1974

Integration of Programmed Instruction With Instructional Television in a Health Education Program.

Richard Joseph Jude O'Connor
Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation
https://digitalcommons.lsu.edu/gradschool_disstheses/2625

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Historical Dissertations and Theses by an authorized administrator of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.
INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or “target” for pages apparently lacking from the document photographed is “Missing Page(s)”. If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.

2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.

3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in “sectioning” the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.

4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from “photographs” if essential to the understanding of the dissertation. Silver prints of “photographs” may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.

5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.

Xerox University Microfilms
300 North Zeab Road
Ann Arbor, Michigan 48106
O'CONNOR, Richard Joseph Jude, 1936-
INTEGRATION OF PROGRAMMED INSTRUCTION WITH
INSTRUCTIONAL TELEVISION IN A HEALTH EDUCATION
PROGRAM.
The Louisiana State University and Agricultural
and Mechanical College, Ed.D., 1974
Education, adult

University Microfilms, A XEROX Company, Ann Arbor, Michigan
INTEGRATION OF PROGRAMMED INSTRUCTION
WITH INSTRUCTIONAL TELEVISION IN A
HEALTH EDUCATION PROGRAM

A DISSERTATION

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Education

in

The Department of Extension Education

by

Richard Joseph Jude O'Connor
B. S., Boston College, 1958
M. S., University of Massachusetts, 1965
May, 1974
ACKNOWLEDGEMENTS

The writer is sincerely indebted to Professor Edward W. Gassie, who served as the Chairman of his Doctoral Committee, and to the other Committee members--Dr. Alvin L. Bertrand, Dr. Bruce Flint, Dr. O. Jeff Harris, and Dr. Joseph H. Jones, Jr.--for their helpful suggestions and encouragement in the conduct of this study. Dr. Barton R. Farthing and Dr. Satish Verma were also of great assistance in the statistical analysis portion of the study.

I would also like to thank Dr. John R. Trautman, Director, United States Public Health Service Hospital, Carville, Louisiana, and other members of the Hospital staff and patient body who contributed to the study. Mrs. Joe Smilie has been especially helpful in providing typographical and editorial services. Finally, no recognition would be complete without mention of the unfailing support, encouragement and wise counsel of my wife, Elaine P.

Although professionally I am associated with the United States Public Health Service, this dissertation was written in my private capacity and no official support or endorsement by the Department of Health, Education, and Welfare is intended or should be inferred.
TABLE OF CONTENTS

ACKNOWLEDGEMENT ........................................ ii
LIST OF TABLES ........................................... v
LIST OF ILLUSTRATIONS ................................. vi
ABSTRACT .................................................. vii

Chapter

I. INTRODUCTION ........................................ 1
   The Need for Health Education
   National Center for Health Education
   Contemporary Adult Education Theory
   Individualized Instruction and Programmed Learning
   The Hospital as a Learning Resource Center
   Instructional Television in Health Education
   Instructional Television and Learner Response
   Purpose and Hypotheses

II. REVIEW OF RELATED LITERATURE .................... 26
    Patient Health Education
    Instructional Media
    Miscellaneous Studies

III. METHODOLOGY ....................................... 35

IV. RESULTS AND DISCUSSION OF STUDY FINDINGS ........... 47
    General
    Characteristics of Population Sample
    Test Results and Mean Learning Gains
    Subjective Findings
    Significance of Study Findings
    Study Implications

V. SUMMARY .............................................. 61
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Characteristics of Health Education Study population by sex, age, years of employment, and length of education. U.S. Public Health Service Hospital, Carville, La., 1974</td>
<td>48</td>
</tr>
<tr>
<td>2. Test scores and mean learning gains of all Health Education Study participants, by group and treatment. U.S. Public Health Service Hospital, Carville, La., 1974</td>
<td>49</td>
</tr>
<tr>
<td>3. Comparison of group and treatment effects on knowledge gain in participants of Health Education Study, U.S. Public Health Service Hospital, Carville, La., 1974</td>
<td>50</td>
</tr>
<tr>
<td>4. Response to question &quot;What is your overall opinion regarding the use of television for learning?&quot; U.S. Public Health Service Hospital, Carville, La., 1974</td>
<td>52</td>
</tr>
<tr>
<td>5. Response to question &quot;What do you think about the use of instructional television at Carville?&quot;</td>
<td>52</td>
</tr>
<tr>
<td>6. Response to question &quot;What do you think about the instructional program on Hansen's disease?&quot;</td>
<td>53</td>
</tr>
<tr>
<td>7. Response to question &quot;Do you think that other persons at the hospital would be interested in seeing this program?&quot; U.S. Public Health Service Hospital, Carville, La., 1974</td>
<td>53</td>
</tr>
<tr>
<td>Figure</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>1. Videocassette Recorder-Reproducer</td>
<td>18</td>
</tr>
<tr>
<td>2. QRS Responder Module</td>
<td>43</td>
</tr>
</tbody>
</table>
ABSTRACT

An increased awareness exists among those responsible for the planning and implementation of health care activities for an informed, knowledgeable health care consumer. This concern was recently made manifest by appointment of a President's Committee on Health Education.

In recognition of this need for innovative and effective health education programs, an attempt was made in the present study to determine the effectiveness of instructional television in a hospital specialized in the treatment of a chronic illness (leprosy). The study specifically attempted to learn if concepts of programmed instruction could be successfully integrated into locally-produced televised educational materials. A random sample of sixty patients and staff were selected to test effectiveness of the televised material, a 22-minute presentation on leprosy. One-half of the total study group participated in the learning experience as passive viewers, while the other participants responded actively to specific questions asked in an additional 8-minute videotaped segment which followed the basic presentation. All subjects were requested to complete a pre-test and post-test which consisted of 15 multiple-choice response questions on common facts about the disease. Additionally, all participants completed a subjective opinion survey questionnaire.
Study results indicated that a highly significant ($P < .001$) relationship existed between televised instruction and learning gain. Differences in learning noted as a result of programmed and non-programmed televised formats occurred, but not at a level of statistical significance ($P > .05$). Learner acceptance levels in regard to television as a teaching device were high, nearly one hundred per cent. No major problem was encountered in combining the programmed instruction device (QRS Responder Module) in a televised format. Other significant study findings related to the successful use of the videocassette as a health education delivery method, potential role of the specialty hospital as a learning-resource center, relative ease in producing local television materials, relationships existing between televised instruction and individualized learning techniques, application of adult education concepts in a hospital-based health education program, and the advantages associated with the use of educational television in public information and medical teaching activities in leprosy.
CHAPTER I

INTRODUCTION

The Need for Health Education

The importance of patient education as an essential component of health care programs is becoming increasingly recognized by those responsible for the development and implementation of health care delivery systems. Patient education in this context is defined as a program with goals and objectives concerning health educational experiences planned for the patient by professional personnel as a component of his care and differentiates those experiences from unplanned learning experiences in the hospital (1).

Vernon E. Wilson, M. D., former Administrator of the Health Services and Mental Health Administration, U. S. Department of Health, Education and Welfare, recently remarked: "I suggest strongly that one of the most productive and least explored avenues for improving community health and, at the same time, for economizing on the use of scarce resources of manpower and facilities, is the activation of the patient as the one who 'delivers' his own health care (2)." Anne Somers, the Princeton economist, states that "it is clear that the consumer must be prepared and educated to play an informed, responsible role in his own treatment and cure-especially in
cases of chronic or mental illness (3)." J. Douglas Colman, in the 1970 Hilleboe Memorial Lecture, pointed out that "positive health is not something one human being can give to, or require of another. In large part, its attainment must include self-directed, intelligent, continuing, personal effort...(4)."

The Secretary of the Department of Health, Education and Welfare noted in a recent report to the Congress that "most of today's major health problems cannot be solved without thorough understanding and action by individuals. Physicians and other health workers play a vital role, of course, in diagnosis and in prescription of treatment. But it is the individuals themselves who decide whether to follow sound personal health practices, seek diagnosis, or heed medical advice (5)." The American Hospital Association also acknowledged the need for providing a strong educational component in the provision of health services in a recent policy statement:

Every individual shares a responsibility to protect his own health, and proper discharge of this responsibility will reduce the incidence of illness, disease, and injury. In order to encourage individuals to take care of themselves to the maximum extent possible, programs of education to teach people how to exercise this responsibility must be developed, conducted, evaluated, and maintained (6).

Patient health education needs are particularly significant in chronic illness. Dr. D. D. Etzwiler of the Diabetes Education Center, Minneapolis, Minnesota, summarized this point well in a recent letter to the Journal of the American Medical Association:
In order to increase manpower and lower costs of health care, numerous efforts and programs are now being directed toward the development of new allied health professionals. The rationale is that the "team approach" permits the use of various professionals trained in specific areas to provide more manpower at decreased costs. Unfortunately, this concept of "team care" still utilizes the outdated model of the active professional taking care of the passive patient. The most important member of the medical team for health maintenance and chronic disease has been forgotten; i.e., the patient himself. Effective care of chronic disease and health maintenance cannot be carried out without the cooperation of an informed patient supported by an interested and knowledgeable health care group...(7).

This recognition of the need for health education is not restricted to only those persons already affected by illness. To an increasing extent, it is being realized that health education holds promising potential in preventing the occurrence of many health problems. Dr. Charles C. Edwards, Assistant Secretary for Health, Department of Health, Education, and Welfare, states that "we spend billions of dollars every year to deal with the treatment of health problems that could be prevented through better nutrition, prevention of accidents and more effective health education all across the board (8)." Georgetown University, Washington, D.C., is attempting to put this concept into practice by the establishment of a course in self-help community medicine which encourages patients to attend to minor health problems themselves--or, as the project director puts it, to become "activated patients." Other examples of this trend include an effort by Johns Hopkins Medical School to develop a family health education unit; consideration of the
U. S. Army's Office of the Surgeon General to teach dependent wives to handle minor medical problems; and a large, sophisticated patient health education of Kaiser-Permanente, the nation's biggest provider of private health services (9).

Professor Eli Ginzberg of Columbia University points out the potential economic benefits of this trend: "Programming the American people to do much more about their own health would be a lot more economical and effective in easing the demands on physicians than producing more of them. This is an immense, untapped health manpower resource....(10)."

The latent advantages of expanded patient and consumer health education programs will be realized only by a significant increase in the amount of resources allocated to such activities. At the present time, of more than $75-billion now being spent annually for medical, hospital and health care, about 92 per cent is spent for treatment after illness occurs. Of the remainder, about five per cent is spent for bio-medical research; two per cent for preventive health measures, and approximately one-half of one per cent for health education. The United States Department of Health, Education and Welfare estimates that it spends no more than one-fifth of one per cent on health education. On a state and territorial level, health departments expend less than half of one per cent of their budgets for health education (11).
On February 15, 1971, in a health message to the Congress, President Nixon pointed out that, although "it is in the interest of the entire country... to educate and encourage each of our citizens to develop sensible health practices, ... there is no national instrument, no central force to stimulate and coordinate a comprehensive health education program (12)." Accordingly, in September, 1971, a President's Committee on Health Education was established to define the nation's need for health education programs and to develop a plan for the implementation of any resultant recommendations. The Committee Report, released to the public on September 25, 1973, recommended establishment of a National Center for Health Education to be authorized by the Congress and sustained by both public and private support. The over-all objective of the Center would be to provide a national focal point to stimulate, coordinate and evaluate health education programs. The scope of the program would be broad, embracing "those processes of communication and education which help each individual to learn how to achieve and maintain a reasonable level of health appropriate to his particular needs and interests, and to be motivated to follow personal and community health practices which contribute to his state of health and well-being—a positive concept going well beyond the mere absence of disease or infirmity (13)." Further, the Report indicates that this total process could dynamically involve the
entire citizenry, and should be oriented toward individual and community action: "The focus should be on the whole person in his natural community, and on the individual's needs and responsibilities. ...(14)."

