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An Instructional Unit Utilizing Computer-Assisted Instruction for Teaching the Application of Sociocultural Information to Individualization of Diets

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To the Graduate Council:

I am submitting herewith a dissertation written by Mabel Yvonne Jackson entitled "An Instructional Unit Utilizing Computer-Assisted Instruction for Teaching the Application of Sociocultural Information to Individualization of Diets." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

Betty L. Beach, Major Professor

We have read this dissertation and recommend its acceptance:

Ada Marie Campbell, Louis Ehrcke, John R. Ray

Accepted for the Council:

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Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Graduate Studies and Research

AN INSTRUCTIONAL UNIT UTILIZING COMPUTER-ASSISTED INSTRUCTION FOR TEACHING THE APPLICATION OF SOCIOCULTURAL INFORMATION TO INDIVIDUALIZATION OF DIETS

A Dissertation

Presented for the

Doctor of Philosophy

Degree

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Mabel Yvonne Jackson

August 1978

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ABSTRACT

An instructional unit utilizing computer-assisted instruction was developed, implemented, and evaluated for teaching the application of information concerning sociocultural food behaviors to the individualization of diet modifications. The instructional unit was administered to professional level dietetic students in the Coordinated Undergraduate Program in Dietetics at the University of Tennessee, Knoxville.

The instructional unit included a pretest for prerequisite knowledge, three simulated dietary counseling sessions, and a dietary counseling session with an actual patient. The simulated dietary counseling sessions were presented via computer-assisted instruction (CAI) and the effectiveness of the instructional unit was assessed by content analysis procedures.

Hypothetical medical charts and simulated dietary counseling sessions for three patients with adult-onset, noninsulin dependent diabetes were developed to give students experience in individualizing patient care. Each simulated patient had different sociocultural characteristics. Students completed nutritional care plans and CAI dietary counseling sessions for the simulated patients prior to completing a nutritional care plan and dietary counseling session for an actual patient at a local out-patient clinic.

Content analysis procedures were developed for quantifying the content of nutritional care plans and dietary counseling sessions. Seven subject matter categories relevant to sociocultural and physical

factors to be considered when planning the nutritional care of individuals were identified. The categories were designated as cultural, economic, psychological, religious, social, miscellaneous, and physical. The average score of six coders was used in determining the content of the nutritional care plans and counseling sessions.

Prior to the instructional unit, one-third of the students considered only physical needs of the patient in planning dietary care for that patient. All students identified and utilized both physical and sociocultural factors related to the dietary care of the simulated patients. Following the CAI, all but one student considered both sociocultural and physical factors in planning the dietary care of the actual patient.

The greatest transfer from the CAI to the actual situations was in the content under the cultural and economic categories. Data did not indicate any carry over of content in the category concerning religious needs of the patient.

The results of the content analysis indicated that the students utilized more sociocultural considerations in developing plans for the dietary care of patients following the computer counseling sessions than were used prior to the computer counseling sessions. The instructional unit was determined to be effective in teaching students to individualize patient dietary care.

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION	1
	Identification of the Problem	2
	Purpose of the Study	4
II.	REVIEW OF LITERATURE	5
	Nutritional Care of Patients	5
	Computer-Assisted Instruction	7
	Content Analysis	13
III.	PROCEDURE	16
	Development of the Instructional Unit	18
	Administration of Instructional Unit	27
	Procedure for Analysis	33
IV.	RESULTS AND DISCUSSION	37
	Evaluation of Student Performance Throughout Instructional Unit	37
	Evaluation of CAI Effectiveness	42
V.	SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	55
	Summary	55
	Conclusions	57
	Recommendations	58
LIST OF REFERENCES		62
APPENDIXES		68
Appendix A		69
Appendix B		72
Appendix C		81
Appendix D		86
VITA		97

LIST OF TABLES

TABLE		PAGE
1.	Classification of Content Units into the Six Subject Matter Categories for Use in Content Analysis of Nutritional Care Plans and Dietary Counseling Sessions . .	44
2.	Average Number of Sociocultural Content Units Identified in the Nutritional Care Plans for the Simulated Patients by a Panel of Six Coders	47
3.	Percent Distribution and Average Number of Content Units Identified in Preinstructional Unit Nutritional Care Plans, Post-CAI Nutritional Care Plans, and Actual Counseling Sessions by a Panel of Six Coders	49
4.	Average Number of Content Units Identified in Preinstructional Unit Nutritional Care Plans, Post-CAI Nutritional Care Plans, and Actual Counseling Sessions by a Panel of Six Coders	50
A-1.	Summary of Student Profile Data	70
A-2.	Time and Direct Costs for the Development and Use of the CAI Counseling Sessions	71

CHAPTER I

INTRODUCTION

A dietitian's responsibility for the nutritional care of individuals and groups is accomplished by applying the science and art of nutrition in helping people select food for nourishing their bodies (Committee to Develop a Glossary of Terminology for the Association and Profession, 1974). The dietitian utilizes information concerning a patient's social, cultural, and economic background, as well as physiological state, in providing the type of diet counseling to meet the dietary needs of each patient (Bonnell, 1974; Dietetic Internship Council, 1974).

One role of the entry-level generalist hospital dietitian is in providing dietary counseling that meets patients' needs. The entry-level generalist dietitian is defined as a person who has entered the profession for the first time after completing the academic and clinical experiences required for membership in the American Dietetic Association (Dietetic Internship Council, 1974).

In order for the entry-level dietitian to utilize information concerning a patient's social, cultural, and economic background in diet counseling, she/he must know that food has numerous meanings to each individual. These meanings are often deeply rooted in the cultural and social structure of the society, religious group, and ethnic group of the individual. A culture determines for its members what to eat,

when to eat, and how to eat (de Garine, 1972; Lowenberg, 1970; Fathaurer, 1960; Lee, 1957). A dietitian must know and understand these meanings and apply this knowledge when planning diets and counseling patients to bring about the desired changes in food habits.

I. IDENTIFICATION OF THE PROBLEM

Skills in providing nutritional care that incorporate sociocultural and physiological aspects of diet modifications are developed in the dietetic program through the integrated curriculum. This type of program allows for the acquisition and understanding of theoretical knowledge in the classroom with the immediate application in the clinical experiences (Reddout, 1973). However, sufficient clinical experiences must be planned for the student to develop expertise in applying the information and skills that are necessary for individualizing diet modifications.

The coordination of classroom information and clinical experiences may be accomplished by a number of different methods. The most advantageous method would be to have actual patient or employee contact. However, it is not always possible to have a patient with specified characteristics at the time that would be most advantageous for learning to take place. The American Dietetic Association recognizes this and states in the Essentials for Coordinated Undergraduate Programs in Dietetics (1976) that substitutions such as self-study modules, simulations or other experiences may take the place of actual experiences if there is evidence that the specified competency is being developed.

Competencies have been met in Coordinated Dietetic Programs by using teaching strategies such as computer-assisted instruction, videotaping, simulation, and gaming (Breese et al., 1977; Canter, 1977; Fiedler, 1977; Hart, 1976; Shanklin, 1976).

The feasibility of using computer-assisted instruction (CAI) to allow students to apply clinical skills to simulate situations has been suggested by several authors (Breese et al., 1977; Canter, 1977; Crocco et al., 1975; Collart, 1973; Harless et al., 1971). The health sciences are considered to be especially conducive for the use of CAI as an instructional strategy (Brigham and Kamp, 1974).

CAI can be used to simulate reality and permit the learner to practice skills in a controlled situation (Collart, 1973). In the health sciences, clinical situations can be presented via CAI in order to supplement the actual number and types of encounters during a student's education. By using CAI the instructor can select and control what information is presented to the learner as well as how and when it is presented. This sequencing can be used to facilitate the learning process (Burris, 1976).

Computer simulated clinical encounters were developed to supplement dietetic clinical experiences at The Ohio State University (Breese et al., 1977). The cases contained nutritional problems of patients involving gastrointestinal, cardiovascular, and endocrine disorders. The cases were designed to include the major preclinical and clinical components of a patient encounter. By using simulated cases the faculty could be assured that a "patient" with a specific nutritional care problem would be available when needed to coincide with didactic content.

The use of CAI for simulating patient encounters in dietetic education has dealt primarily with specific disease conditions. The learner has been expected to demonstrate knowledge about the physical aspects and medical treatment of the patient. Little or no emphasis has been placed on individualizing patient care by the application of sociocultural information about the patient to the treatment of her/his medical and nutritional problems.

II. PURPOSE OF THE STUDY

The purpose of this research was to develop, implement, and evaluate a learning package utilizing simulated patient counseling sessions for teaching professional level (senior) dietetic students the application of information concerning sociocultural food behaviors to the individualization of diet modifications. The simulated patient counseling sessions were presented via CAI and the effectiveness of the learning package was assessed by content analysis procedures.

CHAPTER II

REVIEW OF LITERATURE

Two competencies delineated by the American Dietetic Association for the entry-level generalist dietitian apply specifically to the individualization of diets based on sociocultural factors (Dietetic Internship Council, 1974). These competencies are that the entry-level generalist dietitian recognizes that each individual has unique and deep seated food attitudes and habits and the socioeconomic, cultural, and ethnic status of an individual are probably more important determinants of food preferences and eating patterns than are biological needs. In addition to recognizing these factors, the entry-level dietitian should be able to utilize these factors in the nutritional care of individuals and groups.

I. NUTRITIONAL CARE OF PATIENTS

Patient compliance with health and medical care recommendations is low (Becker and Maiman, 1975; Vincent, 1971; Marston, 1970; Francis et al., 1969; Davis, 1966). Based on a review of the literature, Davis (1966) estimated that approximately 30 to 35 percent of all patients fail to follow their physicians' medical recommendations. Vincent (1971) and Becker et al. (1969) estimated the noncompliance in low income clinic populations to be more than 60 percent. In general, the studies indicate that compliance is not consistently related to sex, intelligence, education, or marital status (Becker and Maiman, 1975; Marston, 1970).

Results of a health compliance study indicated that 25 percent of the insulin-dependent diabetic patients surveyed did not follow acceptable behaviors concerning the types of meals consumed and the spacing of meals (Watkins et al., 1967). Fifty-one percent of the diabetic patients in a study by Berkowitz et al. (1963) did not follow orders concerning treatments other than medication. A possible reason given for this was that restrictions in behavior or changes in personal habits are more difficult to comply with than are prescriptions for medicine.

Dietitians generally recognize that individualized diet counseling is of great importance in successful dietary compliance (Anon., 1977). A diet counseling session frequently consists of taking a diet recall and asking the patient if this is typical of her/his usual food intake. The counseling session proceeds with a routine listing of foods to eat and foods to avoid (Goodwin, 1977). The same type of diet counseling is repeated regardless of the individual. To avoid this situation, a dietitian needs to develop skills in identifying a patient's perceived and actual food behaviors, social status, cultural preferences, and current life style and in applying these individual differences to the nutritional care of that patient (Mahoney and Caggiula, 1978; Jocano, 1967).

Nutritional Care Plans

A nutritional care plan is the total course of action designed for helping a patient meet her/his assessed needs (Mason et al., 1977).

The care plan is used for planning, coordinating, and implementing the nutritional component of individualized patient care (Anon., 1977; Collingwood, 1975; Treadwell, 1974).

The development of a nutritional care plan includes assessing a patient's needs by evaluating medical, laboratory, dietary, and sociocultural information. This information is utilized for planning an individualized course of action for the promotion of nutritional health (Egan and Hallstrom, 1972). The basic components of a nutritional care plan are identifying specific needs and problems of the patient, determining what will be done to meet the needs and problems, setting goals, and establishing a means for evaluating the results of the intervention (Mason et al., 1977; Matthewson, 1973).

II. COMPUTER-ASSISTED INSTRUCTION

Computer-assisted instruction (CAI) is an instructional strategy currently being used in educational programs that require clinical experiences. CAI is defined as a student-machine interaction in which the teaching function is accomplished by a computer system (Salisbury, 1971).

Approximately 14 percent of the 561 schools responding to a survey on the use of CAI in the health sciences were already using CAI and 27 percent of the others expected to use it in the future (Brigham and Kamp, 1974). Several of the CAI programs were developed for use in medicine and were simulations of patient clinical encounters.

