EVALUATION OF THE COMMUNITY HEALTH EDUCATION PROGRAMS IN PRENATAL NUTRITION AND JUVENILE DIABETES - A COMPONENT OF THE TELEMEDICINE EXPERIMENT

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EVALUATION OF THE COMMUNITY HEALTH EDUCATION PROGRAMS

IN

PRENATAL NUTRITION AND JUVENILE DIABETES -

A COMPONENT OF THE TELEMEDICINE EXPERIMENT

A PROJECT REPORT PRESENTED

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ABSTRACT

This field study dealt with the evaluation of two programs presented as part of an experiment in the use of Communications Technology as an education medium. Programs dealing with Prenatal Nutrition and Juvenile Diabetes were beamed via audio and visual means to four outlying centres. These centres were equipped with television receptors and also a microphone system to talk back to the program centre. Interaction between sites and the centre was an integral part of the experiment.

The research evaluation gathered information through means of a questionnaire on the following major variables:

Independent	Dependent
1. Preparation for program	1. Satisfaction with the program
2. Attitudes toward delivery system	2. Extent of and attitude towards interaction
3. Quality of and reaction to the delivery system	
4. Personal characteristics	

Hypotheses between the independent and dependent variables were tested and strengths of relationship were measured by cross tabulation and application of Yule's Q. Results show an overwhelming positive response to the

program and delivery system. Strong support was given to a positive relationship between attitudes towards the system and extent of and attitudes towards interaction. Weaker positive relationships were indicated between preparation and satisfaction and between quality of and reaction to the system and satisfaction. These were based on minimal testing as most questionnaire items showed no variation but rather were strongly positive. The relationship between attitudes and satisfaction was inconclusive.

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CHAPTER I

INTRODUCTION TO THE STUDY

Introduction

Memorial University has for the past two years, 1976 and 1977, been a part of the joint Canadian-United States experiments in the use of communications technology as an education delivery system. This was made possible by the Communications Technology Satellite called Hermes which both countries shared in development and use. Experiments in Canada dealt with the use of telecommunications systems for solving problems associated with remote learning situations. In Newfoundland we have a widely scattered population of mostly small communities separated by rough terrain, varied weather, and often poor transportation routes. This presents a great challenge to the delivery of health care in this province. It was for these reasons that the Newfoundland experiment was chosen to deal with Continuing Medical Education or Telemedicine. The intent was to improve the capabilities of the existing health care system by linking the Faculty of Medicine at Memorial via Hermes to hospitals in Goose Bay, Labrador City, St. Anthony and Stephenville that serve such isolated communities. The number of broadcast hours allotted to the

Telemedicine Experiment allowed for additional programs including a series in Community Health Education. This series attempted to meet a variety of needs for Health Education and was directed at a variety of target groups.

Evaluation is a well-recognized component of the decision-making and learning process. The Telecommunications Experiment recognized the importance of evaluation and built it into the overall experiment plan. Such an evaluation will assist the funders of the experiment in assessing how successful the delivery system was and whether or not it should be continued.

Evaluation by the experimental group focused on the Medical Education aspect of the experiment, including the delivery system, and the program and programmers in relation to the delivery system. Formal evaluation of the Community Health Education component was not planned. The need for evaluation was recognized and this Evaluation Research Project attempted to fulfil this need. The researcher developed and implemented an evaluation instrument for two of the Community Health Education programs that specifically dealt with Nutrition. The researcher was closely involved in the program planning in order to have a first hand knowledge of how the program was to be structured, what the content would be and how the audience would be contacted. This allowed the researcher to more effectively accomplish the goals of evaluation.

Purpose of the Study

The purpose of this study was to design and implement an evaluation tool for two of the Nutrition Programs being undertaken within the Community Health Education component of the Telemedicine Experiment. Formal evaluation of this aspect of the experiment was not planned by Telemedicine but its need was recognized and hence this study.

The two programs deal with a) Prenatal Nutrition, and, b) Juvenile Diabetes. The need for evaluation was two-fold:- to determine the success of the program, and the effectiveness of the delivery system under experimentation.