Contemporary Adult Education Theory

The decision of the members of the President's Committee on Health Education to emphasize the individual's own needs and responsibilities in the development of the total educational program reflects the contemporary approach to adult education programming. That is, it is now being recognized that the conventional or traditional methods of education are not always particularly effective methods when applied in adult learning situations. Malcolm Knowles, a nationally-recognized authority on adult education, cites several reasons for this phenomenon which center upon characteristics of the adult learner. These include the notions that:

as a person matures, 1) his self-concept moves from one of being a dependent personality toward one of being a self-directing human being; 2) he accumulates a growing reservoir of experience that becomes an increasing resource for learning; 3) his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles; and 4) his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from one of subject-centeredness to one of problem-centeredness (15).

As a consequence of these inherent characteristics of the adult learner, there arise certain conditions of learning which
have special applicability to adult learning experiences. For example, the learners must feel a need to learn, must participate in the planning and implementation of the learning experience, must be in a comfortable and expression-free environment, must be able to relate the learning experience to their own life experiences and must have a sense of progress and direction throughout the entire learning program. Thus, in such a situation the teacher functions more as a helper and manager than as a knowledge resource person; in effect, the teacher becomes a co-learner in a process of inquiry and discovery.

This, of course, is not an entirely new way of looking at adult learning methods. Eduard C. Lindeman expressed the same concept quite eloquently in 1926:

...In short, my conception of adult education is this: a cooperative venture in nonauthoritarian, informal learning, the chief purpose of which is to discover the meaning of experience; a quest of the mind which digs down to the roots of the preconceptions which formulate our conduct; a technique of learning for adults which makes education coterminous with life and hence elevates living itself to the level of adventurous experiment (16).

And, by the same token, this view of learning should not be considered as specifically applicable to only adult learning. Professional educators are continually revising elementary and secondary school curricula and facilities to integrate formal learning programs with reality-centered experiences. John Holt, a well-known writer in progressive education circles, describes his view of the learning process:
I believe that we learn best when we, not others, are deciding what we are going to try to learn, and when, and how, and for what reason or purposes; when we, not others, are in the end choosing the people, materials, and experiences from which and with which we will be learning; when we, not others, are judging how easily or quickly or well we are learning, and when we have learned enough; and above all when we feel the wholeness and openness of the world around us, and our own freedom and power and competence in it....(17).

Ralph Waldo Emerson expressed very nearly the same thought in his discussion of Education: "I believe that our own experience instructs us that the secret of Education lies in respecting the pupil. It is not for you to choose what he shall know, what he shall do. It is chosen and foreordained, and he only holds the key to his own secret....(18)."

Another concept receiving considerable attention by the President's Committee on Health Education is the need to distinguish between information and education. Health information is simply facts; health education is the process that bridges the gap between information and practices. Health education motivates the person to do something with the information; that is, to practice some form of new behavior. This is, of course, what education really purports to do—or, as Ralph W. Tyler puts it, "Education is a process of changing the behavior patterns of people (19)." Disseminating facts, however, may not lead to behavioral change and, to that extent, would not be considered as health education.
This distinction between information-giving and education is not a new concept or one which has not been recognized by professional educators in the past. It is, though, a concept which has often been ignored in the development of health education programs. For example, the anti-cigarette smoking and automobile seat-belt educational campaigns have been largely based upon the information-giving approach, with the implicit assumption that acquisition of knowledge will lead to behavioral change. This may not be the case, and health education programming, if it is to be effective, must recognize that something more than dissemination of facts may often be required.

Within the health care field, and in a slightly different context, this distinction between information-giving and education is illustrated well in the important area of chemotherapy. A recent article appearing in the *New England Journal of Medicine* points out that a review of over fifty separate studies on medication compliance rates reveals that complete failure to take medication often occurred in between twenty-five and fifty percent of all outpatients (20). Leary, et al. (21) found in a survey of 267 patients (hospitalized and outpatient) that 49.4 per cent of the sample group could score only 32 or less on a 100 point questionnaire on medication knowledge levels. Furthermore, 72.1 per cent of the patients did not know any symptoms indicating harmful side effects of their medicines. Other studies report similar findings (22, 23, 24).
It is assumed that most of the patients involved in these studies did receive some form of instruction concerning the use of prescribed medication; that is, "information" was given to them. Again, however, whether or not this could be considered as effective "education" is not clear.

**Individualized Instruction and Programmed Learning**

A hallmark of current educational theory is that attention must be focused upon the learner. This, in turn, has led some educators to conclude that instructional program design should allow adequate latitude in regard to individual learning differences. For example, Bloom, Hastings and Madaus point out in their comprehensive text *Handbook on Formative and Summative Evaluation of Student Learning* that "Most students (perhaps more than 90 per cent) can master what we have to teach them, and it is the task of instruction to find the means which will enable them to master the subject under consideration. . .

Basically, the problem of developing a strategy for mastery learning is one of determining how individual differences in learners can be related to the learning and teaching processes (25).

In addition to identifying individual learning differences, it is necessary to specify--as precisely as possible--individual learning needs. Furthermore, such needs should be perceived needs on the part of the learner and, insofar as possible, should be stated in behavioral terms. That is to say, learning outcomes
should be expressed in some form of behavior rather than merely increases in knowledge level. This kind of approach will permit learner self-evaluation, as well as providing a good program evaluation mechanism for the teacher. Accordingly, necessary adjustments can be during the course of instruction in order to maximize educational effectiveness of the program. Learner feedback also can serve as a reinforcement device, thereby stimulating further motivation on the part of the learner.

Mager's popular work, *Preparing Instructional Objectives* (26), emphasizes the need to specifically define learning outcomes in terms of performance rather than knowledge gain. This stress on the development of precisely-stated instructional goals and behavioral outcomes is also characteristic of that group of learning experiences collectively termed as Programmed Instruction.

Programmed instruction, often confused as a product rather than as a process, essentially is the application of behavioral technology to teaching individuals or groups new skills or information. The student is led through a series of questions, responses, and confirmation of his responses until little by little he has progressed from small bits of relatively simple knowledge to more complex principles (27). Important factors of programmed instruction include the ideas that programmed instruction must be judged on the basis of measurable behavioral change; behavior changes in response to rewards and punishments; effective educational programs should be action-oriented, i. e., people learn
by doing; to learn, a person must be motivated; and that repetition is usually necessary for learning (28).

Since its widespread adoption in the early 1950's, several types of programmed instruction have evolved. **Linear** (or Skinnerian) programming breaks its subject matter into small sequential bits, moving the learner step-by-step along a predetermined path. This format is especially appropriate with a homogeneous group of learners and when the subject matter itself follows a sequential pattern. **Branched** programming, first developed by Norman Crowder, allows the student to proceed through the material by alternate routes, depending on his responses to various multiple-choice questions. This format is the approach utilized in much computed-assisted instruction (CAI) and serves to accommodate individual variation in learning abilities and patterns. The **looping** type of program attempts to combine the best aspects of linear and branched programming and allows the student an opportunity to receive either remedial or enrichment material at certain points in the program or to omit entire sections of the material altogether. A fourth format is the **adjunctive** type of programming in which a complete passage of unprogrammed material is followed by one or more questions which may require the student to go back through the material for review purposes. This technique is particularly useful when dealing with matter which cannot be subdivided without destroying its inherent integrity (29).
To date, most programmed materials have been of the paper and pencil variety (30, 31). A number of textbooks and instruction manuals have been published to describe programmed instruction techniques and a Journal of Programmed Instruction founded to report continuing developments in the field. The growth rate of programmed instruction has been rapid, with over 2,400 programs reported in active use in the Federal government alone during the year 1970 (32).

The programmed instruction movement, it must be noted, has not received universal acclaim or acceptance within the educational community and several arguments are advanced which warn against total reliance upon concepts underlying this educational philosophy. Paul Goodman, for example, feels that "even if behavioral analysis and programmed instruction were the adequate analysis of learning and method of teaching, it would still be questionable for overriding political reasons, whether they are generally appropriate for the education of free citizens (33)." Harry Broudy, in an article entitled "Can Research Escape the Dogma of Behavioral Objectives?" points out that "there is a tacit dimension of learning and knowing as well as an explicit one and that the dogma of behavioral objectives prevents our taking this into account, thereby rendering much technically fine research trivial or irrelevant to the genuine concerns of the public and of educators (34)." Dr. Ralph Tyler also expresses some concern about the amount of specificity used in the formulation of behavioral objectives by observing that the "individual human being is able to solve many
of his own problems and so I think that more of our educational objectives should be general in nature - like learning how to go about attacking problems, finding out where the difficulties are, getting information, analyzing the data, and drawing inferences from data. Hence, in my view, many behavioral objectives should be set at a considerably higher or more general level than the extremely specific things I find in many current efforts to write them (35).

Dr. Tyler's word of caution concerning undue specificity in the formulation of educational objectives indirectly relates to another essential consideration in the development of an effective educational program: the current rate of knowledge growth. Peter Drucker, the internationally-recognized management theorist, states that the "most important thing the schools have to teach is not specific skills but a universal skill—that of using knowledge and its systematic acquisition as the foundation for performance, skill, and achievement (36)." Knowles also underscores this point by observing "it is no longer functional to define education as a process of transmitting what is known; it must now be defined as a lifelong process of discovering what is not known (37)." That is to say, the sheer amount of information, of knowledge, and the accelerating rate of growth of such knowledge, poses a substantive problem for one attempting to formulate a curriculum in nearly any given content area.
The sine qua non of effective community health services is institutional management. Individual idealism and dedication on the part of the individual physicians, administrators, trustees, nurses, and other professionals, important as they are, are not enough in this day of specialization, massive technology, and massive costs. Neither is it enough simply to pass new laws, appropriate new money, or even establish a franchise system. None of these factors can be meaningful unless, and until, translated into organized—that is, institutionalized—patient care. This is a job for management—the management of that institution designated to assume and to carry out responsibility for providing comprehensive care to the community (38).

"That institution," of course, is the hospital. Of all the recent developments in the health care field, perhaps none are so dramatic as the emergence of the modern-day hospital with its sophisticated technology, its research capability, and its specialized skills. It is also significant that the hospital is now functioning on a far broader base than it did only a few decades ago. At one time, the hospital's role was essentially limited to the care of the inpatient, providing a facility and service for the independent medical practitioner. This is no longer the situation. As the Supreme Court made clear in 1965, ".... The conception that the hospital does not undertake to treat the patient, does not undertake to act through its doctors and nurses, but undertakes instead simply to procure them to act upon their own responsibility, no longer reflects the fact. Present day hospitals, as their manner of operation plainly demonstrates, do far more than furnish facilities for treatment.... Certainly, the
person who avails himself of hospital facilities expects that the hospital will attempt to cure him, not that its nurses or other employees will act on their own responsibility (39)."

The central position of the hospital within the framework of the entire health care delivery system and its evolving role in society at large has many significant and interesting ramifications. However, insofar as health education is concerned, the role of the modern hospital as a learning resource center is paramount. The hospital is perhaps the only social institution which is capable of stimulating, coordinating, and evaluating an effective, community-wide health education program. This, it is important to note, includes the entire gamut of health education services, such as preventive medicine, outpatient care, school health programs, industrial health and safety activities, and others. For it is only the hospital that possesses the myriad of personnel competencies, coordinating capabilities, communications facilities, physical plant, and other essential requirements of a complete and comprehensive health education program. The hospital's role in this context would be that of a knowledge base, a community resource which can be tapped by any interested citizen or group to obtain knowledge or assistance relating to health education needs.

**Instructional Television in Health Education**

The potential of television as an educational medium has been largely an unrealized one. One author has likened the
current use of television to the use of Gutenberg's invention of the moveable type only to print comic books (40). The reference here, of course, was to the use of broadcast, or network, television. Non-broadcast television, or closed-circuit television (CCTV), is finding its greatest application in educational settings. This is especially so in industrial usages, although many school systems and other types of institutions have obtained television capabilities for educational purposes.