One reported educational purpose of CAI in simulating clinical encounters included providing a situation in which the student assumed responsibility for managing a disease situation (Harless et al., 1971). A CAI course used to instruct the physician student in clinical decision-making for diagnosing pulmonary diseases was described by Crocco et al. (1975). The CAI simulation reinforced clinical competence and improved the student's application of information to patient care.

CAI clinical experiences have been used also in nursing education (de Tornyay, 1970). Simulated situations allowed students to become involved with hypothetical patients in order to identify nursing problems, test solutions, and assess the results of intervention. Dietetic programs have utilized CAI to teach management decision making (Canter, 1977), to teach the exchange system of diet calculation (Canter, 1975), to analyze the dietary intake of simulated patients (Schaum, 1973), and to simulate patient encounters (Welch and Breese, 1977).

CAI Strategies

An instructional strategy has been defined by de Tornyay (1971) as a formulated plan to promote changes in student behavior. The strategy provides a pattern and sequence of systematically designed teaching behaviors. In CAI strategies, the computer introduces the already programmed material to the student followed by student/computer interaction concerning the instructional material (Stelzer, 1971). There are five primary instructional strategies used in CAI: tutorial, drill and practice, dialogue, problem-solving, and simulation and gaming.

The tutorial CAI strategy utilizes primary instruction. The computer is used to either present or assist in the presentation of new material to the student (Rockart et al., 1975). The student/computer interaction is highly structured since the sequence of presenting the information is controlled by the author of the program (Stelzer, 1971). The tutorial CAI strategy was used in a college nutrition course to teach students about food product packaging and labeling (Wade and Thiele, 1973). The CAI was divided into two parts. The first part concerned definitions and the second part explained determination and use of measurements in labeling. The primary teaching function was completed by the computer.

A major advantage to using the tutorial instructional strategy is that the computer program controls the learning sequence by requiring the correct response to questions concerning previously presented material before proceeding to the next part of the lesson. Positive and corrective reinforcement given following each response provides the student with immediate feedback and directs the student toward accomplishing the objectives of the lesson (Collart, 1973).

The most commonly used CAI strategy is that of drill and practice. In this strategy, the computer has no primary teaching function (Collart, 1973). Drill and practice differs from the tutorial approach since it is assumed that the student already has been presented with the facts and now needs practice in applying them.

In many drill and practice CAI programs, the student is presented with a brief tutorial sequence and then is presented with drill problems

to practice what was learned. This strategy was utilized in teaching the exchange system of diet calculations to dietetic students (Canter, 1975). The calculation of exchange values of different food combinations followed a brief review of the exchange system. This CAI program combined the tutorial strategy with the drill and practice strategy by providing corrective feedback following the calculations.

CAI can be made more flexible by using the dialogue strategy. In this strategy, the student/computer interaction is not predetermined and the student may ask questions or enter comments and responses at any point during the interaction. The CAI program consists of two different steps. The first step is for gathering information in which facts may be requested from the computer. Next is the decision making stage in which the student is guided toward the conclusion or solution (Zinn, 1967). The computer is programmed to interpret the students' input.

The fourth instructional strategy, problem-solving, utilizes the computer for performing steps necessary to solve a problem. The student asks a question and the computer retrieves the necessary information and displays the answer (Collart, 1973). The problem-solving strategy has been used for performing mathematical calculations, converting pounds to kilograms, computing calories, and converting measurements to centimeters (Collart, 1973). The memory file in this type of program must be extensive in order to accommodate all the necessary information required to solve the problems.

The final CAI strategy is simulation and gaming. This strategy presents a model of reality that permits the student to interact with

the computer. A controlled situation results in which the student can identify problems and practice intervention techniques for solving the problem. The outcome of the intervention can be determined without endangering the lives of real patients (Collart, 1973; de Tornyay, 1970). In the decision-making CAI design, the student is taught how to evaluate alternative courses of action (Beck and Monroe, 1969).

Effectiveness of CAI

Pretests, posttests, and tests within the instructional sequence have been used to measure the effectiveness of CAI (Collart, 1973). Another approach has been to compare data such as final grades and clinical grades of a control group not receiving CAI with the same data collected from an experimental group that used CAI (Breese et al., 1977). Results of both types of approaches indicated that learning had taken place when students used CAI.

When CAI lessons are individualized by not permitting a student to proceed unless she/he has made the correct decisions, all students should finish the program near the same level of competence (Hicks and Hunka, 1972). This may present some problems in making statistical comparisons between groups.

In a study of student reaction to CAI, Collart (1973) reported that students unanimously liked the immediate response to their answers and most students felt positive about using CAI. Breese et al. (1977) also found that students reacted favorably to the simulated clinical encounters.

Limitations of CAI

In addition to the many advantages of CAI, there are several limitations including time involvement, costs, and student reaction to the computer. A major limitation is the initial time required for the development of the CAI program. Up to 150 hours may be required to author, program, and test a one hour instructional sequence (Collart, 1973). If a program is purchased, this time investment can be avoided.

Additional deterrents to utilizing CAI are the costs involved in purchasing the necessary equipment and in the actual operation of the computer. These costs vary widely depending on the computer capabilities of the educational institution (Collart, 1973).

A final limitation is the reaction of students to the computer. In assessing student attitude to CAI, Davisson and Bonello (1976) found that a few students had an aversion to using the computer. However, other students felt that the computer was like a private tutor.

Cost-Effectiveness of CAI

The cost-effectiveness of an instructional strategy is often difficult to assess because of the lack of comparability among the several strategies. The costs associated with CAI are divided into two categories, developmental costs and operational costs (Davisson and Bonello, 1976).

The direct developmental costs of a CAI program include labor costs for content development, programming, and review of the program and for computer charges. The operational costs include the costs incurred when the students use a CAI program (Davisson and Bonello, 1976).

An extensive comparison between the cost of using CAI versus the cost of using traditional teaching methods in a beginning economics course at Notre Dame was made by Davisson and Bonello (1976). A complete CAI course consisting of forty-two review routines, ten demonstrations, and five game simulations was compared with the traditional discussion type classes. The comparison showed that the CAI was an effective cost alternative to teaching the class in the traditional mode.

III. CONTENT ANALYSIS

Content analysis has been used as a method of research for more than 150 years (Berelson, 1971) to describe trends in communication content, to reveal the focus of attention in written documents, and to reflect characteristics such as attitudes, interests, and values of population groups (Good, 1966). Content analysis has been defined as any technique that provides an objective and systematic description of the presence, the intensity, or the frequency of a characteristic in recorded language (Markoff et al., 1974; Berelson, 1971).

The content analysis technique cannot be used in all circumstances of communication research. The types of source materials available, the purpose of the study, and the variables under consideration will determine the appropriateness of its use (Carney, 1972). The types of source materials that lend themselves to content analysis include those that are voluminous and complicated, those in which the language has to be studied intently, and those that complement some other kind of data when attitudes are being studied (Carney, 1972).

Assumptions of Content Analysis

Berelson (1971) has outlined three basic assumptions that apply to all studies of content analysis. These are:

1. Content analysis assumes that inferences about a relationship between intent and content or between content and effect can validly be made, or the actual relationships established.
2. Content analysis assumes that study of the manifest content is meaningful.
3. Content analysis assumes that the quantitative description of communication content is meaningful.

A major constraint to content analysis is that the documents on which content analysis is done represents only a part of an entire situation. However, this is a constraint common to all forms of communications analysis (Carney, 1972). The appropriate choice of representative source material and the application of systematic methods in producing the data are vital factors in the use of content analysis.

Coding Content Data

In order to quantify the elements of the content in the document, the characteristics under investigation, referred to as categories, must be identified. The basic requirements in the identification are that the categories are fitted to the needs of the study, are exhaustive, and are mutually exclusive (Holsti, 1969; Budd and Thorp, 1963). There are many types of categories that may be used in analyzing communication content data. Some examples of the types are subject matter categories, attitude categories, value categories, trait categories, and verbal interaction categories.

Standard categories are rarely used because of the variety of purposes for which content analysis is used. However, with developments in computer-based content analysis, standard categories most likely will be developed for certain types of content analysis (Holsti, 1969).

After the categories are identified, a system of observation and a method of recording the observation must be developed (Budd et al., 1967). The system of measurement is called the recording unit and can be a single word or symbol, a theme, a sentence or paragraph, or an entire document (Holsti, 1969). By counting the frequency of occurrence, quantitative content analysis can be determined. Frequencies can then be transformed into percentages and comparisons made (Budd and Thorp, 1963).

Reliability and Validity

Reliability in content analysis is dependent upon the skill, insight, and experience of the coders, the clarity of categories and the degree of ambiguity in the data. Written instructions are desirable so there is no verbal interaction between coders after the preliminary stages of establishing the criteria are completed (Schutz, 1958). No generally agreed upon level of reliability in content analysis exists, therefore each researcher must decide on an appropriate level of reliability based on the data being analyzed (Holsti, 1969).

Validity is used to refer to the extent to which an instrument is measuring what it is intended to measure. Content validity refers to the degree to which an instrument measures the intended content area (Gay, 1976; Holsti, 1969).

CHAPTER III

PROCEDURE

The purpose of the study was to develop, implement, and evaluate a learning package utilizing computer-assisted instruction to simulate patient counseling sessions. The simulated counseling sessions were designed to teach senior dietetic students the application of information concerning sociocultural food behavior to the individualization of diet modifications. An instructional unit was developed to facilitate the achievement of the competencies outlined by the American Dietetic Association for the entry-level generalist dietitian pertaining to individualizing diets based on sociocultural factors. Three patient counseling sessions for presentation via CAI were developed for inclusion in the instructional unit, presented Winter Quarter, 1978.

Content analysis was used to evaluate the inclusion of sociocultural factors in patient nutritional care. The effectiveness of the CAI was assessed by comparing nutritional care plans completed prior to the instructional unit to those completed at the end of the unit. The content of the nutritional care plan developed for the post-CAI patient was compared also to the content of the transcription of the audiotaped patient counseling session. The format for developing the instructional unit is shown in Figure 1.

