and groups, than by non-vocational persons and groups (See Appendix J for a classification of these two groups).

TABLE 2. VOCATIONAL VS. NON-VOCATIONAL GROUPS

	Number of Documents Received		
	Visit	Phone	Mail
Vocational	41	8	9
Non-vocational	48	9	6

Chi-square = 1.005 DF = 2

Table 2 indicates that there was no significant difference between the techniques used to collect the documents and the vocational and non-vocational groups. Therefore, this indicates that the techniques have the same relative effectiveness with each of the two groups.

There was a possibility that the respondents would be more willing to contribute those documents that were "readily available," i.e. those documents that were produced in sufficient quantity for dissemination. Table 3 shows that there was no significant difference between the technique used to collect the documents and the availability of the documents. Therefore, the techniques have the same relative effectiveness with documents that are "readily available" or "not-readily available."

TABLE 3. AVAILABLE VS. NOT-READILY AVAILABLE

	Number of Documents Received		
	Visit	Phone	Mail
Readily available	15	3	2
Not-readily available	74	14	13
Chi-square = 0.133			DF = 2