The major reason for the recent growth in instructional television has been the successful commercial development of the video tape recorder-reproducer. This technological breakthrough, occurring in the mid-1960's, allows immediate recording and playback of an event without any time-consuming and costly intermediate steps, such as is required in the processing of film. Too, if the recorded material is unsatisfactory it may be immediately erased and re-recorded. Operational and maintenance costs are minimal and small production ensembles may be operated by available staff members with only brief training and orientation. Acquisition costs vary considerably depending on the type of equipment needed but, generally, are not beyond the budgetary capabilities of most organizations with recognized training needs.

A recent and important advance in instructional television has been the development of the videocassette player. This unit, illustrated in Figure 1, is similar to the audio-cassette recorder-reproducer and may be attached to any television receiver. Since the videocassette player is so easy to operate,
Figure 1. Videocassette Recorder-Player.
the delivery potential of locally-produced instructional television programs is increased dramatically. That is, the availability of this equipment now makes it economically and technically feasible to produce television programs on a local basis, with in-house staff, and distribute such programs to other organizational (or non-organizational) components very easily via the cassette format. Again, as the videotape is capable of repeated erasure and re-use, the costs associated with such a system are minimal. The potential educational and communications advantages of such a system within a multi-disciplinary and diverse organization such as a hospital are apparent.

Utilization of the television medium in a health education program offers at least four distinct benefits. Primarily, its potential contribution toward facilitating communications between professional health care specialists and patients is a highly significant aspect. This factor is particularly applicable when a disparity exists between the parties; for example, between highly educated, white, upper-middle class medical personnel and a patient population composed mainly of lower socio-economic, educationally disadvantaged persons of another race and perhaps conversant only in another language. Television can be used to good advantage in overcoming such inherent social, cultural, and language barriers.

Conventional use of television in educational settings characteristically has followed a unidirectional communication
pattern, i. e., an active transmission of information from the originating point, with passive reception by a single individual or a group of viewers. This has been due perhaps to two main factors: (1) Traditional educational, or pedagogical, programs usually followed this format and television simply adopted the typical classroom style of teaching. (2) Television is, or has been, primarily a mass medium, designed to reach extremely large numbers of persons. Consequently, practically all resources available for television programming are devoted to the production requirements or, to relate this idea to an educational milieu, to the "teaching" aspect. Little, if any, attention has been directed to the learning effects.

Recent technological advances, however, have now changed this picture. Educational television is no longer entirely dependent upon broadcast network requirements and standards. Ready availability of low-cost, easily-operated television production equipment, including the videocassette delivery capability, now permits the adult educator to use television as an audiovisual aid. Furthermore, the medium is quite amenable to the development of highly individualized instructional materials, thereby permitting the individual patient, worker or other adult learner to use it as a learning tool at his own convenience and at his own discretion. This individualization of the learning experience, coupled with the inherent communications advantage of television as discussed above, can truly enhance the prospects of highly effective health education programming.
A third very significant advantage associated with instructional television in direct health care facilities is related to the need for an adequate evaluation, or assessment, mechanism. That is, with local production capabilities, appropriate self-assessment or evaluation aids can be programmed into the program content and thus permit the learner to continuously monitor his own rate of progress. This kind of cybernetic device, a hallmark of programmed instruction methodology, correlates well with contemporary adult education theory in that it encourages learner autonomy and self-direction. Additionally, it allows the teacher, or the manager of the learning experience, to continually be aware of the program progress and, as necessary, to make necessary adjustments.

The fourth major advantage of instructional television in health education is that educational services of the primary health care facility may be extended to the outpatient and to the community at large. As discussed above, the evolving role of the hospital may eventually place greater educational responsibilities upon this social institution. Television, it would seem, will greatly facilitate the extension of the teaching potential of the community hospital. That is to say, modern electronic technology has freed us from the former restrictions of developing educational programs on a group basis, for presentation only within certain settings, such as a hospital or outpatient clinic.
Instructional Television and Learner Response

It is somewhat surprising that more research efforts have not been directed toward combining the respective advantages of programmed learning and instructional television. Certainly, both areas have received a good deal of individual attention in the last two decades. Upon reflection, however, the situation is more understandable.

In the first place, programmed instruction has been almost exclusively an individualistic medium—that is, concerned primarily with individual rates of learning. Television, on the other hand, has been primarily a group medium, designed to reach a large number of viewers with a single program or message. It makes little or no allowance for individualism insofar as the viewer is concerned. Too, programmed instruction requires an overt response from the learner for validation and reinforcement purposes; television assumes a passive viewer, requiring no or only covert responses.

Another reason for the apparent paucity of televised programmed instruction materials may be attributed to the professional backgrounds of persons working in education and television. The schooling or academic preparation of professional educators has not accorded a great deal of attention to developing skills in the production of audio-visual materials. Television, though, is a highly visual medium and persons who want to teach with television must develop a strong visual component in their educational materials. One cannot develop
good televised instruction by heavy reliance upon verbal symbolism, as is predominantly the case in conventional teaching programs. It is perhaps due to this reason more than any other that much educational television has been described as "boring." Programming in television must be extremely dynamic—it must move constantly if it is to succeed. Accordingly, a classroom lecture or speech consisting mainly of the unillustrated spoken word often is not acceptable fare for the medium.

On the other hand, television production personnel are not teachers. They likely have little appreciation or knowledge of the educational component of the program; rather, their attention is focused upon pragmatic production requirements of lighting, special effects, sound, graphic materials, and other such concerns. And content specialists, such as health care personnel in a hospital situation, have little experience or training in either educational theory and methodology or in instructional media. Thus, it is not surprising that previous attempts to combine these seemingly diverse elements have been few in number.

Several firms specializing in health care products, particularly pharmaceutical products, have attempted to integrate content, learning theory and media into packages of programmed instruction. Most of the materials utilize eight-millimeter, single-concept film loops and are developed for individualized instruction. Although such efforts certainly point in the right direction, they are affected by several disadvantages. For example, they are quite expensive, even to rent; content is fixed
and thereby may be soon outdated; programs are quite general in order to appeal to the largest potential target population; and oftentimes materials are not compatible with other instructional hardware owned by the institution. Again, though, the emphasis upon individualization of learning, of clearly stated instructional objectives, pre and post evaluation devices and continuous learner feedback are highly desirable characteristics of any learning system and reflect contemporary trends in developing effective health education materials.

It is conceivable that it may now be possible to do that which was formerly not possible in health education; specifically, it may be now possible to produce highly effective health education materials on a local basis and without assistance from external sources. This assertion is based upon the current availability of low-cost, high-quality television production equipment, including the videocassette. Programmed instruction concepts of individualized learning, learner involvement and feedback, and continuous evaluation may be fused with the inherent advantages of television, such as instant recording and playback, sight-sound synchronization, economical production, portability, ease of presentation, slow motion, split-screen images and other special effects, multi-language capability, and learner familiarity and acceptance. And, above all else, television provides perhaps the closest simulation of reality that is possible to attain. Finally, this approach correlates well with current concepts in adult education programming (e.g., comfortable and
informal environment, learner participation, problem-orientation, accepted means of instruction) and also appears to ideally suit the developmental needs of the hospital as a health learning resource center.

**Purpose and Hypotheses**

The purpose of this study was to develop and test a health education program within a hospital setting by integrating instructional television with programmed instruction concepts. Secondary aims of the study included attempts to establish a demonstration model of a specialty-hospital serving as a learning resource center; to determine the feasibility of utilizing the videocassette in a health education program; to apply contemporary concepts in adult education theory; to formulate and test an instructional program on Hansen's disease (leprosy), a chronic illness.

The following specific hypotheses were tested:

1. **Persons successfully completing a course of televised instruction on Hansen's disease will demonstrate a higher level of understanding of the cause, effects, and treatment of this illness following the specified course of instruction, as measured by an objective testing instrument.**

2. **Persons successfully completing a programmed course of televised instruction on Hansen's disease will demonstrate a higher relative rate of cognitive gain than persons from a similar population group who completed the non-programmed course only, as measured by an objective testing instrument.**
CHAPTER II

REVIEW OF RELATED LITERATURE

Patient Health Education

The bulk of the literature related to this study was found in the area of patient education, with perhaps the most significant contributions by those working in the field of diabetes. This is understandable, as Crighton points out, since diabetes requires active participation of the patient in actual treatment:

It is a fact of medical life, which can be dated quite precisely in terms of origin: it began in 1923, with Banting and Best. The discovery of insulin by these workers led directly to the first chronic therapy of complexity and seriousness, where administration lay in the hands of the patient. Prior to that time, there were indeed chronic medications—such as digitalis for heart failure or colchicine for gout—but a patient taking such medications did not need to be terribly careful about it or terribly knowledgeable about his disease process. Insulin was different. A patient had to be careful or he might die in a matter of hours. And since insulin there has come a whole range of chronic therapies that are equally complex and serious, and that require a knowledgeable, responsible patient (41).

A major study of patient education in diabetes was conducted in the early 1960's which utilized programmed instruction materials (42, 43, 44). This study used a filmstrip and teaching machine as the delivery vehicle and demonstrated that self instructional material could be successfully used in a patient health education program. Other reported studies of patient
education in diabetes include a diabetic teaching manual (45), teaching diabetes by sub-professional personnel (46), programmed instructional materials for adult diabetics with grade school education (47), public health nursing and diabetes teaching needs (48), a hospital-based diabetic teaching program (49), a study of diabetes teaching needs in the home (50), and in various other settings (51).

Health workers concerned with other chronic illnesses also have contributed to patient education literature. For instance, in New Jersey a health education program attempted to measure behavioral changes which occurred in heart patients as a result of education (52). This study was empirically-oriented, as it compared excess excretions of urinary sodium over dietary allowances following the learning program. Another study reported the effectiveness of a programmed course of instruction for heart patients maintained on warfarin therapy (53). Similar studies designed to measure knowledge levels of heart (54) and tuberculosis (55) patients have been reported. Other patient education studies dealing with special interest population groups include the level of medical information among clinic patients (56), cancer patients (57), health teaching for the aged (58), education for the expectant father (59), and health education for heart patients in crisis (60).

As noted above, teaching patients about their medications is an important part of any total health care program. Studies in this area, in addition to the ones already cited, include
reports of medication teaching aids (61), use of a pharmacy
coordinated closed circuit television patient education series
(62), patient knowledge of his drugs (63), and patient compliance
with prescribed drug regimens (64, 65).

Organizational aspects of planning and implementing patient
education programs have been reported in the literature; for
example, reports prepared by, or under the auspices of, organiza­
tions such as the American Hospital Association (66, 67), the
American Public Health Association (68), a local health depart­
ment (69), international voluntary organizations (70), and the
United States Government (71). More general statements concern­
ing the need for expanded patient education programs may also be
found (72, 73). A particularly pertinent statement in this regard
is found in Weed's popular volume on the problem-oriented medical
record concept (74). In fact, the validity of his observations
have been preliminarily confirmed by a recent report of a col­
league promoting the adoption of this concept (75). Here, the
patient is provided with an abridged copy of his own medical rec­
ord and asked to review it and confirm the contents and appropri­
ateness of the planned treatment program. Following a six month
trial period, it was learned that 80 per cent of the patients
participating were much more careful about the way they took their
medication; 78 per cent of the patients responding indicated that
they had made changes in their pattern of living, eating, or
drinking after reviewing their own records. Other studies relat­
ing to the need to consider the patient as an involved participant
in his own health care program have been reported. These studies use various terms to convey this concept, such as "a member of the medical team (76)," "education participant in health care (77)," "the patient as a paramedical worker (78)," and "the patient as a health student (79)."

Another broad category of patient education literature relates to consideration of patient needs, as perceived by the patient. Dodge's (80, 81) studies are very important in this area. A few such studies deal with purely psychological aspects (82, 83, 84), while others are concerned more with specifying learner perceived needs (85, 86, 87). Also, some reports of this type have attempted to measure the communications effectiveness concerning educational needs between physician and patient (88), or how the physician (89) or nurse (90) views the need for patient education.