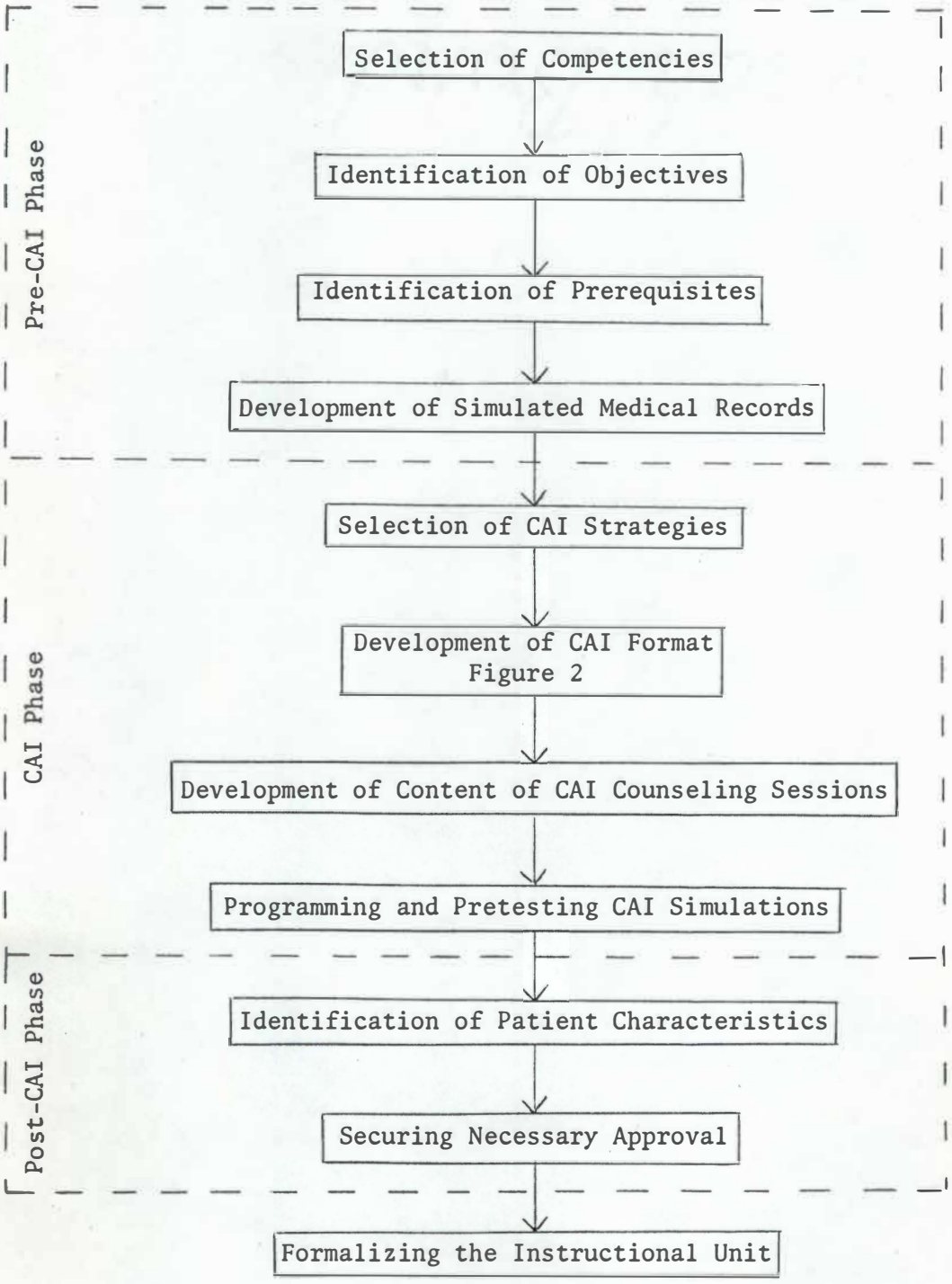

Figure 1. Format for development of the instructional unit.

I. DEVELOPMENT OF THE INSTRUCTIONAL UNIT

Pre-CAI Phase

The pre-CAI phase consisted of selection of competencies, identification of behavioral objectives, identification of prerequisites, and development of simulated medical records. The selection of competencies, identification of objectives, and identification of prerequisites of the pre-CAI phase were accomplished by a consensus of the six Clinical Instructors responsible for developing and supervising the clinical experiences of the dietetic students.

Selection of competencies. The three competencies for the instructional unit included recognition that an individual's food idealogy (attitudes and habits) is unique to her/him, is deep seated and resistant to change; recognition that an individual's socioeconomic, cultural, and ethnic status are more important determinants of food preferences and eating patterns than are biological needs; and the utilization of this recognition in the nutritional care of the individuals and groups (Dietetic Internship Council, 1974).

Identification of objectives. Based on competencies selected the following behavioral objectives were developed for the instructional unit:

Upon completion of the unit, the students would be able to:

1. Identify relevant sociocultural, psychological and economic factors affecting a patient's food behavior.

2. Use this information in individualizing a modified diet to meet the physiological, sociocultural, psychological, and economic needs of patients.
3. Counsel the patient at a professional level.

Identification of prerequisites. The prerequisites for the instructional unit included a knowledge of adult-onset diabetes mellitus and experience in instruction of patients on a 1200 and 1500 kilocalorie American Diabetes Association diabetic diet plans, a nutrition in disease course, and a course in human foodways. The instructional unit was designed to utilize the knowledge attained in the prerequisite courses and clinical experiences.

The students had completed the nutrition in disease course in the Winter of 1977. Each student instructed and counseled a minimum of five hospitalized diabetic patients as a part of the clinical experiences in the Fall Quarter, 1977.

The varying ways people meet their nutrient needs were discussed in the human foodways course all the students completed during Fall Quarter, 1977. This course included two lectures and reading assignments specifically on the three ethnic groups used in the CAI portion of the instructional unit.

Development of simulated medical records. Three case study simulations were designed to give the students experience in the development of the specified competencies. A composite of information from selected medical records and charts from the University of Tennessee

Memorial Hospital Out-Patient Clinic was used to develop hypothetical medical records of patients with adult-onset, noninsulin dependent diabetes.

Since the purpose was to stress the influence of sociocultural backgrounds of the patients on the diet modifications, an objective was to control the crisis medical condition variables of simulated patients. Patients with adult-onset, noninsulin dependent diabetes were selected because of the fairly consistent physical considerations.

The 1200 kilocalorie or 1500 kilocalorie American Diabetes Association diabetic diet plan was used for each simulated patient. These two diet plans are learned during the junior year of the dietetic program. By the second quarter of the senior year of dietetic training the students have had opportunities to counsel patients on these diabetic diet plans.

Three ethnic groups were selected to reflect specifically different food behavior patterns. Major sociocultural factors for the case studies centered around typical characteristics of a Seventh-Day Adventist physician, a Southern Appalachian farmer, and a Jewish homemaker. The food behavior patterns of these ethnic groups had been specifically studied in FS 4000, Origin of Food and Foodways.

In order to increase the authenticity of the medical records, a Seventh-Day Adventist professional person and a Jewish dietetic student were interviewed to obtain preliminary information for the diet histories and for examples of dietary concerns of people of these ethnic groups.

The Seventh-Day Adventist adhered strictly to the ovo-lacto vegetarian diet. The ingredients for all foods included on the diet history and daily food intake were listed in the Diet Manual Utilizing a Vegetarian Diet Plan (Seventh-Day Adventist Dietetic Association, 1975). This provided the information needed by the students in completing the nutrient analysis on the typical food intake. Additional information on the food practices of vegetarians was obtained from the literature (Dean, 1976; Register and Sonnenberg, 1973). The Jewish dietetic student was reared in an Orthodox Jewish cultural setting and was familiar with the Jewish dietary laws. Additional information on the food practices of the Jew was obtained from the literature (Natow et al., 1975; Korff, 1966; Kaufman, 1957). Recent research projects in Southern Appalachia and observation of the types of food in the grocery stores in the area provided the information on the diet history for the Southern Appalachian farmer (Goldsmith and Davidson, 1977; Schar, 1976; Kolasa, 1974; Lackey, 1974; Phillips, 1973).

Information concerning frequency of eating, meals eaten away from home, business and social activities that included food consumption, food likes and dislikes, and the amount of money spent for food was included in the diet histories. The case studies were designed to increase in the degree of complexity.

The medical chart (Form D.1. in Appendix D) included a data base for patient profile information, medical, family, and social histories; out-patient clinic notation sheets for notations from physicians, nurses, dietitians, and laboratory technician; and a general diet

history. This information provided the data necessary for the application of prerequisite knowledge and understanding of diets and sociocultural factors in food behavior in the development of the nutritional care plans for the simulated patients.

The medical records were reviewed by four clinical instructors in the dietetic program. Revisions were made to assure the validity of the information presented.

CAI Phase

The procedure for developing the CAI counseling sessions was adapted from the model outlined by Canter (1977) for inclusion of CAI in dietetic education programs. This included selecting the CAI strategy, developing CAI format, writing the CAI counseling sessions since commercial programs were not available, programming, and pretesting the CAI.

Selection of CAI strategies. Of the CAI strategies available the simulation strategy was selected since this approach builds skill in problem-solving and decision making by allowing previously learned facts and concepts to be applied in a specific situation. After discussions with the computer consultant, the simulation CAI strategy was determined to be appropriate for simulating desired patient counseling sessions.

Development of CAI format. CAI counseling sessions were developed to simulate clinical experiences in patient counseling. The simulated

counseling sessions were based on a question and response format with the student interacting with the video computer terminal.

Two basic formats (Figure 2) were followed in developing the simulated counseling sessions. In both formats, the initial question was presented via the computer with three plausible responses shown. After a response alternative was selected, either a positive or a negative reinforcement statement was shown on the terminal screen. If the response resulted in a positive reinforcement, the next question appeared. If the response resulted in a negative reinforcement, other alternatives to the question were shown again and the student was instructed to make another selection. The program did not continue until the most appropriate response was given. This programming design was continued throughout the program in format I. The conclusion of the simulated counseling session was reached when all appropriate responses had been given.

After the initial question and selection of the most appropriate response, progression through the computer counseling session following format II could occur regardless of the alternative chosen. In this format, the computer gave an evaluation of the counseling session indicating whether it was successful or unsuccessful, depending upon the combination of responses selected. If the counseling session was unsuccessful, the student could go through the entire counseling session again.

Development of content of CAI counseling sessions. The content of the CAI counseling sessions was based on the clinical experiences of

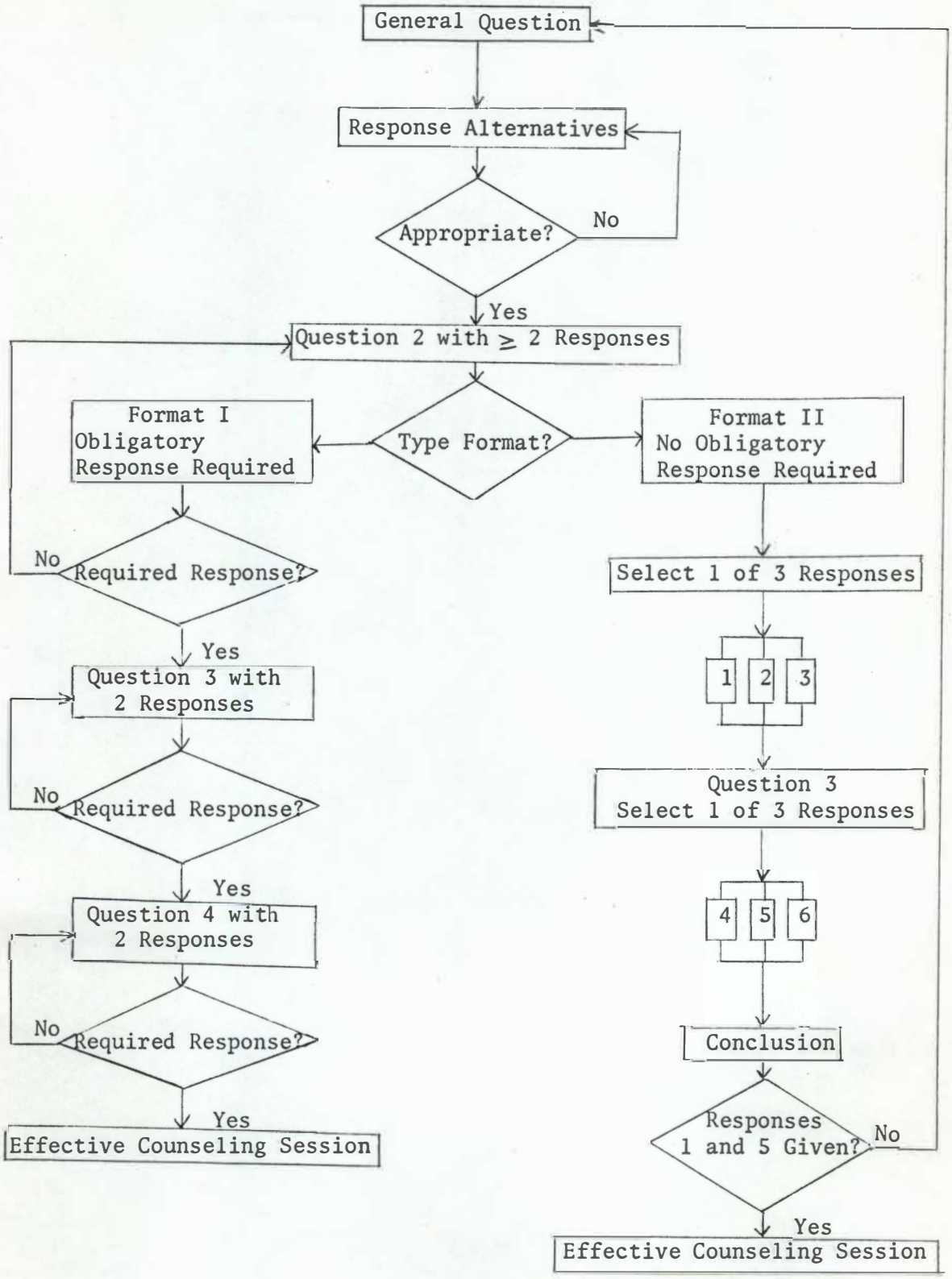

Figure 2. CAI formats for simulated counseling sessions.

four clinical instructors. The questions and responses were generated from typical questions asked during a counseling session and from the examples of dietary problems given by the persons interviewed for the medical record dietary histories.