Operational Definitions of Independent & Dependent Variables

There were four independent variables identified and two dependent variables. Each variable was measured by a number of operations which composed the questionnaire items, that is, each questionnaire item was one operation of the variables being studied. The assignment of questionnaire items to variables or the operational definitions are detailed in the Appendices. A general operational definition for each variable is given below.

Independent Variable

1. Preparation of participants for the program

   This included instructions about the equipment

and generally what to expect in the setting. The extent of preparation was compared to other factors such as satisfaction with the program to determine if there was a relationship. Preparation then represents an independent variable in the experimental model.

2. Attitudes of participants towards the delivery system

These attitudes included participants' feelings of comfort, warmth, shyness, reluctance, familiarity and ease of conversation. Such attitudes represent an independent variable in the experiment as there is no factor preceeding them in the experimental model. Attitudes of participants were compared to other factors, such as the amount of interaction to determine if there was a relationship.

3. Quality of and reaction to the delivery system

This reaction included such factors as equipment satisfaction (eg. satisfaction concerning quality of sound and voice) and the quality of the delivery system as a learning device. The reaction was compared to other factors such as extent of interaction to see if a relationship existed. It represents an independent variable in the experiment as it is assumed that other factors within the experiment will not influence participant's reaction to the delivery system.

4. Selected personal characteristics of participants

Personal characteristics are those that the researcher hypothesizes may effect the participant's role in the experiment. Such characteristics as level of education, previous exposure to the program content, and relevant health factors may influence the participants' behavior in and reaction to the experiment. Personal characteristics are independent variables and may be compared with factors such as knowledge level and program satisfaction to determine if there is a relationship.

Dependent Variables

1. Satisfaction of participants with the program

Satisfaction was based on such factors as reaction to the program, usefulness, interest, and quality of presentation. Satisfaction was compared to other factors such as the reaction to the delivery system to determine if there was a relationship. Satisfaction was treated as a dependent variable as it is influenced by other factors in the experiment.

2. Extent of and attitude towards interaction

Interaction is a key feature in this delivery system and will determine its overall effectiveness. This evaluation attempted to determine how participants

felt towards interaction and whether or not they interacted. Interaction is a dependent variable which may be influenced by other factors such as the attitudes of participants towards the delivery system.

Hypotheses

Set I

1. There is a relationship between the extent of preparation for the program and participants' satisfaction with the program.
2. There is a relationship between the attitudes of participants towards the delivery system and satisfaction with the program.
3. There is a relationship between the quality of and reaction to the delivery system and the participant's satisfaction with the program.
4. There is a relationship between selected personal characteristics, eg. educational background, previous exposure to topic, relevant health factors, and the participant's satisfaction with the program.

Set II

5. There is a relationship between the extent of preparation for the program and the extent of and

attitude towards interaction.

6. There is a relationship between the attitudes of participants toward the delivery system and the extent of and attitude towards interaction.
7. There is a relationship between the quality of and reaction to the delivery system and the extent of and attitude towards interaction.
8. There is a relationship between selected personal characteristics, eg. educational background, previous exposure to topic, relevant health factors, and the extent of and attitude towards interaction.

Limitations

1. The target groups were non-random samples selected on the basis of their special nutrition need, i.e. nutrition in pregnancy or diet in juvenile diabetes.
2. The non-random sample populations involved in the project were limited to the four site target groups. Therefore, as for all non-random samples, results cannot be generalized with a known level of confidence to all populations.
3. The project was exploratory in nature and a survey analysis approach was used. It is recognized that with the survey analysis approach extraneous, uncontrolled variables may be operating and in this study two such variables are noted:

(a) The type and extent of preparation each sample audience received for the program. This was dependent on the contact person at each site and since there were no definite guidelines, the preparation was uncontrolled and outside the realms of this study.

(b) The abilities of the program presentors to cope with the delivery system. This was dependent on the individual experience of each presentor and how comfortable each felt with the system. Thus, abilities were outside the scope of the study and could not be controlled for.