A small number of studies have been reported concerning the use of audio-visual aids and other media in patient health education. These include a family-planning program in Louisiana (91), teaching resources available for physician use (92), use of hospital closed-circuit television for patient teaching (93), language barriers in patient teaching (94), and more general use of instructional media in patient education (95).

Finally, other patient education articles dealing more with the development of appropriate learning experiences are available. Specifically, these concern the assessment of learning needs (96, 97, 98), developing informal patient education
programs (99), preparing case histories of patient learning (100), and those relating patient education to community hospital activities (101, 102). Articles dealing with research in patient motivation (103, 104), effects of fear arousal on attitude change (105), and studies of health beliefs (106, 107, 108, 109) also have contributed to the general literature of patient education.

**Instructional Media**

Reports relating to instructional media used in health care situations were of special interest to this study. Many of the reported studies in this regard concerned in-service educational programs (110, 111), audio-visual media in health teaching (112), in medical education (113), and other formats such as audio tapes only (114) and multi-media systems (115).

A special effort was made in the planning of this study to learn of prior attempts to integrate instructional television with programmed instruction concepts. It was discovered, though, that very few such attempts have been made, or at least reported in the literature. Apparently, a good deal of the early work in this area was carried out by Lumsdaine and summarized in his *Student Response in Programmed Instruction* (116), a compilation of studies done for the United States Air Force during the period 1950-1957. This work, it is noted, was done with 16 millimeter film. Lumsdaine later collaborated with George L. Gropper in expanding these early efforts with filmed programmed instruction to the medium of television. These particular studies were sponsored
by the Metropolitan Pittsburg Educational Television Stations WQED-WQEX and the American Institute for Research (117). Materials produced in this program were intended for broadcast television purposes as opposed to closed-circuit television.

Within the medical field, Enelow and Adler (118, 119, 120) have reported on efforts to apply programmed instruction concepts to the teaching of interviewing skills. Ten videotapes were prepared (University of Southern California Medical School) which were based upon four principles of interviewing which, in turn, were subdivided into a total of 15 observable behaviors. Each student had a response card on which he recorded his responses. Professional actors played out a series of scenes depicting the expected consequence of each response. These videotaped programs were later converted to 16 millimeter prints and are now available for general use through the distribution facilities of the National Medical Audiovisual Center (NMAC), Atlanta, Georgia.

Park (121) did a similar experiment to assess student performance by videotaping 16 scenes of one minute in length which showed five individuals in a group setting. The subject viewing the videotape considers himself the sixth member of the group and responds at the end of the scene by selecting one of five responses which indicate the highest degree of empathic understanding.

Strah (122), in a doctoral dissertation at Columbia University, used videotape to study the learning effects of self-confrontation by a group of 25 industrial salesman. He compared
effects of video and audio-only playback modes on the study participants. This study was not actually programmed instruction although it did incorporate the learner feedback concept. A similar example of this approach is the use of videotape in conducting counseling of dental students at the University of Missouri (123). There, dental students practiced interviewing on videotape which could be reviewed with the instructor before actual patient contact. The Evanston, Illinois, Hospital School of Nursing also is utilizing this approach in teaching nursing skills; that is, students practice among themselves by recording each other's efforts on videotape. When the procedure is properly learned, a final recording is made for subsequent review and evaluation by the instructor (124).

Examples of videotaped programmed instruction in the classroom have been reported in Pennsylvania and Rhode Island. The Division of Instructional Services, Pennsylvania State University, presented a televised programmed instruction course in mathematics in 1962. This program was presented live, with visuals consisting of 5 by 8 inch typewritten cards. Instructor participation was limited to the audio portion of the program, with the typewritten cards virtually the only visualization (125). Rhode Island University, Providence, Rhode Island, developed a television course in biology and presented it to classes of students from 1964 to 1967. Lectures were presented unrehearsed and with very few visual aids. Student reaction was so unfavorable the course was discontinued. In 1968, a series of 64 videotaped lectures were produced, each
35 minutes in length and fully illustrated. Abridged audio-visual scripts were provided for each lecture so that notetaking would not be necessary. After viewing the videotaped segment, students spent 15 minutes with an "integration" leader who would answer questions and integrate course concepts. Attitudes shifted from disapproval to greater than 80 per cent approval (126). Other examples of televised programmed instruction cited in the literature include studies by Ramey (127, 128) in health manpower training, in the teaching of laboratory pharmacology (129) and genetics (130), and on the effects of the medium itself upon learning rates (131). A related work on programmed motion picture films was reported by Huber (132) in 1965.

Miscellaneous Studies

Other studies reviewed in the preparatory phase of this study relate to measuring readability of health education literature (133), effectiveness of education in injury control programs (134), and several reports on the use of programmed instruction in education (135, 136) as well as in the teaching of complex skills (137). The review of pertinent literature also included at least four articles discussing contemporary organizational management areas. Specifically, these related to a consideration of the hospital as a matrix organization (138), hospital authority patterns (139), the role of the hospital in modern society (140) and general organizational development and management by objectives (141). Research studies by scholars working in the rural
development area were also of value, especially those reported by Lionberger on diffusion research (142), Leagans' discussion on needs (143), and Anderson's analysis of the inductive approach in the teaching-learning process (144). Other references found to be of special value to this study include Redman's excellent text on patient teaching in nursing (145), a volume published by the Hospital Research and Educational Trust on programmed instruction in the hospital (146), a handbook on hospital television (147), the Health Education Monograph series (148) and a general work on television production techniques (149).
CHAPTER III

METHODOLOGY

General

The methodological approach used in the study attempted to synthesize the various concepts expressed in Chapter I insofar as they pertain to the general topic of health education. That is to say, the underlying assumption of the study was that a health education program must draw upon other disciplinary areas if it is to succeed; it must take advantage of what has been learned elsewhere. For example, health education programs should utilize what is now known about adult education programming and practice. Basic concepts of individualized instruction and programmed learning also may be helpful to health educators and modern educational technology such as television should be considered in the design of such programs. Too, the role model of the patient, or health consumer, should be reviewed as well as the primary site of his health care--the hospital. In short, health education needs probably will best be met through a highly eclectic approach, especially health education activities developed for the chronically ill.

Despite the broad range of these considerations, a relatively direct methodology was designed to test study hypotheses. This consisted of the following six general steps: (1) determining
learning needs, (2) formulating specific instructional objectives, (3) designing appropriate learning experiences, (4) selecting an adequate population sample, (5) presenting the program and (6) analyzing the results to determine if learning occurred.

Description of Study Site

The study was conducted at the United States Public Health Service Hospital, Carville, Louisiana. This facility is operated by the United States Department of Health, Education, and Welfare, Public Health Service, for the care and treatment of persons with Hansen's disease (leprosy), a chronic illness. Since 1921, this institution has been designated as the National Leprosarium and is the only facility of its kind in the continental United States. Approximately 350 patients are hospitalized there at any given time, with an annual turnover rate of about 100 patients. The Hospital is located on a 340 acre site along the eastern bank of the Mississippi River about 75 miles northwest of New Orleans, Louisiana.

Most patients hospitalized at the Leprosarium are referred to the institution from the States of California, Florida, Hawaii, New York, Texas, and Louisiana. Males are hospitalized nearly twice as frequently as females and patients are generally in early middle-age at the time of admission. All admissions are voluntary. Ethnic minority groups comprise about two-thirds of the total patient population and patients have an average
educational level of about sixth grade. From one-fourth to one-half of all patients do not speak or write in the English language. Recent data indicate that three of every four patients are discharged from the facility within one year of admission and over one-third of all patients are now discharged within three months of the admission date. The facility maintains an approximate one to one staff-patient ratio, with about 330 persons employed at the present time.

In addition to direct patient care activities, a wide variety of research and training programs are conducted at the Leprosarium on a continuing basis. Research programs are of the laboratory as well as clinical type, the former concerned chiefly with bacteriology, pharmacology, immunology, and biochemistry. Clinical research efforts center mainly upon effects of trauma upon insensitive tissue, particularly tissues of the extremities as this is closely related to many rehabilitation problems in the overall management of the leprosy patient. Training activities are conducted in the form of medical teaching seminars on leprosy and attract participants from all parts of the United States and a number of foreign countries. Approximately 6,000 persons visit the Hospital each year for training and orientation in regard to modern concepts in the management of leprosy.

Learning Needs Survey

Following the conceptual framework for the development of a sound educational program as delineated by Ralph W. Tyler (150),
initial attention was directed to the specification of learning needs. Sources used to obtain educational objectives, again referring to the Tyler model, included the learner, subject matter specialist, and contemporary environment. Questionnaires were prepared to elicit this information from the target population (Appendix A) and subject matter specialists (Appendix B). At the outset, it was planned to consider only patients as the study population but later a decision was made to include staff members as well. Questionnaires were distributed to professional staff members, representing all major disciplinary areas and a representative sample of the patient body. Analysis of completed returns indicated a near unanimity of opinion among all respondents, patients and staff alike. Generally, three major areas of need were emphasized: (1) general orientation to Hansen's disease, such as the cause of the illness, mode of transmission, types of leprosy, methods of treatment, medications, and other general information; (2) description of the secondary effects of leprosy, especially effects of peripheral nerve involvement and its relationship to the occurrence of bone absorption, blindness, and other serious disease sequelae; and (3), chemotherapy in Hansen's disease and the necessity for patients to follow prescribed medication regimens in order to assure maximum effectiveness in their overall recovery programs. Other areas emphasized by survey respondents were an orientation program for newly admitted patients to Hospital routine, discharge planning, and informational activities for close family members and other
individuals personally involved with newly-admitted patients. Frequent mention was made by staff and patients of the persisting and unfortunate misconceptions surrounding the illness and the need to inform more persons of the facts of the situation, especially those around the leprosy patient. Emphasis also was placed on the obvious communications problems brought about by language differences existing between patients and staff.

Formulation of Instructional Objectives

Based upon the above views of staff and patients regarding overall learning needs, a decision was made to direct initial efforts to the development of instructional material on the general aspects of Hansen's disease. This approach would also facilitate future programming as such material could serve as the basis of later, more specific discussions. The following fifteen learning objectives were established as criteria to indicate a successful learning outcome:

1. Identify the cause of leprosy.
2. Describe the extent of the leprosy problem in the United States by estimating the number of known cases.
3. State the mode of transmission of leprosy.
4. Distinguish between the three main types of leprosy.
5. Describe the approximate level of contagiousness of leprosy.
6. State the extent of the "reaction" problem in leprosy.
7. Describe the major cause of deformity in leprosy.
8. Define the relative contagion risk to children in leprosy.

9. Identify the primary medication used in leprosy treatment.

10. Name the major bodily organs affected in leprosy.

11. State the average length of hospitalization now required in Hansen's disease.

12. Describe the primary use of the drug, thalidomide, in leprosy.

13. Describe the significance of bodily temperature in leprosy.

14. State whether hospitalization is voluntary or involuntary in leprosy.

15. Identify average length of time required to render a leprosy patient non-infectious.

These instructional objectives, stated in performance terms, were then converted into a series of multiple-choice questions (Appendix C) which would serve as the basic testing instrument to measure learning effectiveness. Questions were pre-tested with a purposive sample of five patients to determine the clarity and appropriateness of each question. Based upon this review, four questions were re-worded or discarded entirely.