All responses to the questions were plausible courses of action. The student was required to determine the best response based on the characteristics of the simulated patient that was counseled. The feedback received by the student when an inappropriate response was selected usually included a posing of the question—did you consider a specific characteristic about the patient? The student could then reconsider her/his rationale for the initial response selection and select another response alternative. Although there were no right or wrong responses, there was always one response alternative that was more appropriate to the situation under consideration than the other response alternatives. A summary of the three CAI counseling sessions is in Appendix C.

Programming and pretesting CAI simulations. The three simulated patient counseling sessions were programmed in Coursewriter III language for use in an IBM 360/65 central processing unit. The counseling sessions were presented to the student via the Digital Corporation VT-50 Cathode-ray tube terminal.

All computer counseling sessions were pretested by the clinical instructors for the validity of the information presented, the readability, and other technical aspects as presented on the video

terminal. Recommended changes were made prior to the administration of the instructional unit.

Post-CAI Phase

The final phase of developing the instructional unit consisted of identifying characteristics of the actual patient and securing the necessary approvals.

Identification of patient characteristics. In order to avoid the crises medical conditions that are typical of in-hospital patients, out-patient clients were selected as the patients to be counseled. This allowed the emphasis of dietary care to be placed on sociocultural aspects of the patient rather than on the physical aspects.

Initially the criteria for the selection of the patient to be counseled were that she/he be noninsulin dependent with adult-onset diabetes and be between the ages of 35 and 55. The actual patients would then have similar physiological characteristics to the simulated patients. However, the criteria were changed to eliminate the age and noninsulin dependency criteria since few persons meeting the criteria were seen at the Family Practice Out-Patient Clinic.

Securing necessary approval. Actual patients were utilized to assess the effectiveness of the transfer of skills from the CAI portion of the instructional unit. The counseling sessions were audiotaped and later transcribed for content analysis.

Because actual patients were utilized, the project was submitted to and approved by the University of Tennessee, Knoxville, Human Subjects

Committee. The patients signed a consent form prior to the audiotaping (Form D.2.). To assure anonymity of patients, audiotapes of the counseling sessions were erased after transcription and no names were included in the transcribed copy of the counseling session. The project was also approved by the administration at the University of Tennessee Memorial Hospital.

Formalizing the Instructional Unit

The objectives of the unit, activities for progression through the unit, a list of references, computer answer sheets, and a grading outline were compiled for distribution to the students (Appendix B). The instructional unit was titled "Out-Patient Counseling (Professional Level.)"

II. ADMINISTRATION OF INSTRUCTIONAL UNIT

Fourteen senior dietetic students in the Coordinated Undergraduate Program in Dietetics at the University of Tennessee, Knoxville, completed the instructional unit as a replacement for six hours of the clinical requirements during Winter Quarter, 1978. The progression through the instructional unit is shown in Figure 3.

During the fifth week of Winter Quarter, the Clinical Instructors distributed the instructional unit. At that time the students were advised to read the references and to review other background materials. This included specified references concerning the three differing food behavior patterns included in the CAI portion of the instructional unit,

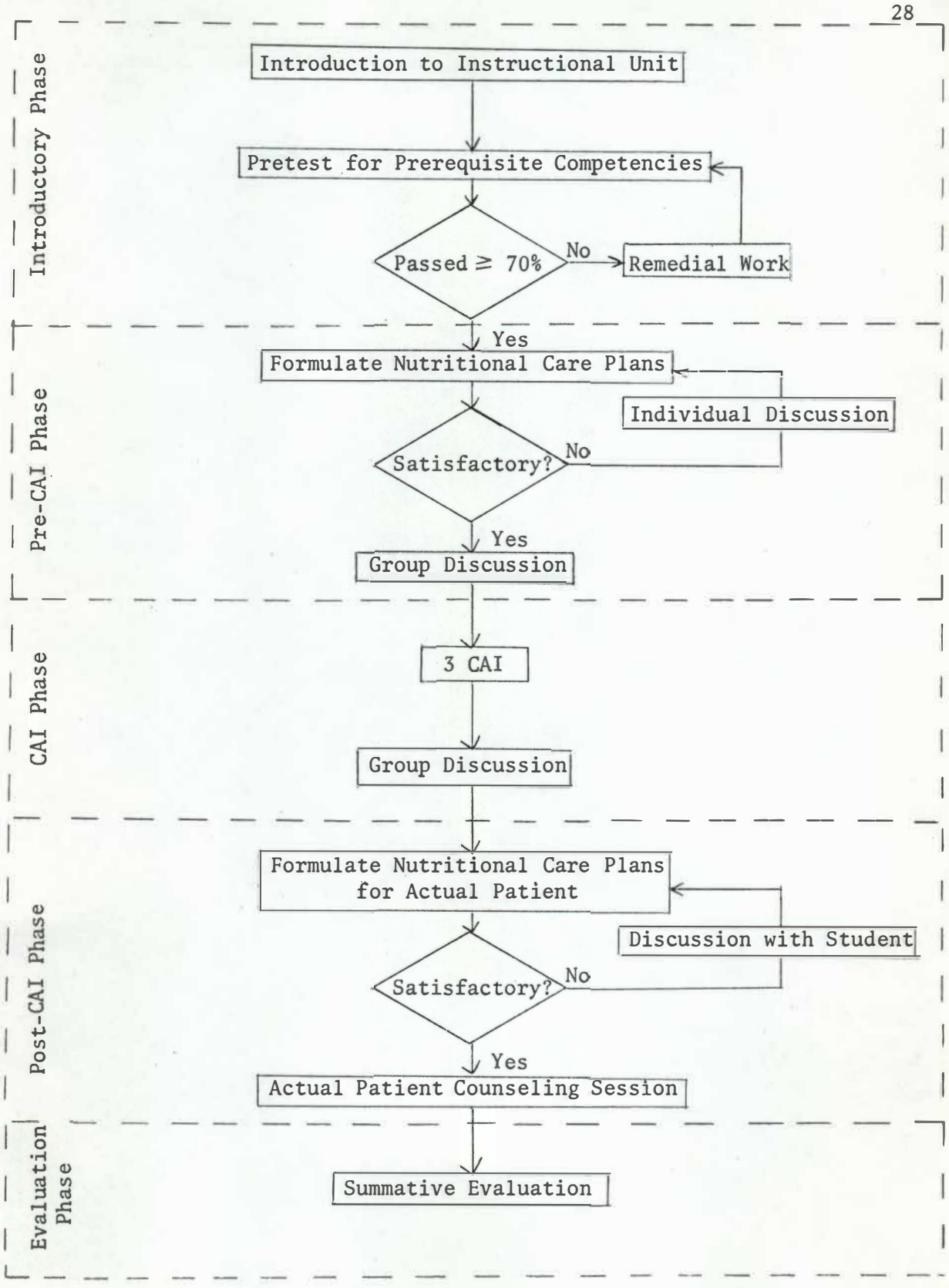

Figure 3. Format for administration of instructional unit.

and to review previous lectures and clinical log book notations on counseling and metabolic disorders.

Introductory Phase

Introduction to instructional unit. The introduction to the instructional unit included a discussion of the role of the entry-level dietitian in diet counseling, the differences between diet instruction and diet counseling, individualization of diets, reading the hypothetical medical charts, and instructions for completing the nutritional care plans (Form D.3.) for the simulated patients.

During the introductory discussion session unit, the students completed a profile information sheet (Form D.4.). The profile sheet was used to collect data concerning the student's ethnic and religious background, coursework completed in sociology, psychology, and anthropology, the number of diet instructions and diet counselings completed, and previous work experience with persons of differing sociocultural, economic, and religious backgrounds.

Pretest for prerequisite competencies. A pretest was given to assure that each student had the prerequisite knowledge for completing the instructional unit. A score of 70 percent or better was required on the pretest. Those students not receiving a satisfactory score completed remedial assignments. A study guide was provided to direct the student in obtaining desired information from the videotaped lectures and assigned readings. Another pretest was given before the student continued with the activities in the instructional unit.

Pre-CAI Phase

Formulate nutritional care plans. During a seven day period, each student formulated nutritional care plans for the hypothetical patients. The care plans were evaluated and, if satisfactory, returned the following week in a group discussion session. Unsatisfactorily completed nutritional care plans were returned and discussed with the student. The nutritional care plan was revised and resubmitted for evaluation prior to the group discussion session. Assessment of patient needs, instructions for completing the simulated computer counseling sessions, and a review of instructions for using the computer were discussed during the group session.

CAI Phase

The CAI phase was completed within five days following the group discussion session on nutritional care plans. The CAI counseling sessions consisted of student/computer interaction which required the student to respond to questions posed by simulated patients by selecting the most appropriate response among the given responses. Students were required to record their response selections and the rationale for the selection on an answer sheet (Appendix B) while completing the CAI counseling sessions. The answer sheets were submitted two days prior to the CAI discussion session. The reasons for selecting the responses were evaluated and were used as a guide for the CAI discussion.

Post-CAI Phase

In order to assess the students' ability to utilize skills learned in the CAI phase, each student counseled a patient at the University of Tennessee Hospital Out-Patient Clinic. The counseling session was audiotaped for evaluation of the student's performance in the actual situation.

Formulate nutritional care plans for actual patient. A medical chart for a patient with adult-onset diabetes was studied. The medical charts in the out-patient clinic did not contain background information on the patient nor a general dietary history. The student consulted the patient in the waiting room of the clinic concerning the patient's desire for dietary counseling and permission for audiotaping of the counseling session. If the patient was agreeable, the Consent Form for Audiotaping Diet Counseling Session (Form D.2.) was signed and the patient was given the general Dietary History section of the Medical Chart (Form D.1.) to complete if she/he could read and write. If she/he could not read and write, the student completed the form.

While the patient completed the diet history form, the student began formulating the nutritional care plan. After receiving the diet history form, the student completed the nutritional care plan and the clinical instructor approved the plan. If the nutritional care plan was unsatisfactory, a discussion was held with the student and the nutritional care plan was revised.

Actual patient counseling session. Patients with diabetes had three month standing appointments at the clinic. Following a fasting

blood glucose test, the patient waited in the waiting room to see the physician. This permitted 30 to 60 minutes for the student to obtain the necessary information, develop a nutritional care plan, and complete the dietary counseling session.

The counseling session took place in an examining room at the clinic. When the physician was ready to see the patient, the nurse came into the room and the counseling session was quickly ended.

The audiotape of the counseling session and the nutritional care plan were used for evaluating the student's performance in the actual situation. This permitted the evaluation of the content of the counseling session but not the nonverbal communication that took place. An individual evaluation session was held with each student to discuss the performance and her/his feelings about the counseling session.

Evaluation Phase

The students were given feedback at each primary step of the instructional unit in the form of group discussion. Points were given on written assignments to reflect the level of performance above minimum competence. A composite score for each student was obtained from evaluations of the nutritional care plans completed for the simulated patients, the CAI counseling session answer sheets, and the completed nutritional care plan and counseling session for the actual patient. Each component was assigned a point value and these were totaled for the summative evaluation for the instructional unit.

III. PROCEDURE FOR ANALYSIS

The two documents selected for content analysis were the nutritional care plan and the transcribed patient counseling session. The nutritional care plan was selected since it is the total assessment of the patient's needs and the dietetic action to be followed in meeting those needs. The transcription of the counseling session was used to indicate the implementation of planned dietetic action.

The content of the last nutritional care plan completed for a patient with diabetes by each student during Fall Quarter, 1977, was compared to the content of the nutritional care plan completed by that same student for the actual patient following the CAI portion of the instructional unit. All preinstructional unit nutritional care plans were developed for in-hospital patients with noninsulin dependent, adult-onset diabetes.