**Design of the Learning Experience**

The design and actual production of the teaching program itself constituted the major and certainly most difficult portion of the entire study. This was due to the fact that instructional television had not been utilized at any time in the past at the study site. Accordingly, it was necessary to select and purchase appropriate television production equipment, familiarize staff
members with required operational aspects of television production techniques, and develop adequate physical facilities for the successful operation of the system. Specifically, it was decided to purchase a one-half inch, two-camera, monochrome (black and white) videotape system, with special effects and electronic editing capability. Further, a three-quarter inch U-matic videocassette recorder-reproducer was obtained to serve as the basic delivery vehicle for the edited videotapes. The actual teaching material consisted of a 22 minute videotaped presentation entitled "An Introduction to Hansen's Disease." The program script was written by the researcher and presented (videorecorded) with the aid of a flip-chart easel pad. The accuracy of the content was validated by a member of the medical staff. The original, or master, recording was obtained on the fourth attempt (take) and was then transferred to videocassette format.

A basic purpose of the study, as noted above, was to learn the effect (if any) of integrating programmed instruction concepts with instructional television. This kind of educational research, however, has been only infrequently reported in the literature and therefore little in the way of precedent was available for guidance purposes. Since conventional approaches to programmed instruction were not deemed at all suitable for use with the television medium, some innovative methodology appeared to be required. Consequently, it was decided to combine the essential features of two types of programmed instruction formats:
adjunctive and linear. Thus, it would be possible to present an uninterrupted passage of informational material which would then be followed by a series of questions to determine learning gain (adjunctive format) and, in addition, to confirm learner response to each question as the learner proceeded through the material. This latter aspect is believed to be significant in maintaining learner motivation and is characteristic of many linear kinds of programmed instruction. To do this, a mechanical electrical device known as a QRS Responder (Figure 2) was used. This unit is a hand-held instrument and is used in conjunction with a standard computer punch card. Correct responses to individual questions are coded on the computer card, which is then inserted into the Responder unit. The multiple-choice questions appearing on the television screen are then answered by the learner by depressing one of five lettered keys of the Responder. If the answer is correct, a green confirmation light will flash on the Responder unit. If the selected answer is incorrect, the light will not flash and another selection is made until confirmation is received. The computer card may then serve as a permanent record of the experience, and also indicates the number of attempts required to reach the correct response. Electronic data processing equipment may be used to analyze the cards in a collective way as well, or even longitudinally with the same learner.

Therefore, in the study a combination adjunctive-linear programmed instructional approach was utilized as the response
Figure 2. QRS Responder Module.
portion of the televised material. One-half of the total study group was randomly selected to receive the response format, while the other participants took part in only a passive fashion. However, other than the specific 8-minute response element, all other conditions were the same for each treatment group. That is to say, both groups received the same pre and post test, viewed the same 22-minute televised segment, and completed a separate opinion questionnaire (Appendix D). Only the use of the Responder distinguished the treatment groups. Specifically, the response element consisted of the same questions included on the pre and post test and were placed on studio cards for videotaping following a brief explanation on the use of the Responder unit itself. Thus, this format could be considered as individualized, or self-learning, televised programmed instruction.

Selection of Population Sample

The target population of the study consisted of patients and staff members employed by the United States Public Health Service Hospital, Carville, Louisiana. Patient participants were employed under the auspices of the Patient Employment Program of the Hospital. All persons participating in the study were selected randomly from a current listing of the Patient Roster or the Office of Personnel Listing of Employees. From each listing, certain patients and staff were excluded from consideration. These included non-English speaking and illiterate persons, blind and infirm patients, and persons employed in a medical or
allied health occupational area. All participation was entirely voluntary, but cooperation was requested by a personal memorandum (Appendix E) and also by a separate notice from the Hospital Director (Appendix F). All correspondence directed to selected participants was routed through applicable supervisory personnel for administrative purposes (Appendix G). The total sample of 60 persons (40 staff, 20 patients) was then randomly subdivided into two equal groups of 30 individuals, identified as Treatment Group I and Treatment Group II. Treatment Group I was identified as the non-responding group while Group II was considered as the response unit.

Presentation of Learning Experience and Analysis Methods

The televised instructional material was presented to study subjects by one of two formats. The non-response participants (Treatment Group I) viewed the program on an 11-inch monochrome monitor/receiver (Sony Model CVM-112) which was connected to a one-half inch, open-reel videocorder (Sony Model AV-3650). Group I participants viewed the program either on an individual or small group basis, depending upon the situation at the time of viewing. Group II subjects (response type) also viewed the program on an 11-inch monitor but, in this instance, the instructional material was in videocassette format (Sony Model VO-1600). Also, because of the response requirement, viewing by Group II participants was done on an individual basis, even though in two instances subjects shared the use of the same Responder unit.
The identical 22-minute program was presented to each Group, however, with the only difference being the 8-minute response feature added to the presentation viewed by the thirty Group II participants.

Upon completion of the Group I and Group II presentations, data were transcribed to printed code sheets for key punching and analysis purposes. Tabulated data included individual participant identification numbers, age, sex, educational level, length of employment, and pre and post test scores. Statistical analysis consisted of an analysis of covariance, two by two factorial, completely-randomized design. Face data obtained on age, sex, length of employment and educational level were collected for possible further consideration as variables in an analysis of covariance, as indicated by preliminary findings. Also, as uneven numbers were involved in a portion of the statistical analysis, a least-squares method of analysis was required. Statistical consultation and support for the study was provided through the Department of Experimental Statistics, Louisiana State University, Baton Rouge, Louisiana.
CHAPTER IV

RESULTS AND DISCUSSION OF STUDY FINDINGS

General

The primary purpose of this study was twofold: (1) to determine the overall effectiveness of utilizing instructional television in a health education program and (2) to determine if programmed televised instruction was more effective than non-programmed televised instruction. In designing the learning to test the specific hypotheses, however, it was necessary to develop a capability to produce televised educational materials. Since neither the researcher nor any personnel at the study site had prior experience in television production methods, it was necessary to devote a considerable amount of effort to learn how to develop educational materials with the use of the television medium. Also, a substantial amount of research had to be directed toward the selection and utilization of appropriate equipment required for such purposes. Accordingly, an important-albeit indirect-result of the research study has been the development and operational use of instructional television at the study site. In a sense, and in terms of long-range effect, this could be considered as perhaps the most significant result of the entire project.
Characteristics of Population Sample

A total of sixty staff members and patients participated in the study. Each participant provided information regarding sex, age, length of time at study site and total length of schooling. The last three variables were provided in terms of whole years. Each group, staff and patients, were randomly subdivided into two treatment groups. Population characteristics of each group are summarized as the following:

TABLE 1.—Characteristics of Health Education Study population, by sex, age, years of employment, and length of education. U.S. Public Health Service Hospital, Carville, La., 1974.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Group</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Staff</td>
<td>Patient</td>
</tr>
<tr>
<td></td>
<td>TV</td>
<td>TV-R</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Average Age (years)</td>
<td>41.8</td>
<td>42.8</td>
</tr>
<tr>
<td>Employment (years)</td>
<td>13.7</td>
<td>11.8</td>
</tr>
<tr>
<td>Education (years)</td>
<td>10.2</td>
<td>11.9</td>
</tr>
</tbody>
</table>

Collectively, then, the study population could be described as predominantly male, in the middle 40's age range, affiliated with the Hospital for approximately 13 years, and with less than a high school education. A complete tabulation of all raw data generated in the study is included as Appendix H.
Test Results and Mean Learning Gains

Each participant in the study completed a 15-question multiple choice test immediately before and following the learning experience. Mean learning gains were calculated for each participant and are summarized as the following:

TABLE 2.--Test scores and mean learning gains of all Health Education Study participants, by Group and Treatment. U.S. Public Health Service Hospital, Carville, La., 1974

<table>
<thead>
<tr>
<th>Group</th>
<th>Treatment</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Mean Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff (N=40)</td>
<td>TV</td>
<td>6.10</td>
<td>9.65</td>
<td>3.55</td>
</tr>
<tr>
<td></td>
<td>TV-R</td>
<td>9.10</td>
<td>13.35</td>
<td>4.25</td>
</tr>
<tr>
<td>Patient (N=20)</td>
<td>TV</td>
<td>10.40</td>
<td>13.10</td>
<td>2.70</td>
</tr>
<tr>
<td></td>
<td>TV-R</td>
<td>11.10</td>
<td>13.70</td>
<td>2.60</td>
</tr>
</tbody>
</table>

In the aggregate, the total population sample yielded a pre-test average score of 8.65 and a post-test average score of 12.13, which results in a mean learning gain of 3.48. Computation of the t-test statistic with a mean of 3.48 yields a value of 10.76, which is statistically significant at the .001 level of probability. Accordingly, it was concluded that a highly significant relationship existed between successful completion of the televised instruction and the participants' understanding of Hansen's disease, as measured by the particular testing instrument. That is to say, the data analysis resulted in an acceptance of the first study hypothesis which stated that

Persons successfully completing a course of televised instruction on Hansen's disease will demonstrate a higher level of understanding of the cause, effects, and
treatment of this illness following the specified course of instruction than before the instruction, as measured by an objective testing instrument.

The second hypothesis of the study was concerned with the possible effect of utilizing programmed instruction methods with televised teaching materials. Specifically, the hypothesis was stated in the following manner:

Persons successfully completing a programmed course of televised instruction on Hansen's disease will demonstrate a higher relative rate of cognitive gain than persons from a similar population group who completed the non-programmed course only, as measured by an objective testing instrument.

An analysis of variance technique was used to test this hypothesis and is presented as Appendix I. This analysis is summarized as the following:

TABLE 3.—Comparison of group and treatment effects on knowledge gain in participants of Health Education Study, U.S. Public Health Service Hospital, Carville, La., 1974

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Gain</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>7.60</td>
<td>11.50</td>
<td>3.90</td>
<td>3.37</td>
<td>.07</td>
</tr>
<tr>
<td>Patient</td>
<td>10.75</td>
<td>13.40</td>
<td>2.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV Only</td>
<td>7.53</td>
<td>10.80</td>
<td>3.27</td>
<td>&gt;1</td>
<td>N.S.</td>
</tr>
<tr>
<td>TV-Response</td>
<td>9.76</td>
<td>13.46</td>
<td>3.70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It will be noted that a significant (P<.07) effect was noted in learning gains between the two groups within the study, but statistical significance is not evident with the treatment effects.
Therefore, it is concluded that, if a significant difference exists between the ability of the participants to learn more effectively in one or the other of the two instructional formats, the sample size used in this particular study was not large enough to detect it.

It is also noted that the individual variables of age, sex, length of employment, and length of schooling, were analyzed in an effort to determine if any specific source of variation could be identified more precisely. This attempt, however, did not prove successful in identifying specific factors which were particularly significant in measuring learning gains. Thus, the second hypothesis was not confirmed or accepted as a result of the statistical analysis.

**Subjective Findings**

In addition to the quantitative assessment of learning gain, an opinion survey was also conducted among study participants. Specifically, persons participating in the study were requested to indicate how they felt about instructional television in general and especially about the use of television for conducting educational programs at the study site.