The three assumptions for using content analysis were met in using the nutritional care plan and patient counseling session. Since the intent of a nutritional care plan is to individualize patient care, the content could indicate the degree of individualization taking place in meeting the dietary needs of the patient. Further, content of the counseling session would be indicative of the transfer of individualized dietetic action to the patient.

Development of Units of Analysis

Six clinical instructors in the dietetics program served as a panel of experts in developing the content units for categorizing the

content of the nutritional care plans. Each clinical instructor had experience in developing nutritional care plans for patients and had supervised students in developing nutritional care plans.

Subject matter categories were selected for this study. The objective of this type of content analysis is to determine the purpose of communication. The subject matter categories used were cultural, economic, physical, psychological, religious, social, and miscellaneous. All the categories except physical were of a sociocultural nature.

In a brainstorming session six Clinical Instructors were asked to list words or groups of words she/he might expect to see on a nutritional care plan concerning the assessment of patient's needs relative to sociocultural factors and the dietetic action to meet those needs. The words were recorded on a chalkboard. After the listing ended, each word was discussed and erased if the panel decided it was not appropriate.

Each panel member was then given a list of the words, or content units, and a list of the categories and asked to match the two. There was unanimous agreement on the categorization of 36 of the initial 63 content units.

Definitions were then given for the categories and the panel was asked again to categorize the content units in which there was not unanimous agreement. In some instances, modifiers were added to words to make the classification less ambiguous. For example, the words, for religious reasons, and, for psychological reasons, were added to the content units vegetarianism and fasting. This permitted the classification of these two content units into their appropriate category. Any

item that still did not have unanimous agreement was put into the miscellaneous category.

The general requirements for developing categories were met. First, the needs of the study were met because all categories pertained to information that would appear on an individualized nutritional care plan. The second requirement, categories must be exhaustive, was met by defining the category and giving examples of content units that would be placed into each category. The final requirement, mutual exclusiveness, was met since the operational definitions of the categories allowed for differentiation of content units to be placed in each category.

Analysis of the content of the nutritional care plans and counseling sessions began with the coders identifying the content units on the nutritional care plans and counseling session. This was followed by a tallying of the content units used in each subject matter category for each care plan and counseling session. Percent distribution among the categories was then calculated for the individual care plans. Percentages of content units in each category were also calculated for the comparison of the preinstructional unit nutritional care plan with the post-CAI nutritional care plan. This provided a means for evaluating the effectiveness of the CAI in teaching application of sociocultural characteristics of a patient to the individualized nutritional care of that patient. Also the utilization of the information from the nutritional care plan in the actual counseling session was evaluated by comparing the content of the nutritional care plan with the content of the transcribed patient counseling session.

Inter-Coder Reliability

All six coders completed the content analysis for the five nutritional care plans and the actual patient counseling session for each student. Inter-coder reliability was computed from the analysis of variance by the following formula (Guilford and Fruchter, 1973):

$$r_{cc} = \frac{(MS)_r - (MS)_e}{(MS)_r + (k-1)\ (MS)_e}$$

where: $(MS)_r$ = variance between coders where each row stands for a separate coder,

$(MS)_e$ = variance for residuals, or error,

k = number of coders.

Validity of the Coding

The panel of experts that developed the content units served as coders for the content analysis of the nutritional care plans and the audiotaped counseling sessions. A written instruction sheet was given to the coders, a discussion session was held to explain how to use the coding scheme, and a sample nutritional care plan was distributed for practicing the content coding. The method of developing the categorization of the content units and the establishment of inter-coder reliability established the validity of the content analysis.

CHAPTER IV

RESULTS AND DISCUSSION

An instructional unit developed for teaching senior dietetic students the application of information concerning a patient's sociocultural food behavior to individualization of the diets was completed by 14 senior dietetic students during the sixth through the tenth week of Winter Quarter, 1978. The instructional unit consisted of five phases. Phase one included an introduction to the unit and the completion of a pretest. Phase two consisted of development of nutritional care plans for simulated patients and phase three was the conduction of CAI counseling sessions. Formulation of a nutritional care plan and a diet counseling session with a real patient was phase four. The final phase consisted of a summative evaluation of the student's performance throughout the instructional unit.

To assess the effectiveness of the teaching strategy, a comparison of the final nutritional care plan was made with the content of a nutritional care plan completed prior to the instructional unit. Content analysis techniques were used to make this comparison.

I. EVALUATION OF STUDENT PERFORMANCE THROUGHOUT INSTRUCTIONAL UNIT

Introductory Phase

Student profile information. The student profile sheet was used to gather information about the students' prior coursework and experiences

with people of differing sociocultural backgrounds. The summary of student profile data (Table A.1, Appendix A) indicated that nine students were reared in the Southeast, three in the Midwest, one in the Northeast, and one in Taiwan. Two students had no religious preferences, ten were Protestants, one was Catholic, and one was Jewish. All students had sufficient patient contact to meet the minimum competence in dietary instruction and counseling.

All students had completed at least one course in psychology and sociology. These were the general introductory courses. Only two students had completed a course in anthropology. Although sociological, psychological, and anthropological information is included as a part of many courses, the students may have limited understanding of varying sociocultural differences and the importance of these differences on an individual's behavior.

The student indicated a lack of knowledge of terminology used in sociology and anthropology. The question on the Student Profile Information form (Form D.4.) requesting the students' cultural/ethnic background was misinterpreted by eight students. These students answered that their cultural/ethnic background was Native American rather than White American or Caucasian.

All students had employment experience involving working with persons of different social, economic, religious, and cultural backgrounds. Varied work experiences included a dairy maid farm worker in Norway and a salesperson in a department store. Some students indicated having foreign students as co-workers and working with persons of

varying religious convictions. All students had worked with, or supervised, employees with limited financial resources.

Pretest. Students were required to complete the pretest with a score of 70 percent before beginning the instructional unit. The scores on the pretest ranged from 52 to 94 percent. Six students failed to achieve 70 percent and completed the assigned remedial work consisting of reviewing the two videotapes of the lectures on foodways of various religious and ethnic groups that were presented in the human foodways course. These students also reviewed the assigned readings and completed a study guide prior to the second pretest. The six students received scores between 76 and 93 percent on the second pretest.

Pre-CAI Phase

Formulation of nutritional care plans. The nutritional care plans for the simulated patients were completed satisfactorily by all but three students. These students repeated the assignment after individual discussions with the Clinical Instructor. During the group discussion a sample nutritional care plan was developed by the class to summarize all the patient needs and methods of dietetic action delineated on each student's nutritional care plan. This emphasized the number of different needs and dietetic actions that could be identified for one patient. It also reemphasized that the purpose of the nutritional care plan was to individualize the dietary care of the patient.

CAI-Phase

Computer-assisted instruction. All students successfully completed the simulated counseling sessions since the computer was programmed to guide the student through the decision-making situation to a successful conclusion. Immediate feedback for each decision was provided in the computer program. The answer sheet completed by each student included the rationale for each response selection and was used as a basis for the discussion following the CAI simulations.

None of the students presented a detailed rationale for their response selection. During the discussion session, situations where each response selection would be appropriate as well as a detailed rationale for the correct response selection for the computer counseling session were analyzed.

Post-CAI Phase

Formulation of nutritional care plans for actual patients. The nutritional care plan was completed for the assigned outpatient by the student and approved by the Clinical Instructor prior to the conducting of the diet counseling session. Since the time allowed for completion of both the nutritional care plan and counseling session was limited, the student produced a rough nutritional care plan prior to the counseling session and then refined it following the counseling session.

The 30 to 60 minute time period for developing the nutritional care plan and completing the dietary counseling session was a major constraint for both the students and the Clinical Instructor. The student had to

work quickly in developing the nutritional care plan in order to get approval from the Clinical Instructor and counsel the patient. Since two to four students were scheduled at Out-Patient Clinic at the same time, the Clinical Instructor had limited time to discuss the nutritional care plan with each student. If the student had identified at least two patient needs and dietetic actions, the nutritional care plan was approved and the student proceeded with the counseling session.

Actual patient counseling. Only one patient refused to sign the approval form for audiotaping the counseling session. However, this patient wanted to be counseled on the diet so the student assigned to that patient had the opportunity to counsel two patients.

One patient could neither read nor write and seven patients could not read well enough to complete the dietary history form. The students had difficulty counseling the patients who could not read and write. A major difficulty was in the student trying to teach the patient the exchange system of diet control without realizing the patient could not do the mathematical calculations required.

Summative evaluation. An individual evaluation session was held with each student within a week after completing the actual patient counseling session. During the evaluation session, the audiotaped counseling session was played and critiqued by both the student and the Clinical Instructor.

The students were more critical than the Clinical Instructor in evaluating the counseling session. Several students commented that they

should have been listening to what the patient was saying to them because many of the patient's questions were unanswered. The students further commented that they were primarily concerned about what they were going to say next, rather than actively listening to the patient. All students indicated the need for additional time for completing both the nutritional care plan and the dietary counseling session for the patient.

Following the oral evaluation session, the student was given a written evaluation and a point score for the entire instructional unit. Scores ranged from 76 to 99 out of a possible 100 points.

Student comments concerning the instructional unit were positive. One student stated, "I started the unit with a really bad attitude but I enjoyed doing it after I got started. I felt good about what I was saying. I could relate the diet to my patient rather than just giving her another diet instruction." Four students thought they should have this type of instructional unit earlier in their training. Only one student had negative comments. This student felt that she did not have enough time to complete all the instructional activities.

II. EVALUATION OF CAI EFFECTIVENESS

Evaluation of the effectiveness of CAI was assessed by comparing the content of the nutritional care plan prior to the instructional unit with the nutritional care plan of the actual patient. Also, the content of the nutritional care plan for the actual patient was compared with the content of the diet counseling session for that patient.

Content Analysis

Nutritional care plans and diet counselings were analyzed on the basis of the six categories developed by the panel of experts. The content analysis categorization is shown in Table 1. Categories reflecting sociocultural factors were: cultural, economic, psychological, religious, and social.

The coders utilized this categorization scheme when completing the content analysis. After becoming familiar with the descriptions and content unit areas, the Clinical Instructors marked the content of the nutritional care plans and transcriptions of the dietary counseling session with the appropriate codes. The codes were transferred to a tally sheet and the total number of content units in each category calculated and averaged.

Establishment of Inter-Coder Reliability

The correlation between coders was computed from the analysis of variance. The total number of content units on each of five nutritional care plans and one counseling session for each student as coded by each of six coders was used for the analysis of variance.

The inter-coder correlation obtained from the analysis of variance is known as intraclass correlation and is used to indicate the degree of similarity, or reliability of coding, among the coders. An intraclass correlation coefficient of at least 0.70 was required for the ratings of the coders to be considered reliable. Calculations of r_{cc} showed that the ratings had a correlation coefficient of 0.81. Therefore, the ratings were considered reliable.

Table 1. Classification of Content Units into the Six Subject Matter Categories for Use in Content Analysis of Nutritional Care Plans and Dietary Counseling Sessions

Category	Description	Content Unit Area	Key Words*
1. Cultural	The system of ideas, beliefs, customs, code of ethics, laws, and conventional understandings among group members that is acquired and transmitted through learning.	Ethnic group; food habits; frequency of eating; food preferences; food symbolism; culturally determined bizarre eating habits; pica; use of food during illness; length of time in the U.S. or region of the country.	Native American; Black American; three meals a day; seasoned with fat back; etc.
2. Economic	Money in relation to the production, distribution, and consumption of food.	Income level; source of income; occupation; financial obligations; government programs; types of kitchen equipment; home grown foods.	Food stamps; mobile meals; vegetable garden; etc.
3. Physical	Attributes of the body.	Age; sex; height; weight; physical activity; physical handicaps; past medical history; stage and type of illness.	Male; female; dentures; organic brain syndrome; chronic illness; etc.
4. Psychological	Related to characteristics arising in the mind and not transmitted through learning.	Mental status; self-expectations; fasting for psychological reasons; self-imposed bizarre eating habits; vegetarian for non-religious reasons.	Anxiety; depression; fad diets; etc.

Table 1 (continued).

Category	Description	Content Unit Area	Key Words*
5. Religious	Customs arising from the practices of an organized faith in and worship of a supreme being.	Religious preference; fasting as a part of a religious practice; food beliefs and practices associated with a religion; vegetarian for religious reasons.	Jewish; Protestant; wine for communion; ovo-lacto vegetarian; etc.
6. Social	Interactions of a group and its members.	Marital status; make-up of family; membership in clubs and organizations; social activities; social obligations.	Single; married; widow; widower; Boy Scout member; etc.
7. Miscellaneous	Any content not included in the other categories.	Education; past family medical history; urban or rural dweller; miscellaneous obligations.	Reading ability; etc.

*Examples of actual words that appeared on the nutritional care plans representing content unit areas.

Content Analysis of Nutritional Care Plans for Simulated Patients

All patients have both physical and sociocultural factors that need to be considered in the planning of their nutritional care. The various diseases, the stage of the diseases, and individual differences affect the degree of importance of each of these factors. In acute conditions, physical needs are of major concern. However, in chronic disease conditions, consideration of sociocultural factors is needed to increase adherence to the dietary regimen.

As indicated in Table 2, all students utilized some sociocultural factors in planning the nutritional care of the simulated patients. However, there was considerable variation in the number of sociocultural content units utilized. This variation could not be explained by the different employment experiences of the students since all students had experiences with persons of differing sociocultural backgrounds.

The results of the content analysis of the nutritional care plans for the simulated patients indicated that the students did identify sociocultural factors related to the nutritional care of the patient. All students utilized these sociocultural factors in planning the nutritional care of the simulated patients.

Effectiveness of CAI

In order to assess the horizontal transfer of the competencies to the actual situation, the content of the nutritional care plan completed for the actual patient during the post-CAI phase of the instructional unit was compared with the content of the nutritional care plan completed prior to the instructional unit and the content of the actual

Table 2. Average Number* of Sociocultural Content Units Identified in the Nutritional Care Plans for the Simulated Patients by a Panel of Six Coders

	NUTRITIONAL CARE PLANS		
Student	Nutr 1	Nutr 2	Nutr 3
A	8	5	7
B	2	7	7
C	2	2	1
D	5	3	7
E	5	7	8
F	13	7	7
G	2	5	2
H	5	5	5
I	6	4	4
J	2	2	3
K	4	6	6
L	6	7	8
M	4	3	4
N	3	5	2

*Rounded to the nearest whole number.

counseling session. The percent distribution of content units identified for physical and sociocultural categories in each nutritional care plan and actual counseling session is shown in Table 3. All numbers were rounded to the nearest whole number. Thus, a tally of zero was recorded in any category that fewer than half the coders identified a content unit. For example, if only one coder identified a content unit in the Social category, the category received a tallied score of zero.

In completing the nutritional care plan prior to the instructional unit, five students considered only physical needs of the patient. Only one student, student D, considered only physical needs in the nutritional care plan completed for the actual patient portion of the instructional unit. There were opportunities for this student to consider sociocultural factors. It is not known why the opportunities were not taken since sociocultural considerations were utilized by this student in developing the preinstructional nutritional care plan. All five students that utilized only physical needs in the nutritional care plan prior to the instructional unit did use sociocultural considerations in the post-CAI nutritional care plan.

Content of Nutritional Care Plans

The total number of content units identified by the coders increased in the post-CAI nutritional care plans, as illustrated in Table 4. The number of patient needs and dietetic actions required will vary depending upon the patient. However, since all the nutritional care plans used for the content analysis were developed for persons with

Table 3. Percent Distribution and Average Number* of Content Units Identified in Preinstructional Unit Nutritional Care Plans, Post-CAI Nutritional Care Plans, and Actual Counseling Sessions by a Panel of Six Coders

Student	Preinstructional Unit Nutritional Care Plan				Post-CAI Nutritional Care Plan				Actual Counseling Session			
	Physical		Sociocultural		Physical		Sociocultural		Physical		Sociocultural	
	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number
A	100	3	0	0	42	3	58	4	55	4	45	3
B	100	4	0	0	33	3	67	6	53	3	47	2
C	91	2	9	0	63	3	37	1	48	2	52	2
D	78	6	22	2	100	6	0	0	84	5	16	1
E	100	3	0	0	53	2	47	1	50	2	50	2
F	21	2	79	8	41	3	59	4	75	6	25	2
G	100	3	0	0	26	1	74	3	65	3	35	1
H	62	2	38	1	56	6	44	5	50	3	50	3
I	76	6	24	2	50	4	50	4	38	3	62	4
J	40	2	60	3	48	2	52	3	44	2	56	3
K	76	7	24	2	60	4	40	2	52	2	48	2
L	32	3	68	6	26	1	74	4	46	3	54	4
M	100	3	0	0	46	6	54	7	56	2	44	2
N	91	4	9	1	46	2	54	2	29	4	71	11

*Rounded to nearest whole number.

Table 4. Average Number* of Content Units Identified in Preinstructional Unit Nutritional Care Plans, Post-CAI Nutritional Care Plans, and Actual Counseling Sessions by a Panel of Six Coders

	Physical			Cultural			Economic			Psychological			Religious			Social			Miscellaneous		
Student	Pre[a]	Pst[b]	ACS[c]	Pre	Pst	ACS	Pre	Pst	ACS	Pre	Pst	ACS	Pre	Pst	ACS	Pre	Pst	ACS	Pre	Pst	ACS
A	3	3	4	0	1	1	0	1	0	0	1	1	0	0	0	0	1	1	0	0	0
B	4	3	3	0	3	2	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0
C	2	3	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D	6	6	5	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0
E	3	2	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	2	3	6	2	2	1	0	2	1	6	0	0	0	0	0	0	0	0	0	0	0
G	3	1	3	0	0	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0	1
H	2	6	3	1	2	2	0	1	0	0	0	0	0	0	0	0	2	1	0	0	0
I	6	4	3	0	1	1	0	2	1	2	1	1	0	0	0	0	0	0	0	0	1
J	2	2	2	0	2	1	0	0	1	1	1	1	0	0	0	2	0	0	0	0	0
K	7	4	2	0	0	1	0	0	0	0	2	1	0	0	0	2	0	0	0	0	0
L	3	1	3	1	3	1	0	0	0	2	0	1	0	0	0	3	1	2	0	0	0
M	3	6	2	0	1	1	0	3	0	0	1	0	0	0	0	0	2	0	0	0	0
N	4	2	4	0	2	4	0	0	1	1	0	2	0	0	1	0	0	3	0	0	0

*Rounded to the nearest whole number

[a]Preinstructional Unit Nutritional Care Plan

[b]Post-CAI Nutritional Care Plan

[c]Actual Counseling Session

diabetes, all students properly identified two basic physical needs. These were the need for the patient to control her/his blood glucose level and the need to regulate carbohydrate intake. Prior to the instructional unit these were the only considerations by approximately 50 percent of the students. This type of nutritional care plan is not individualized and is of little value in individualizing patient care.

Prior to the instructional unit, three students considered over 50 percent of the patients needs and dietetic action to be sociocultural related, one considered between 25 and 50 percent, five considered between 1 and 25 percent, and five considered none of the needs of the patient to be sociocultural related (Table 3, page 49).

Following the CAI, three students, student D, F, and J, considered fewer sociocultural needs and dietetic actions than were considered prior to the instructional unit. Two of these three students, student F and J, had considered at least 60 percent of the patient needs to be sociocultural based prior to the instructional unit. A decrease following the CAI could be expected due to individual patient variations. These two students still considered approximately half of the patient's needs and dietetic action to be sociocultural based after the CAI (Table 3).

Sociocultural Considerations

Limited consideration of content items in the cultural, psychological, and social categories was given in the preinstructional unit nutritional care plans (Table 4, page 50). There were no considerations given to either economic or religious factors in the nutritional care of any of

the patients. Following the CAI, consideration was given to content in all the categories with the exception of religion.

None of the students considered any religious factors concerning the patient's needs and dietetic actions in either the preinstructional unit or the post-CAI nutritional care plans. One possible explanation for this may be that all the patients were Protestants and the students failed to ask questions concerning the patient's food behavior in reference to religious practice. One of the CAI counseling sessions illustrated the importance of religious observances to the dietary concerns of a Protestant patient. Data did not indicate any carry over of this concept from the CAI to the actual situation.

The greatest carry over from the CAI to the actual situation was in the content under the cultural and economic categories. One reason for an increase in economic considerations might be the difference in the person for whom the nutritional care plan was completed. The post-CAI patients all attended the Out-Patient Clinic which was established for persons in the lower-income brackets while the preinstructional unit care plans were completed for in-hospital patients of various economic backgrounds. This may have made it easier to assess economic needs of the out-patients.

Content of Actual Counseling Session

There was no consistency in the content items that appeared on both the nutritional care plan and the actual counseling session, as shown in Tables 3 and 4 (pages 49 and 50). This could be due to the fact that the nutritional care plan is a comprehensive plan for meeting

the total nutritional needs of the patient while the initial counseling session usually is planned to meet the immediate needs of the patient. Ideally the patient should attend several counseling sessions for effective individualization of dietary care.

Time and Direct Cost of CAI

The time and direct costs of the CAI portion of the instructional unit are shown in Table A.2 (Appendix A). Time data include the actual number of hours spent by the researcher in the development, implementation, and instructional activities of the CAI. The development of the counseling session programs composed the largest portion of the time involved. Since the majority of the developmental time was spent in writing the counseling sessions, each was written without specific time reference to allow for repeated use without the need for major revisions.

Programming of the counseling sessions took a considerable amount of time but was considered a one time task. Pretesting and revisions will be necessary in the future but will take less time than the initial programming. The time spent in completing a short course in using Coursewriter III Programming Language was not added to the programming time and was not included in this analysis.

Implementation took the least amount of time since each student had previously completed four CAI management case studies. An orientation was conducted to give specific instructions concerning computer use and completion of the answer sheets.

Since the computer terminals were already available for use, this expense was not added into the direct costs of this project. The

required maintenance of the equipment and periodic purchase of software (e.g., computer printout paper for the teletypewriter terminal) were nominal. After completion of the CAI portion of the instructional unit, the CAI counseling sessions were removed from the computer core and stored on computer tape. The service charge for storage of the tape was two dollars per month.

The operational cost of the CAI was minimal. The 14 students used the computer approximately 12 1/2 hours at a cost of 15 dollars. An additional cost of 75 dollars for student connect time was absorbed by the University of Tennessee, Knoxville. It is hard to predict the cost of using CAI in subsequent years. Students react differently to computer instruction and each student will vary in the degree she/he will utilize the computer's capabilities. The actual computer connect time for the students in the present study ranged from 16.75 minutes to 170.22 minutes with an average of 53.46 minutes. It is obvious that the student who used the computer for only 16.75 minutes did not take full advantage of the learning opportunity.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

Dietitians generally recognize that individualized dietary care is of great importance in successful dietary compliance. A dietitian must develop skills in identifying each patient's food behaviors and apply these individual differences to the nutritional care of the patient. The purpose of this research was to develop, implement, and evaluate a learning package utilizing simulated patient counseling sessions for teaching professional level dietetic students the application of information concerning sociocultural food behaviors to the individualization of diets.

The learning package developed was an instructional unit composed of a pretest for prerequisite knowledge, three simulated dietary counseling sessions, and a dietary counseling session for an actual patient. The simulated dietary counseling sessions were presented via CAI and the effectiveness of the instructional unit was assessed by content analysis procedures.

Hypothetical medical charts and simulated dietary counseling sessions for three patients with adult-onset, noninsulin dependent diabetes were developed to give students experience in individualizing patient care. Each simulated patient had a different sociocultural background. Students completed nutritional care plans and CAI dietary

counseling sessions for the simulated patients prior to completing a nutritional care plan and dietary counseling session for an actual patient at an out-patient clinic.

Content analysis quantified the use of selected sociocultural factors in each care plan and the transcription of the audiotape of the actual patient counseling session. The six subject matter categories identified for the content analysis were cultural, economic, physical, psychological, religious, social, and miscellaneous.

Prior to the instructional unit, one-third of the students considered only physical needs of the patient in planning dietary care for that patient. All students identified and utilized both physical and sociocultural factors related to the dietary care of the simulated patients. Following the CAI, all but one of the students considered both sociocultural and physical factors in planning the dietary care of the actual patient.