The questionnaire (Appendix D) was completed by each of the subjects. Results are summarized in Tables 4 through 7.
TABLE 4.--Response to question "What is your overall opinion regarding the use of television for learning?" U.S. Public Health Service Hospital Health Education Study, Carville, La., 1974

<table>
<thead>
<tr>
<th>Response</th>
<th>Staff No.</th>
<th>%</th>
<th>Patient No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>29</td>
<td>72.5</td>
<td>16</td>
<td>80.0</td>
</tr>
<tr>
<td>Good</td>
<td>10</td>
<td>25.0</td>
<td>4</td>
<td>20.0</td>
</tr>
<tr>
<td>Fair</td>
<td>1</td>
<td>2.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Poor</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100.0</td>
<td>20</td>
<td>100.0</td>
</tr>
</tbody>
</table>

TABLE 5.--Response to question "What do you think about the use of instructional television at Carville?" Health Education Study, U.S. Public Health Service Hospital, Carville, La., 1974

<table>
<thead>
<tr>
<th>Response</th>
<th>Staff No.</th>
<th>%</th>
<th>Patient No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Should use as much as possible</td>
<td>34</td>
<td>85.0</td>
<td>16</td>
<td>80.0</td>
</tr>
<tr>
<td>Limit use to special applications</td>
<td>5</td>
<td>12.5</td>
<td>3</td>
<td>15.0</td>
</tr>
<tr>
<td>Do not think it is especially helpful</td>
<td>1</td>
<td>2.5</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100.0</td>
<td>20</td>
<td>100.0</td>
</tr>
</tbody>
</table>
TABLE 6.--Response to question "What do you think about the instructional program on Hansen's disease?" Health Education Study, U.S. Public Health Service Hospital, Carville, La., 1974

<table>
<thead>
<tr>
<th>Response</th>
<th>Staff</th>
<th></th>
<th>Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Excellent</td>
<td>29</td>
<td>72.5</td>
<td>13</td>
</tr>
<tr>
<td>Good</td>
<td>10</td>
<td>25.0</td>
<td>6</td>
</tr>
<tr>
<td>Fair</td>
<td>1</td>
<td>2.5</td>
<td>-</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>2.5</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100.0</td>
<td>20</td>
</tr>
</tbody>
</table>

TABLE 7.--Response to question "Do you think that other persons at the hospital would be interested in seeing this program?" Health Education Study, U.S. Public Health Service Hospital, Carville, La. 1974

<table>
<thead>
<tr>
<th>Response</th>
<th>Staff</th>
<th></th>
<th>Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Yes</td>
<td>39</td>
<td>97.5</td>
<td>20</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>2.5</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100.0</td>
<td>20</td>
</tr>
</tbody>
</table>
Significance of Study Findings

In addition to the above quantitative and subjective findings, several significant conclusions can be drawn as a result of this study. These may be summarized as the following:

1. **Televised health education materials can be produced and successfully used in a hospital setting.** Moreover, such materials can be prepared by staff personnel without prior formal training in television or other media production techniques and at relatively small cost outlays required on the part of the sponsoring institution or organization. Televised programs produced locally may be readily accepted by patients and staff alike and the quality of the videotaped material in terms of reproduced image and sound compares favorably with broadcast television.

2. **It is possible to integrate programmed learning concepts with instructional television.** Operationally, the inclusion of learner response features with television is in its infancy, with very few reported examples of this kind of programming. Nevertheless, the use of the QRS Responder Module in this study verifies the acceptability and feasibility of combining these technologies in health education programming. Learner involvement and interest in using the Responder unit was very evident throughout the study and illustrated the worth of integrating a feedback mechanism into the program.
3. Local hospital television production capabilities vastly increases the potential of individualizing health education materials. This is an extremely important benefit of any hospital-based health education program and its feasibility was illustrated quite well in this study. Most staff members and patients handled the self-teaching portion of Treatment 2 without difficulty, thereby verifying the ease by which televised material may be prepared for self-instructional purposes. Again, however, as patients are routinely handled on a highly individualized basis while hospitalized, this is an important element in designing appropriate health education experiences.

4. The videocassette is an effective means of storing and delivering health education teaching materials. The videocassette system itself is a quite recent development, i.e., within the last two years. Consequently, its potential in educational television at large is only now being recognized. Within the hospital setting, however, it provides an ideal arrangement for the delivery of a health education program. This is especially so when the videocassette system can be coupled with local television production methods. In effect, the videocassette now allows the full potential of videotape itself to be achieved. For example, the audio-tape industry developed tremendously following the introduction of the audio-cassette. Prior to that time, reel to reel audio-recording was practiced mainly in institutional situations and by persons with special interests in sound reproduction.
techniques. Commercial development of the cassette or packaged delivery system however introduced an entirely new element into the audio industry; for example, popular use of audio-tape players in one's automobile, thereby permitting individual selection and programming of content. Analogously, the videocassette delivery capability now available, and as illustrated in this study, will permit a highly individualistic selection and programming of health education materials in a hospital setting as well as in outpatient clinics, physician offices and reception rooms, school health clinics, classrooms, homes, and other convenient locations.

5. Use of locally-produced televised health education materials encourages and enhances utilization of adult education concepts. As noted above, adult education theorists now recognize certain common elements found in successful adult education programs. These include learner participation in the formulation of educational objectives and program content, personal sense of commitment to achievement of stated educational objectives, problem-centered orientation rather than subject-centeredness, self-directing or autonomous mode of instruction, adequate reinforcement and learner feedback, comfortable and informal study surroundings, non-authoritative teaching approach, and similar elements. Television, so commonly accepted and used by adults, is an ideal medium to incorporate as an audio-visual aid in adult learning situations. In particular, the medium is not identified or associated with traditional pedagogical nuances which can
adversely affect adult education programming; that is to say, most persons do not associate television with formal education activities.

6. The level of adult learner acceptance is high in televised health education. One of the most important conclusions of the study was the favorable acceptance of the television medium as a learning tool by study participants—staff and patients alike. That is, the study members not only viewed the instructional method as an acceptable medium of instruction but positively responded to it by recommending it to others on their own accord. For example, following the study itself, arrangements have been made to show the particular program to all staff members employed in the Patient Kitchen area. This request was generated by favorable comments of several study participants. The reason (or reasons) for this finding is (are) not clear—it may have to do with the novelty of localized television production capabilities or even the mystique which seems to be associated with the medium itself. In any event, the study did demonstrate that patients and staff will readily accept television as a means of learning, either as individuals or as members of small groups.

7. An effective and practical means of informing persons about leprosy is now available and in operational use. Although the primary purpose of this study was to test the feasibility of using programmed instructional television in a health education program, a secondary finding revealed that television is a good
means of informing people about leprosy. This is significant in view of the apparent high number of misconceptions which continue to surround leprosy and the resultant adverse effects of such misconceptions in the overall management of this major health problem. In the past, public information methods in leprosy relied almost completely upon the written word. Now, for the first time, it may be possible to realistically expect to change public attitudes about leprosy, i.e., with closed-circuit television public information programs. Also, it is noted that the particular orientation program on leprosy prepared to test the study hypotheses is now being used on a routine (and still pilot) basis to acquaint newly-admitted patients, visitors, and all new employees about the disease and its management. Although this has been done in the past on a verbal basis in some instances, this is the first time that a systematic, comprehensive, and validated approach to health education in leprosy has been developed and placed into actual practice at the Leprosarium. Within the near future, it is planned to extend this pilot programming to Public Health Service hospitals in other parts of the United States, selected State Health Departments, and other outpatient facilities in leprosy endemic areas. It also is planned to produce a series of videotapes on medical teaching topics as well; for example, specific nursing practices in leprosy, foot-care techniques, and other areas of interest to medical and allied health specialists.
**Study Implications**

Results of this pilot study concerning a hospital-based health education program imply that television may be an extremely important tool for the health educator of the future. The medium has great educational potential in health care situations, especially when television production capabilities are also available. Accordingly, further studies are planned to determine the most effective use of the technology of instructional television at the study site. These studies will attempt to evaluate the effectiveness of instructional materials more precisely.

Also, it would be worthwhile to attempt direct measurement of learning effectiveness by observing behavioral change in the learner, rather than limiting evaluation procedures to merely increases in cognitive gain. For example, does successful participation in a programmed course of televised instruction on sulfone-medication in leprosy actually result in a more rigid adherence to prescribed medication regimens? And, if so, how does one measure this? Are there blood tests which could be worked into the educational evaluation design that could be used as evidence of instructional effectiveness? Do patients who receive concentrated televised instruction on effects of trauma upon insensitive tissues demonstrate a lower incidence of bone absorption in their hands, for example? Are there less re-admissions of patients successfully completing programmed courses
of televised instruction?

These questions, and questions like them, are implied by the study findings. For it is in the area of practical application of knowledge that television finds its greatest promise, and greatest challenge. Finally, following development and validation of effective instructional programs at the hospital site, a means must be found by which such materials may be shared with other health care facilities and specialists. This is an especially relevant consideration when dealing with chronic illness. Again, instructional television - including videocassette technology - may be an important consideration in meeting such inter-disciplinary and inter-organizational needs.
CHAPTER V

SUMMARY

This study represented an attempt to synthesize the various elements which should be incorporated into an effective hospital-based health education program. These elements include a need to develop individualized instructional materials, especially in patient teaching programs; recognition of contemporary adult education concepts in the development of such programs; and feasibility of utilizing current educational technology in health education programming. Generally the study approach viewed the development of a successful health education program as resulting from three major and independent inputs - 1) health care component, 2) educational theory and methodology and 3) utilization of available instructional technology.

Specifically, the research design tested two hypothesized statements - first, that persons undertaking the planned learning experience would know more about the specific subject matter following the learning experience than before it and, secondly, that televised instructional material with learner response features would be more effective in teaching than similar televised material without learner response. To test the first hypothesis a random sample of sixty staff members and patients at a specialty hospital (a Leprosarium) viewed a twenty-two minute televised program on
Hansen's disease. Appropriate pre and post testing was accomplished to measure knowledge gain. Results indicated that a highly significant ($P < .001$) relationship existed between completion of the learning experience and increased level of knowledge concerning the content material.

The second hypothesis was tested by sub-dividing the sample population into two treatment groups and adding a response element into one of the two treatments. A programmed learning device known as a QRS Responder Module was used as the feedback mechanism. Results indicated no appreciable difference ($P > .05$) in learning gain resulting from the programmed instructional material as compared with the non-programmed content.

Other study findings related to high learner acceptance levels of television as a learning medium, relative ease in developing self-instructional material with television production methods, potential use of the videocassette as a health education delivery vehicle, and the value of using television in leprosy teaching programs.
LIST OF REFERENCES
LIST OF REFERENCES


4. Ibid.


10. Ibid.


13. President's Committee on Health Education. Report, op. cit.

14. Ibid.


29. Ibid.


32. U.S. Civil Service Commission, *op. cit.*


38. Somers, Anne R., *op. cit.*


63. Marks, Janet, op. cit.

64. Blackwell, Barry, op. cit.

65. Rosenberg, Stanley (June, 1971), op. cit.


71. President's Committee on Health Education, *op. cit.*


74. Weed, Lawrence L. *Medical Records, Medical Education, and Patient Care*. Cleveland: Case Western Reserve University, 1970.


111. American Hospital Association. Media and Modules: Basis
    for New Teacher/Learner/Patient Relationships. Cross-

112. Anon. Audiovisual learning resources in medical education.

113. Engel, C.E. Audiovisual Aids in Medical Education. Brit.

114. Preparation of audio tapes for self-instruction.

115. Reich, Paul R. Programmed Instruction in Hematology Using
    a New Audiovisual System. J. Med. Educ., Vol. 47,
    June, 1972.

116. Lumsdaine, Arthur A. Student Response in Programmed
    Instruction. Washington, D.C.: National Academy of
    Sciences, 1961.


    Programmed Instruction in Interviewing: An Experiment
    in Medical Education. JAMA, 212:11, 15 June 1970.

119. Adler, Leta M., Ware, John E., and Enelow, Allen J. Changes
    in Medical Interviewing Style after Instruction with Two

    Biomedical Communications, April, 1973.

121. Park, James. Paper presented to CAPE Conference, Montreal,


    for New Teacher/Learner/Patient Relationships, op. cit.

    Programmed Mathematics Course for Television Presenta-


140. Somers, Anne R. Only the Hospital Can Do It All - Now. Modern Hospital, July, 1972.


150. Tyler, Ralph W. Basic Principles of Curriculum and Instruction, op. cit.
APPENDIX A

LEARNING NEEDS ANALYSIS

- Learner (Patient)

1. Do you think that the hospital should have a formal health education program for patients—that is, a planned series of programs to tell the patient about his disease and what can be done about it?

   _____ Yes  _____ No  _____ Not Sure

2. If the hospital had such a program, would you attend?

   _____ Yes  _____ No  _____ Not Sure

3. On a scale of 1 to 10, how important do you feel the following areas are in a patient health education program:

   10  9  8  7  6  5  4  3  2  1  0
   Very Important  Average Importance  Unimportant

   TOPIC  ASSIGNED RATING

   a. History of Hansen's disease (HD) ..................
   b. Sign and symptom of HD ............................
   c. Medications currently available for treatment of HD ........................................
   d. Steps which the patient can take to prevent accidental injury to the insensitive hand or foot ........................................
   e. Description of the micro-organism which causes HD ............................
   f. History and development of the hospital ........
   g. Description of the organization and administration structure of the hospital ........
   h. Review of worldwide status of HD, including designation of specific areas where the disease is prevalent ..........................
   i. Comparison of HD with other communicable diseases of public health significance ........
   j. Actions which the patient should take after discharge to keep disease under control ........
   k. Description of latest research studies now underway in HD ............................
   l. Other (please be specific)
4. If you participated in such a program would you prefer the instruction to be on
   a) an individual basis
   b) small group (1 to 5 persons)
   c) medium group (6 to 14 persons)
   d) large group (15 or more persons)

5. Do you think that it would be good for some patients to be trained to teach other patients about their illness?
   ______ Yes   ______ No   ______ Not Sure

6. How effective do you think written materials (e.g. pamphlets, handouts for patients education?)
   
   10  9  8  7  6  5  4  3  2  1  0
   Very Effective    Of Some Help    Ineffective

7. Should a patient's family members be included in the health education program?
   ______ Yes   ______ No   ______ Not Sure

8. How much do you think the average patient knows about HD and its treatment at the time of discharge from Carville?
   
   10  9  8  7  6  5  4  3  2  1  0
   A Great Deal    About Half    Very Little

9. Do you think that a patient with much schooling is more anxious to learn about HD and its treatment than a patient without much schooling?
   ______ Yes   ______ No   ______ Not Sure

10. What problems, if any, do you think would be involved with the development of a patient health education program at Carville?
LEARNING NEEDS ANALYSIS

- Health Care Specialists

1. Do you feel that a patient health education program* is needed at this hospital?
   _____ Yes  _____ No  _____ Not Sure

2. On a scale of 1 to 10, where would you place your estimate of the need for such a program at Carville?
   10  9  8  7  6  5  4  3  2  1  0
   Essential Of Some Help Unnecessary

3. To what extent do you think the average patient at Carville would respond to such a program?
   10  9  8  7  6  5  4  3  2  1  0
   Very Interested Interested Uninterested

4. How much do you think the newly-diagnosed patient knows about leprosy relative to what you believe he should know at the time of his discharge from Carville?
   10  9  8  7  6  5  4  3  2  1  0
   A Great Deal About Half Very Little

5. Do you think the person's formal educational background affects his willingness to learn about his condition?
   _____ Yes  _____ No  _____ Not Sure

* Patient health education program is defined as a series of educational experiences planned for the patient by professional personnel as a component of his care and differentiates those experiences from unplanned learning experiences in the hospital.
6. In your opinion, would it be of value for patients to learn about current research programs in leprosy, e.g., armadillo project or lymphocyte transfer program?

    _____ Yes    _____ No    _____ Not Sure

If so, what specific area(s) would you suggest?

7. Should the patient's family be included in the health education program?

    _____ Yes    _____ No    _____ Not Sure

8. What problems (if any) do you foresee in the development of a patient health education program in your particular area of interest?

9. Please indicate the most important elements which you believe should be included in a patient health education program. Also, if possible, categorize by (1) cognitive (what the patient should know), (2) affective (desirable attitudes or feelings which can be fostered through education) and (3) psychomotor (skills or things that a patient should be able to do.)

(Your suggestions may be restricted to your own area of concern, e.g., physical therapy, eye care, etc.)

Cognitive:
Affective: 

Psychomotor: 

Finally, any other particular comments or suggestions concerning the development of a patient education program would be appreciated.

Name  Department

Please return to Mr. O'Connor, Stop 30. Again, your help is appreciated.
APPENDIX C

HANSEN'S DISEASE--AN INTRODUCTION

1. What is the cause of Hansen's disease (HD)?
   ___ a. A virus
   ___ b. A bacterial organism
   ___ c. A blood disorder
   ___ d. Cause is unknown

2. How is HD transmitted from one person to another?
   ___ a. Contaminated food or water
   ___ b. Insect bites
   ___ c. Through respiratory tract
   ___ d. Mode of transmission is unknown

3. HD mainly affects what parts of the body?
   ___ a. Digestive system
   ___ b. Skin and peripheral nerves
   ___ c. Central nervous system
   ___ d. Lungs and heart

4. About how many persons in the United States have HD?
   ___ a. 300
   ___ b. 3,000
   ___ c. 30,000
   ___ d. 300,000

5. It is believed that 9 of every 10 persons could not contract HD even if they were exposed to it.
   ___ a. True
   ___ b. False

6. Persons with very low or no resistance to HD will probably contract
   ___ a. Lepromatous HD
   ___ b. Tuberculoid HD
   ___ c. Dimorphous HD
7. Loss of fingers and toes in HD is most often due to:
   _____ a. Direct action of HD organism on tissues
   _____ b. Lack of attention to minor injuries due to loss of sensation
   _____ c. Surgical amputations
   _____ d. Cause of problem is unknown

8. The organism that causes HD is most often found
   _____ a. In the COOLER regions of the body
   _____ b. In the WARMER regions of the body
   _____ c. In all parts, without relation to temperature

9. The most widely-used drugs in HD are:
   _____ a. Antibiotics
   _____ b. Sulfones
   _____ c. Anti-histamines
   _____ d. Experimental drugs

10. All persons diagnosed with HD are required to be hospitalised.
    _____ a. True
    _____ b. False

11. The average length of stay for most patients now admitted to Carville is about:
    _____ a. 1 week
    _____ b. 3 months
    _____ c. 1 year
    _____ d. 3 years

12. How long of a period of time is usually required to render a HD patient non-infectious—that is, unable to transmit the disease to others?
    _____ a. Less than one week
    _____ b. Three months or less
    _____ c. About one year
    _____ d. Three years or longer

13. The problem of "reaction" in HD affects about how many persons with the disease?
    _____ a. 1 out of 10
    _____ b. 5 out of 10
    _____ c. 9 out of 10
14. The drug Thalidomide is used in HD:
   ___ a. To kill the causative organism of HD
   ___ b. To suppress the reaction which occurs when the causative organisms are killed by other drugs
   ___ c. As a pain-killer
   ___ d. As a birth-control pill

15. If exposed to HD, children are probably:
   ___ a. Less likely to contract the disease than adults
   ___ b. More likely to contract the disease than adults
   ___ c. Have about the same chance of contracting the disease as adults

1. Sex:
2. Age:
3. Years Schooling:
4. Number years employed at hospital:
APPENDIX D

OPINION SURVEY

1. What is your overall opinion regarding the use of television for learning?
   _____ Excellent
   _____ Good
   _____ Fair
   _____ Poor

2. What do you think about the use of instructional television at Carville?
   _____ Should use as much as possible
   _____ Limit use to special applications
   _____ Do not think it is especially helpful

3. What do you think about the instructional program on Hansen's disease?
   _____ Excellent
   _____ Good
   _____ Fair
   _____ Poor

4. Do you think that other persons at the hospital would be interested in seeing this program?
   _____ Yes
   _____ No

5. Can you think of any other programs that we could produce locally that would be of interest? What are they?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
6. Would you like to receive a copy of the results of this research study?

______ Yes

______ No

7. We would appreciate any other comments which you may have in this regard: ____________________________________________
APPENDIX E

TO: 

THROUGH: 

SUBJECT: Television program on Hansen's disease

As you may know, the Training Branch recently obtained some television equipment to be used for educational purposes. One of the first programs we have produced is on Hansen's disease; that is, general information about HD that most persons ask about when they visit the Hospital.

We would like to test the effectiveness of this pilot program and are asking a random sample of staff and patient employees to help us with this. Specifically, we would like to have you view the film and give us your opinion about it. Also, we have a short questionnaire to be completed before and after the viewing. The program is 20 minutes long and so the entire process will only require about ½ hour of your time.

Tentatively, we have reserved a viewing time for you on

If you can help us with this, please call Mrs. Diane Newsom on Extension 218 to confirm this date or to arrange a more convenient time. All viewing will be on the 1st floor of the new Education Building (old BOQ). Also, this might be a good opportunity for you to see our new training facilities.

Again, we believe that television can be a good educational tool at Carville and ask that you help us in the early stages of this program by planning to see this program.

Richard J. O'Connor
Training Officer

Copy to: Supervisor
ANNOUNCEMENT - 28 February 1974

TO: Participants in Training Study
THROUGH: Supervisors
FROM: Director
SUBJECT: The Use of Television in Training Programs

1. A random sample of staff and patient employees is being asked to participate in a study being conducted by the Training Branch. This pilot study will attempt to determine the potential effectiveness of instructional television in informing persons about Hansen's disease.

2. The use of closed-circuit television systems has proved extremely beneficial in other health care facilities, and we are hopeful that it will be a useful communications device at Carville as well. However, at this point it is important to measure its potential in more specific ways as we hope to do in the proposed study.

3. Your participation will be entirely voluntary, but I urge your support of this endeavor.

John R. Trautman, M.D.
Director
APPENDIX G

TO: __________________________

SUBJECT: Educational television research project

The attached memorandum addressed to a member of your unit is self-explanatory. If this employee can be excused to participate in this project, please forward the request as addressed. We would, of course, appreciate your cooperation with us in this regard.

Also, please let me know if I can provide further information concerning this study.

Richard J. O'Connor
Training Officer
APPENDIX H

CLASSIFICATION, TREATMENT, AGE, SEX, EDUCATION, LENGTH OF EMPLOYMENT, TEST SCORES, AND LEARNING GAINS FOR ALL PARTICIPANTS, HEALTH EDUCATION STUDY, U.S. PUBLIC HEALTH SERVICE HOSPITAL, CARVILLE, LA., 1974