The computer-simulated patient counseling sessions were valuable in permitting the students to practice in a controlled situation before confronting an actual patient. An advantage of the CAI simulations over the real situation was that the student was guided in selecting an appropriate approach to dietary counseling sessions in varying circumstances. The student received immediate feedback at all decision making steps in the counseling process. In addition, the student received immediate feedback of the results of the dietary counseling session.

The greatest transfer from the CAI to the actual situation was in the content under the cultural and economic categories. Data did not indicate any transfer of content in the religious category.

There was no consistency in the content items that appeared on both the nutritional care plan and the actual counseling session for the same patient. The nutritional care plan is the comprehensive plan for meeting the total nutritional needs of the patient. All the nutritional needs of the patient would not be met during one dietary counseling session. Therefore, the content of the nutritional care plan would be more comprehensive than the content of the initial dietary counseling session.

The results of the content analysis indicated that the students utilized more sociocultural considerations in developing plans for the nutritional care of patients following the computer counseling sessions. The instructional unit, therefore, was determined to be effective in teaching students to individualize patient dietary care.

II. CONCLUSIONS

An instructional unit developed using a controlled situation can be substituted for clinical time when students are practicing a new skill. Simulated experiences provide flexibility in time requirements for students to achieve specified competencies since progression towards meeting the competencies proceeds at the students' own pace. Direct supervision is not required for the simulated experiences but periodic evaluation throughout the instructional unit is necessary

to identify areas for additional instruction or practice. With all students using the same situation, the clinical instructor has only one basic preparation and thus, is better able to respond to individual needs of the students and to provide the necessary guidance. The result is better use of both clinical instructor and student time.

Content analysis can be used to evaluate the transfer of learning from the classroom to a controlled situation and then to an actual situation by quantifying the use of content units within subject matter categories. When combined with the use of audiotapes, content analysis can be used to evaluate the translation of planned dietary care to actual patient counseling.

III. RECOMMENDATIONS

The instructional unit was effective in teaching senior dietetic students the application of information about a patient's sociocultural background to individualized nutritional care during a five week period and should be continued as a teaching approach in the Coordinated Undergraduate Program in Dietetics at the University of Tennessee, Knoxville. However, the use of the instructional unit was limited to 14 students and should be tested to determine its usability in other dietetic programs.

To determine the long range effectiveness of the instructional unit, the recommendation is made for data collection concerning the applicability of the skills learned to the actual working situation

in which the student finds herself/himself. Data could be obtained from a postgraduate survey administered one year after graduation from the dietetics program.

Although the present format for administration of the instructional unit was effective, an alternative means of administering the CAI phase would be to have the student complete the nutritional care plan and simulated counseling session for one patient. She/He would then receive evaluation on the CAI counseling session prior to completing the next nutritional care plan. This would increase the time spent in completing the instructional unit but would permit additional guidance throughout the instructional unit.

Small group discussions rather than the large group discussions following each simulated counseling session are recommended. More time should be devoted to the discussion since much of the benefit of discussion is the exchange of ideas concerning various approaches in planning nutritional care of individuals. More time also should be spent in helping the students develop active listening skills.

Some students failed to fully utilize the computer capabilities. It is recommended that the instructional unit be introduced at the beginning of Winter Quarter rather than the middle of the quarter to allow the students a longer time period for completing the CAI.

Counseling an actual patient immediately following the CAI provided an opportunity for the student to transfer the skills learned in the simulated situation to the actual situation. Since patient counseling requires follow-up counseling sessions, it is recommended

that additional counseling sessions be scheduled. This would allow further comparison between the planned dietary care and the actual dietary counseling given.

Although obtaining the necessary approval for audiotaping actual patients is time consuming, this was a valuable portion of the instructional unit and should be continued. The audiotaped counseling sessions not only provided a means of evaluating the student, but allowed the student to hear herself/himself conduct a patient counseling session. The student's critique of the counseling session was as useful a learning tool as the clinical instructor's evaluation of the unit.

Content analysis proved to be an effective technique for quantifying the content of the nutritional care plans and counseling sessions. The definition of the categories and delineation of content units were more than adequate for the present study since the students used limited patient background information in planning nutritional care for that patient. However, as the students' skill in interpreting and utilizing patient background information in individualizing patient care increases, the present categorization should be revised and the identification of content units and key words expanded for a taxonomy for classification of sociocultural factors related to patient dietary care. This could then be used as a tool in training and/or retraining students as well as practicing dietitians.

A final recommendation is for the investigation of the use of content analysis as an objective evaluation tool in other areas of

dietetic education. The potential use of a taxonomy for self-evaluation of individualizing dietary care by both students and practicing dietitians should be a part of this investigation.

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APPENDIXES

APPENDIX A

Table A.1. Summary of Student Profile Data

Question	Responses	Number of Students
1. Region born and reared?	Southeast	9
	Midwest	3
	Northeast	1
	Tiawan	1
2. Religious preference?	Protestant	10
	Catholic	1
	Jewish	1
	No preference	2
3. Number of courses in:		
Sociology?	No courses	0
	1 course	10
	2 courses	2
	3 courses	2
Psychology?	No courses	0
	1 course	7
	2 courses	7
Anthropology?	No courses	12
	1 course	2
4. Number of diet instructions given?	0- 9	0
	10-19	8
	20-29	3
	30-39	3
5. Number of diet counselings completed?	0- 9	2
	10-19	7
	20-29	3
	30-39	2
6. Employment experience involving working with persons of various:		
Social backgrounds?	Yes	14
Economic backgrounds?	Yes	14
Religious backgrounds?	Yes	14
Cultural backgrounds?	Yes	14

Table A.2. Time and Direct Costs for the Development and Use of the CAI Counseling Sessions

	Person Hours		Amount
I. Professional Time Data		II. Direct Cost Data	
A. Development Time		A. Developmental Costs	
1. Content development		1. Programming of counseling sessions	$125.00
a. Writing 3 counseling sessions	96	2. Terminal connect charges while programming	9.00
b. Consultation with CAI expert	2	3. Consultation by CAI expert	15.00
2. Programming			
a. Consultation with CAI expert	3	B. Operational Costs	
b. Programming of counseling sessions	30	1. Computer Center service charges	6.00
3. Review		2. Disk charges	6.00
a. Pretesting of counseling sessions	5	3. Programmer time	3.00
		4. Additional cost for student connect time, absorbed by The University of Tennessee, Knoxville	75.00
B. Implementation and Instructional Time			
1. Orientation of students	1		
2. Group discussion	3		
TOTALS	140		$239.00

APPENDIX B

OUT-PATIENT COUNSELING
(Professional level)

Objectives:

Upon completion of this unit you will be able to:

1. Identify relevant sociocultural, psychological and economic factors affecting a patient's food behavior.

2. Use this information in individualizing a modified diet to meet the physiological, sociocultural, psychological and economic needs of patients.

3. Counsel the patient at a professional level.

Activities:

1. Review previous lectures and units on counseling and metabolic disorders from both the junior and senior years.

2. Read the listed references.

3. Complete the pretest for this unit. A score of 70% or better is required before continuing with the activities.

4. Read the medical charts in the A-V lab and complete a nutritional assessment and care plan for each of the clients. Submit these to the Clinical Instructor.

5. After the preliminary materials are approved, complete the CAI counseling sessions. Remember, these are to be counseling sessions. You will be answering questions about the diet and menu planning.

6. Submit the answer sheets from the counseling sessions and the preliminary materials to the Clinical Instructor. Participate in the oral postcounseling discussions.

7. Complete a nutritional care plan and counseling outline for the assigned out-patient. Submit these for approval before conducting the counseling session.

8. Conduct the counseling session with an actual patient. This will be audiotaped.

9. Evaluate the audiotape of the counseling session with the Clinical Instructor.

Evaluation:

1. Nutritional assessments, nutritional care plans and answer sheets from the simulated counseling sessions.

2. Participation in the oral discussions.

3. Nutritional care plan and audiotaped counseling session.

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FSA 4421
Winter 1978

Name_____
Date_____

Answer Sheet—NUTR1

1. Answer:
   Rationale:

   Answer (If first response was incorrect):
   Rationale:

   Answer (If first and second responses were incorrect):
   Rationale:

2. Answer:
   Rationale:

3. Answer:
   Rationale:

4. How effective was your counseling session? If it was not effective, what would you do differently?

FSA 4421
Winter 1978

Name_____
Date_____

Answer Sheet—NUTR2

1. Answer:
   Rationale:

   Answer (If first response was incorrect):
   Rationale:

   Answer (If first and second responses were incorrect):
   Rationale:

2. Answer:
   Rationale:

   Calculations:

   Answer (If first response was incorrect):
   Rationale:

Calculations:

3. Answer:
   Rationale:

   Answer (If first response was incorrect):
   Rationale:

   Answer (If first and second responses were incorrect):
   Rationale:

4. Answer:
   Rationale:

   Answer (If first response was incorrect):
   Rationale:

FSA 4421
Winter 1978

Name_____
Date_____

Answer Sheet—NUTR3

1. Answer:
   Rationale:

   Answer (If first response was incorrect):
   Rationale:

   Answer (If first and second responses were incorrect):
   Rationale:

2. Answer:
   Rationale:

   Answer (If first response was incorrect):
   Rationale:

   Answer (If first and second responses were incorrect):
   Rationale:

3. Answer:
   Rationale:

   Answer (If first response was incorrect):
   Rationale:

   Answer (If first and second responses were incorrect):
   Rationale:

4. What is your assessment of the effectiveness of this counseling session?

FSA 4421

Winter 1978

Student _____

Grade for the Unit _____

OUT-PATIENT COUNSELING (PROFESSIONAL LEVEL): GRADING OUTLINE

Criteria	Points	Points Earned	Comments
1. Nutritional assessments and care plans of simulated patients.	30		
2. CAI counseling session.	25		
3. Care-Plan for real patients.	15		
4. Counseling of real patients.	25		
5. Participation in oral discussion of CAI counseling session.	5		
TOTAL	100		

APPENDIX C

SUMMARY OF COUNSELING SESSION, NUTR1

Dr. Millstead, age 47, was a general practitioner in East Tennessee. Most of her day was spent in the office and on medical rounds at the hospital. Meals were eaten at irregular hours. She spent most evenings reading and/or entertaining.

A recent physical examination and laboratory tests confirmed adult-onset diabetes mellitus. At the time of the diagnosis there was no evidence of cardiovascular, neurologic or renal impairment. During the examination it was noted that Dr. Millstead's blood glucose level was 200 mg/100 ml; height 162 cm; weight 77 kg. In terms of significant history, Dr. Millstead's father, mother and brother had adult-onset diabetis mellitus. Both of her children weighed over 4.5 kg at birth. Dr. Millstead was placed on a 1200 kcal ADA diet and an oral hypoglycemic agent, tolbutamide. She was instructed on the diet by the dietitian and a diet history was completed. The diet history revealed that she followed a lacto-ovo vegetarian diet and especially liked sweets, nuts, and breads.

At the four-month follow-up visit, the dietitian found that Dr. Millstead had made very little progress. Her blood glucose level was still at an abnormally high level, 160 mg/100 ml, although it was a reduction from the initial visit. She had lost 1 kg. During the counseling session, Dr. Millstead remarked that she understood the diet but found it difficult to incorporate into her lifestyle. She had an erratic daily schedule and had difficulty in fitting some of the foods

she commonly ate into the exchange list categories. Her major problem was the meal pattern. There was a need to modify her meal pattern to fit her schedule and to recommend foods that could be purchased at coffee shops, restaurants and vending machines. The dietitian helped modify the meal pattern and obtained information she had requested about the exchange values of the vegetable protein products. After some adjustments in both her work schedule and food habits, she was successful in controlling her diabetes mellitus and in weight reduction.

SUMMARY OF COUNSELING SESSION, NUTR2

Mr. Henderson, age 53, was an Appalachian farmer. He was 173 cm tall and weighed 70 kg. He was the father of four children; his 12-year-old daughter lived with him. His wife died six years ago in an automobile accident. He was experiencing dizzy spells and consulted his physician. Laboratory tests showed a fasting blood glucose level of 115 mg/100 ml. He was diagnosed as having adult-onset diabetes mellitus and was interviewed by the dietitian and instructed on a 1500 kcal ADA diet.