<table>
<thead>
<tr>
<th>Participant</th>
<th>Group</th>
<th>Treatment</th>
<th>Age</th>
<th>Sex</th>
<th>Educ.</th>
<th>Employ.</th>
<th>Pre</th>
<th>Post</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>0101</td>
<td>S</td>
<td>TV</td>
<td>53</td>
<td>M</td>
<td>12</td>
<td>33</td>
<td>7</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>0202</td>
<td>S</td>
<td>TV</td>
<td>43</td>
<td>M</td>
<td>12</td>
<td>17</td>
<td>11</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>0309</td>
<td>S</td>
<td>TV</td>
<td>27</td>
<td>M</td>
<td>12</td>
<td>06</td>
<td>07</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>0410</td>
<td>S</td>
<td>TV</td>
<td>49</td>
<td>M</td>
<td>11</td>
<td>01</td>
<td>01</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>0511</td>
<td>S</td>
<td>TV</td>
<td>50</td>
<td>M</td>
<td>08</td>
<td>25</td>
<td>04</td>
<td>06</td>
<td>2</td>
</tr>
<tr>
<td>0616</td>
<td>S</td>
<td>TV</td>
<td>55</td>
<td>M</td>
<td>07</td>
<td>28</td>
<td>09</td>
<td>08</td>
<td>-1</td>
</tr>
<tr>
<td>0721</td>
<td>S</td>
<td>TV</td>
<td>65</td>
<td>M</td>
<td>06</td>
<td>20</td>
<td>04</td>
<td>05</td>
<td>1</td>
</tr>
<tr>
<td>0823</td>
<td>S</td>
<td>TV</td>
<td>40</td>
<td>F</td>
<td>12</td>
<td>14</td>
<td>07</td>
<td>07</td>
<td>0</td>
</tr>
<tr>
<td>0924</td>
<td>S</td>
<td>TV</td>
<td>32</td>
<td>M</td>
<td>12</td>
<td>11</td>
<td>04</td>
<td>07</td>
<td>3</td>
</tr>
<tr>
<td>1025</td>
<td>S</td>
<td>TV</td>
<td>49</td>
<td>M</td>
<td>10</td>
<td>12</td>
<td>08</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Participant</td>
<td>Group</td>
<td>Treatment</td>
<td>Age</td>
<td>Sex</td>
<td>Educ.</td>
<td>Employ.</td>
<td>Pre</td>
<td>Post</td>
<td>Gain</td>
</tr>
<tr>
<td>-------------</td>
<td>-------</td>
<td>-----------</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>1126</td>
<td>S</td>
<td>TV</td>
<td>54</td>
<td>M</td>
<td>05</td>
<td>29</td>
<td>04</td>
<td>07</td>
<td>3</td>
</tr>
<tr>
<td>1229</td>
<td>S</td>
<td>TV</td>
<td>45</td>
<td>M</td>
<td>05</td>
<td>29</td>
<td>03</td>
<td>03</td>
<td>0</td>
</tr>
<tr>
<td>1331</td>
<td>S</td>
<td>TV</td>
<td>19</td>
<td>M</td>
<td>13</td>
<td>01</td>
<td>07</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>1432</td>
<td>S</td>
<td>TV</td>
<td>36</td>
<td>M</td>
<td>12</td>
<td>01</td>
<td>05</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>1533</td>
<td>S</td>
<td>TV</td>
<td>26</td>
<td>M</td>
<td>11</td>
<td>01</td>
<td>07</td>
<td>08</td>
<td>1</td>
</tr>
<tr>
<td>1634</td>
<td>S</td>
<td>TV</td>
<td>24</td>
<td>M</td>
<td>11</td>
<td>01</td>
<td>05</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>1735</td>
<td>S</td>
<td>TV</td>
<td>18</td>
<td>M</td>
<td>11</td>
<td>01</td>
<td>06</td>
<td>08</td>
<td>2</td>
</tr>
<tr>
<td>1836</td>
<td>S</td>
<td>TV</td>
<td>58</td>
<td>M</td>
<td>10</td>
<td>29</td>
<td>04</td>
<td>04</td>
<td>0</td>
</tr>
<tr>
<td>1937</td>
<td>S</td>
<td>TV</td>
<td>41</td>
<td>F</td>
<td>12</td>
<td>06</td>
<td>11</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>2038</td>
<td>S</td>
<td>TV</td>
<td>32</td>
<td>M</td>
<td>12</td>
<td>08</td>
<td>08</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>2101</td>
<td>S</td>
<td>TV-R</td>
<td>63</td>
<td>M</td>
<td>12</td>
<td>20</td>
<td>12</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>2202</td>
<td>S</td>
<td>TV-R</td>
<td>41</td>
<td>F</td>
<td>12</td>
<td>07</td>
<td>12</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Participant</td>
<td>Group</td>
<td>Treatment</td>
<td>Age</td>
<td>Sex</td>
<td>Educ.</td>
<td>Employ.</td>
<td>Pre</td>
<td>Post</td>
<td>Gain</td>
</tr>
<tr>
<td>-------------</td>
<td>-------</td>
<td>-----------</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>2303</td>
<td>S</td>
<td>TV-R</td>
<td>42</td>
<td>F</td>
<td>12</td>
<td>14</td>
<td>09</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>2406</td>
<td>S</td>
<td>TV-R</td>
<td>48</td>
<td>F</td>
<td>12</td>
<td>29</td>
<td>09</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>2508</td>
<td>S</td>
<td>TV-R</td>
<td>45</td>
<td>M</td>
<td>13</td>
<td>16</td>
<td>10</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>2610</td>
<td>S</td>
<td>TV-R</td>
<td>24</td>
<td>M</td>
<td>12</td>
<td>06</td>
<td>01</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>2711</td>
<td>S</td>
<td>TV-R</td>
<td>40</td>
<td>M</td>
<td>12</td>
<td>21</td>
<td>10</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>2812</td>
<td>S</td>
<td>TV-R</td>
<td>41</td>
<td>M</td>
<td>12</td>
<td>22</td>
<td>11</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>2914</td>
<td>S</td>
<td>TV-R</td>
<td>34</td>
<td>M</td>
<td>12</td>
<td>06</td>
<td>07</td>
<td>08</td>
<td>1</td>
</tr>
<tr>
<td>3016</td>
<td>S</td>
<td>TV-R</td>
<td>42</td>
<td>M</td>
<td>08</td>
<td>15</td>
<td>12</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>3117</td>
<td>S</td>
<td>TV-R</td>
<td>37</td>
<td>M</td>
<td>12</td>
<td>10</td>
<td>09</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>3221</td>
<td>S</td>
<td>TV-R</td>
<td>59</td>
<td>M</td>
<td>08</td>
<td>10</td>
<td>04</td>
<td>07</td>
<td>3</td>
</tr>
<tr>
<td>3328</td>
<td>S</td>
<td>TV-R</td>
<td>63</td>
<td>M</td>
<td>12</td>
<td>13</td>
<td>10</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>3431</td>
<td>S</td>
<td>TV-R</td>
<td>62</td>
<td>M</td>
<td>12</td>
<td>05</td>
<td>11</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Participant</td>
<td>Group</td>
<td>Treatment</td>
<td>Age</td>
<td>Sex</td>
<td>Educ.</td>
<td>Employ.</td>
<td>Pre</td>
<td>Post</td>
<td>Gain</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
<td>-----------</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>3532</td>
<td>S</td>
<td>TV-R</td>
<td>31</td>
<td>M</td>
<td>12</td>
<td>09</td>
<td>08</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>3633</td>
<td>S</td>
<td>TV-R</td>
<td>37</td>
<td>F</td>
<td>12</td>
<td>06</td>
<td>09</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>3734</td>
<td>S</td>
<td>TV-R</td>
<td>43</td>
<td>F</td>
<td>13</td>
<td>18</td>
<td>12</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>3835</td>
<td>S</td>
<td>TV-R</td>
<td>24</td>
<td>F</td>
<td>13</td>
<td>01</td>
<td>08</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>3936</td>
<td>S</td>
<td>TV-R</td>
<td>43</td>
<td>F</td>
<td>12</td>
<td>05</td>
<td>10</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>4037</td>
<td>S</td>
<td>TV-R</td>
<td>36</td>
<td>F</td>
<td>15</td>
<td>03</td>
<td>08</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>4107</td>
<td>P</td>
<td>TV</td>
<td>59</td>
<td>F</td>
<td>12</td>
<td>20</td>
<td>09</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>4208</td>
<td>P</td>
<td>TV</td>
<td>41</td>
<td>M</td>
<td>13</td>
<td>04</td>
<td>13</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>4309</td>
<td>P</td>
<td>TV</td>
<td>61</td>
<td>M</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>4415</td>
<td>P</td>
<td>TV</td>
<td>57</td>
<td>M</td>
<td>07</td>
<td>30</td>
<td>11</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>4516</td>
<td>P</td>
<td>TV</td>
<td>57</td>
<td>M</td>
<td>07</td>
<td>30</td>
<td>04</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>4617</td>
<td>P</td>
<td>TV</td>
<td>48</td>
<td>M</td>
<td>12</td>
<td>22</td>
<td>12</td>
<td>11</td>
<td>-1</td>
</tr>
<tr>
<td>Participant</td>
<td>Group</td>
<td>Treatment</td>
<td>Age</td>
<td>Sex</td>
<td>Educ.</td>
<td>Employ.</td>
<td>Pre</td>
<td>Post</td>
<td>Gain</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
<td>-----------</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>4718</td>
<td>P</td>
<td>TV</td>
<td>25</td>
<td>F</td>
<td>14</td>
<td>04</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>4827</td>
<td>P</td>
<td>TV</td>
<td>44</td>
<td>F</td>
<td>13</td>
<td>25</td>
<td>10</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>4936</td>
<td>P</td>
<td>TV</td>
<td>39</td>
<td>F</td>
<td>01</td>
<td>12</td>
<td>09</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>5039</td>
<td>P</td>
<td>TV</td>
<td>22</td>
<td>M</td>
<td>12</td>
<td>03</td>
<td>10</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>5104</td>
<td>P</td>
<td>TV-R</td>
<td>64</td>
<td>M</td>
<td>12</td>
<td>20</td>
<td>07</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>5206</td>
<td>P</td>
<td>TV-R</td>
<td>60</td>
<td>M</td>
<td>12</td>
<td>06</td>
<td>14</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>5314</td>
<td>P</td>
<td>TV-R</td>
<td>25</td>
<td>M</td>
<td>15</td>
<td>03</td>
<td>15</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>5418</td>
<td>P</td>
<td>TV-R</td>
<td>52</td>
<td>F</td>
<td>08</td>
<td>32</td>
<td>10</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>5519</td>
<td>P</td>
<td>TV-R</td>
<td>45</td>
<td>M</td>
<td>12</td>
<td>11</td>
<td>14</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>5620</td>
<td>P</td>
<td>TV-R</td>
<td>45</td>
<td>M</td>
<td>12</td>
<td>08</td>
<td>10</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>5726</td>
<td>P</td>
<td>TV-R</td>
<td>49</td>
<td>M</td>
<td>09</td>
<td>09</td>
<td>12</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>5827</td>
<td>P</td>
<td>TV-R</td>
<td>40</td>
<td>F</td>
<td>16</td>
<td>02</td>
<td>10</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Participant</td>
<td>Group</td>
<td>Treatment</td>
<td>Age</td>
<td>Sex</td>
<td>Educ.</td>
<td>Employ.</td>
<td>Pre</td>
<td>Post</td>
<td>Gain</td>
</tr>
<tr>
<td>-------------</td>
<td>-------</td>
<td>-----------</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>5928</td>
<td>P</td>
<td>TV-R</td>
<td>61</td>
<td>M</td>
<td>07</td>
<td>25</td>
<td>08</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>6037</td>
<td>P</td>
<td>TV-R</td>
<td>42</td>
<td>M</td>
<td>09</td>
<td>01</td>
<td>11</td>
<td>15</td>
<td>4</td>
</tr>
</tbody>
</table>

S = Staff  
P = Patient  
TV = Television Only  
TV-R = Television with Response
APPENDIX I

ANALYSIS OF VARIANCE TABLE, HEALTH EDUCATION STUDY, U.S. PUBLIC HEALTH SERVICE HOSPITAL, CARVILLE, LA., 1974

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F Value</th>
<th>Prob. F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>3</td>
<td>25.7833</td>
<td>8.5944</td>
<td>1.39423</td>
<td>0.2531</td>
</tr>
<tr>
<td>Group</td>
<td>1</td>
<td>20.8333</td>
<td>3.3796</td>
<td>0.0713</td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>1.2000</td>
<td>0.1946</td>
<td>0.6608</td>
<td></td>
</tr>
<tr>
<td>Group/Treatment</td>
<td>1</td>
<td>2.1333</td>
<td>0.3460</td>
<td>0.5587</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>56</td>
<td>345.2000</td>
<td>6.1642</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>59</td>
<td>370.9833</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VITA

Name: Richard Joseph Jude O'Connor

Birth: June 11, 1936. Fitchburg, Massachusetts

Education: Elementary and Secondary School: St. Bernard's, Fitchburg, Massachusetts
Boston College, Bachelor of Science in Biology, 1958
University of Massachusetts, Master of Science in Public Health, 1965
New York University, New York City, Graduate Courses in Public Administration, 1966-1968

Military Service: Line Officer (LTSG), United States Navy, 1959-1965

Position: Commissioned Officer, Regular Corps, United States Public Health Service, 1965-Present

Memberships: Society of Public Health Education, American Hospital Association, Commissioned Officers Association, United States Public Health Service, American Public Health Association
EXAMINATION AND THESIS REPORT

Candidate: Richard Joseph Jude O'Connor

Major Field: Extension Education

Title of Thesis: Integration of Programmed Instruction with Instructional Television in a Health Education Program

Approved:

Edward W. Bass
Major Professor and Chairman

James H. Layman
Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

April 5, 1974