Seven months later, Mr. Henderson returned for follow-up dietary counseling. During this counseling session, Mr. Henderson remarked that he did not "believe" in diets. After questioning, the dietitian discovered that he did not understand the importance of eating in controlling blood sugar level. The dietitian diagrammed the relationship of eating to the rise and fall of blood glucose level. This was equated with the large quantities of food he was eating at dinner. The dietitian then modified his diet plan to include more bread exchanges and less fruit exchanges.

During their conversation, the dietitian learned that Mr. Henderson attended two potluck meals a week at his church. At these social functions, he consumed several desserts. The dietitian allowed for desserts in his meal plan. The diet history noted that Mr. Henderson's diet contained very few sources of protein. He was encouraged by the dietitian to purchase food stamps so that he could buy a greater variety of foods, especially protein-rich foods. After this second session, Mr. Henderson understood the need for following his diet plan.

SUMMARY OF COUNSELING SESSION, NUTR3

Mrs. Goldstein, age 36, was the mother of four sons. She was a bookkeeper at the family owned restaurant. She was active in volunteer work and entertained frequently in her home. The Goldstein family strictly observed the Orthodox Jewish dietary laws. Recently Mrs. Goldstein was hospitalized for shortness of breath and dizzy spells. A two-hour postparandial blood glucose was 180 mg/100 ml and a fasting blood glucose level was 120 mg/100 ml. A glucose tolerance test was completed six weeks later after complaints of blurred vision and thirst. The test values were 260 mg/100 ml at 1 hour, 190 mg/100 ml at 2 hours, 80 mg/100 ml at 3 hours and 100 mg/100 ml at 5 hours. Serum cholesterol was 200 mg/100 ml; height 162 cm; weight 77 kg. Mrs. Goldstein was instructed on a 1200 kcal ADA diet by a dietitian to control her adult-onset diabetes mellitus.

At the seven-month follow-up visit, she had not lost any weight and her blood glucose levels remained elevated at an abnormal level. The dietitian discovered that Mrs. Goldstein was not trying to follow her diet because her husband did not want her to lose weight. It was suggested that she make an appointment for herself and her husband to talk with their physician about the relationship of her excess weight to her diabetic condition. The standard 1200 kcal ADA diet pattern was reviewed by Mrs. Goldstein. She commented that it was difficult to follow because she does not eat meat and milk at the same meal and she and her husband drink wine frequently. The dietitian rearranged the meat exchanges and explained how to incorporate wine into the diet plan.

APPENDIX D

Form D.1. Medical Chart

DATA BASE

PATIENT_____ CHART NUMBER_____

DATE OF BIRTH_____ HT._____ WT._____ SEX_____

DATE_____

1. Medical History
   Childhood
   Adulthood
   Operations
   Injuries

2. Family History

3. Social History

4. Patient Profile
   (how patient
   spends an
   average day)

OUT-PATIENT CLINIC

NAME_____ SEX_____ AGE_____

ADDRESS_____

Date BP Notes

Source: Form developed by The University of Tennessee Memorial Hospital Out-Patient Clinic.

GENERAL DIETARY HISTORY

Adapted from:
Kaufman, M.: J. Dietet. Assoc. 49:32, 1966 c and Ohlson, M.: Experimental and Therapeutic Dietetics. Minneapolis: Burgess Publishing Company, 1972.

Name_____ Age_____
Last First Middle

Address_____ Marital Status:_____

_____ Date:_____

Occupation_____

Height_____ Weight_____ Ideal Weight_____

Physician_____

In order for the dietitian to provide you with a meal plan that will best suit your individual needs and activities, please answer the following questions:

How would you describe your activity level?
very active_____ somewhat active_____
moderately active_____ mostly setting and standing_____

How many hours a week are you employed? _____

What are your hobbies or leisure time activities? _____
_____

Where do you eat most of your meals? Home_____ Away from home_____

When meals are eaten at home, who prepares them? _____

How many people eat together when meals are eaten at home? _____

Which meals are most often eaten away from home? _____

Where are these meals usually eaten? _____

Do you have any regular business or social activities which include meals or refreshments?
Yes_____ No_____ If yes, how often do you attend these activities? _____

Do you usually skip or omit meals? _____ Which ones? _____

Approximately how much do you spend for food each week? _____
At what type of store do you shop? _____ Number of trips to store per week? _____

Is your kitchen . . .
fully equipped_____ without running water_____
without range_____ shared kitchen_____
without refrigerator_____

Do you have a garden? _____ If yes, what foods do you grow? _____

_____

Do you can any foods? _____ If yes, which ones? _____

Do you freeze any foods? _____ If yes, which ones? _____

What kind of meat do you usually eat? _____

Where do you get your meat? Home grown_____ Purchased_____

Do you take vitamin pills? _____ If yes, answer the following questions:
Name of the vitamin pill you take_____
Does the vitamin pill contain iron? _____
Prescribed by Dr._____
If not prescribed, did the doctor recommend them? _____
If the doctor did not recommend the vitamin pill, why did you decide to take them? _____

Do you smoke? _____ Do you use iodized salt? _____

Do you usually read the labels on commercially prepared foods? _____

Name any foods that you cannot or will not eat:

If you were on a modified diet, what foods would you find especially difficult to give up?

Is there anything you would like to have considered in planning your diet (such as nationality, food preferences, religious rules, physical difficulties)?

Have you ever followed a diet? _____ If yes, describe the diet.

Did the doctor prescribe the diet? _____ Are you still on the diet? _____

FOOD INTAKE QUESTIONNAIRE

Please check how frequently you eat the following foods:

Foods	Daily	Weekly	Occa-sion-ally	Never
Milk				
Whole				
Skim				
2%				
Buttermilk				
Nonfat dry milk				
Chocolate				
Yogurt				
Instant Breakfast				
Others, specify				
Protein Sources				
Beef				
Lamb				
Liver				
Pork				
Cold cuts				
Ham				
Franks				
Sausage				
Canned meats				
Cheese, Cheddar				
Cheese, Cottage				
Eggs				
Fish, fresh				
Fish, canned				
Shellfish				
Peanut butter				
Others, specify				
Breads, Cereals				
Bread				
Corn bread				
Crackers				
Muffins				
Rolls				
Cooked Cereal				
Dry Cereal				
Rice				
Spaghetti				
Noodles				
Macaroni				
Biscuit, muffin, cake mixes				
Others, specify				

Foods	Daily	Weekly	Occa-sion-ally	Never
Vegetables				
Broccoli				
Cabbage				
Carrots				
Greens or Spinach				
Lettuce				
Peas, green				
Squash, winter & summer				
Tomatoes				
Beets				
Green Beans				
Dried Beans and Peas				
Corn				
Potatoes, white				
Others, specify				
Fruit				
Cantaloupe				
Grapefruit				
Grapefruit juice				
Orange				
Orange juice				
Strawberries				
Vitamin C enriched juices				
Apples				
Bananas				
Grapes				
Sweetened canned fruits				
Unsweetened canned fruits				
Others, specify				

Foods	Daily	Weekly	Occa-sion-ally	Never
Fats and Oils				
Bacon				
Butter or margarine				
Cream				
Cream substitute				
Mayonnaise				
Salad dressing				
Oil or cooking fat				
Nuts				
Others, specify				
Commercially Prep.				
Canned, dehydrated, or frozen soup				
Canned or frozen casseroles				
Frozen dinners				
Others, specify				

Foods	Daily	Weekly	Occa-sion-ally	Never
Misc. Foods				
Fritos				
Popcorn				
Potato chips				
Candy				
Cake				
Pie				
Ice cream				
Sherbet				
Soft drinks				
Coffee, tea				
Artificial Sweetener				
Alcoholic beverages				
Others, specify				

Below please write the foods you usually eat in a 24 hour period. Also, write the amount of the food you eat.

		Food eaten (and amount)
Time: Place:		
Time: Place:		
Time: Place:		
Time: Place:		
Time: Place:		

YJ/bhk
12/77

Form D.2. Patient Consent Form

We would like your help in training the dietetic students at The University of Tennessee, Knoxville. If you would like counseling on your diet and agree to having the counseling session audiotaped, please sign below. There will be no penalty for nonparticipation. If desired, you may receive counseling without audiotaping.

The diet counseling will be conducted by a senior dietetic student. She will explain your diet to you and will assist you in planning meals that follow your prescribed diet.

The counseling session will be audiotaped and later transcribed so the student's ability in diet counseling can be evaluated. Your identity will remain anonymous since all names will be erased following the taping. Also, the tape will be completely erased after it is transcribed. The written copy of the counseling session will be identified by a number only; no names will be used.

If you have any questions concerning the diet counseling session, please call Yvonne Jackson at 974-5445. Thank you for your help.

CONSENT FORM FOR AUDIOTAPING
DIET COUNSELING SESSION

I,_____, the undersigned agree to the audiotaping of the diet counseling session provided to me by a senior dietetic student enrolled in FSA 4421 during Winter Quarter, 1978. I voluntarily agree to participate and understand that I may withdraw from the study at any time without penalty and may receive counseling without taping if I so desire. I have been informed to my satisfaction as to the nature of the project in which I will participate, as described above, and understand that I have the right to ask questions regarding the project prior to my participation in the counseling session. I further understand that my identity as a participant will remain anonymous in the transcription of the audiotape and that the audiotape will be erased after the transcription.

Signature _____

Address _____

_____

Phone Number _____

Date of Appointment _____

Form D.3. Nutritional Care Plan

Patient's Name_____ Room No. _____

Height_____ Weight_____ Age_____ Chart No. _____

Patient's Needs	Scientific Bases of Needs	Dietetic Actions	Evaluation of Effectiveness of Actions

Form D.4. Student Profile Information

Name_____ Date_____

Social Security Number_____ Clinical facility_____

Please respond to the following questions:

Social History:

1. Where were you born and raised? (If you have lived in more than one geographical area, list the places and the number of years you lived in that area.)

2. What is your cultural/ethnic background? (i.e. Native American; Black; etc.)

3. What is your religious preference? (If Christian, please specify denomination.)

Educational History:

1. Identify and give a brief course description of the college level psychology, sociology and anthropology courses you have completed.

2. How many diet instructions have you given in your clinical experience during your junior and senior years? (Diet instruction meaning interpreting the diet sheet for the patient or client.)

3. How many diet counselings have you completed during your clinical experience? (Diet counseling meaning to "provide individual guidance" in assisting a person in adjusting her/his daily food consumption to meet her/his needs.)

Work Experience:

Employment Since Enrolling in College	Dates of Employment	Major Responsibilities	Check the appropriate column if the work experience involved dealing with persons of different:*			
			Social Backgrounds	Economic Backgrounds	Religious Backgrounds	Cultural Backgrounds

*If any columns are checked, please describe the experience. Attach additional pages if necessary.

VITA

Mabel Yvonne Jackson was reared in Laramie, Wyoming, and graduated from Laramie High School. She attended the University of Wyoming and received a Bachelor of Science degree in Home Economics Education in May 1970. In the fall of that year, she accepted a teaching assistantship at the University of North Carolina at Greensboro. The following year she was awarded a research assistantship and completed her thesis entitled The Effects of Zinc Nutrition on the Copper and Iron Status of the Young Rat. The Master of Science in Home Economics degree with a major in Food, Nutrition, and Institutional Management was awarded in June 1972.

After a three month field study concerning the incidence of lactose intolerance in the Pueblo Indians of New Mexico, she assumed the position of Instructor of Foods and Nutrition at the University of Southwestern Louisiana, Lafayette.

The author accepted the position of part time Clinical Instructor in the Coordinated Undergraduate Program in Dietetics at the University of Tennessee, Knoxville, in 1977 while pursuing the Doctor of Philosophy degree. Ms. Jackson is a member of the American Dietetic Association, Society for Nutrition Education, American Public Health Association, Kappa Omicron Phi, and Omicron Nu. She is the daughter of Mr. Richard L. Jackson of Laramie, Wyoming.