A survey analysis approach, on the other hand, offers the researcher the advantage of observing a number of variables operating in the field study both as causes and consequences. A variety of observations may be made about the study without having to make a final conclusion on its success or failure but rather to discuss it in the broad spectrum of its variables. The survey analysis then is useful for research in natural settings.

Summary

This chapter introduces the reader to the Evaluation Research Project. This Project is a small part of the Telemedicine Experiment carried out at Memorial University.

Telemedicine is an experiment in the use of the Communications Technology Satellite (CTS) as a delivery system for Medical Education to outlying regions. CTS is a joint venture between Canada and the United States.

Evaluation of this experiment was planned for the delivery system but not the curriculum. The experiment was broadened to include programs in Community Health Education but evaluation was not planned. The researcher recognized the need for evaluation and this Project resulted. It is an evaluation of two Nutrition Programs dealing with a) Prenatal Nutrition, and b) Juvenile Diabetes.

Four independent and two dependent variables were identified and from these eight hypotheses were established for investigation. The variables identified were:

Independent:

1. Preparation of participants for program
2. Attitude of participants towards delivery system
3. Quality of reaction towards delivery system
4. Selected personal characteristics of participants

Dependent:

1. Satisfaction of participants with program
2. Extent of and attitude towards interaction

CHAPTER II

REVIEW OF THE LITERATURE

The Telemedicine Project

Background

In January, 1976, the Canadian Communications Technology Satellite was launched from the Kennedy Space Centre in Florida. It is a joint sixty million dollar venture between the United States and Canada and both countries will reap the benefits of this powerful communications satellite over its two year life. The name Hermes, from the Greek god of science and eloquence, has been given to this satellite. Hermes was designed to perform sophisticated experiments in radio and television broadcasting in twenty-three sites in Canada and the United States. Memorial University is the only site east of Quebec City to receive federal funding in order to participate in this experiment in education through technology.

The area of experimentation at Memorial is in Telemedicine, that is, the use of telecommunications in the interest of health. It uses one or any combination of communication media, such as telephone, radio, television, two-way audio and video television (interactive TV) and computers. The Newfoundland experiment involved two-way

audio and one-way video communication between St. John's and the outlying smaller terminals located in the hospitals at St. Anthony, Stephenville, Goose Bay and Labrador City. A powerful audio-video signal was beamed from the main transmission receiver terminal located at the University to the smaller terminals located in those areas, and an audio signal was returned from them via the Satellite to Memorial. There were three broadcast points in St. John's, viz:

i) Room A-133 at the General Hospital,

ii) Medical Audio-Visual Service in the Health Science Complex,

iii) Educational Television (M.U.N. Education Building) - the main switching centre.

The four outlying areas used a conference room in the local hospital. Participants in these areas not only saw and heard the program, they could also interrupt, ask questions and discuss certain points with the presentor. This interactive communication was one of the most important aspects of the new satellite. In addition, there is a microwave system or complete two-way audio and visual communication between Educational Television and the General Hospital. This was valuable for preliminary testing of the technology and programs.

The system was considered ideal for servicing outlying areas (those areas outside the central education service), as there is solar energy used, thus making the use of smaller, easier to operate and more portable ground

terminals. Its value to Newfoundland is clear as Newfoundland has a scattered population of 563,000 people over 150,000 square miles of space, much of which is coastal and in small community clusters. The use of Hermes for Newfoundland was scheduled for March 14 - June 18, 1977, with a number of time slots assigned to the programs in Continuing Medical Education and in Community Health Education. Time slots for the former were mostly during the day when Medical Staff would be available at the hospitals. Time slots for the latter were during the evening so that people selected could be away from their families.

Administration

The Telemedicine experiments are sponsored jointly by two units situated within Memorial University, the Faculty of Medicine and the Educational Television Centre. The administration of Telemedicine has been set up with the following personnel:-

1) Two co-principal investigators (one with M.U.N. Medical School, the other with Educational Television);
2) Research Associate Co-ordinator for the Telemedicine experiment;
3) Technical Supervisor of Educational Television;
4) Course leaders, one for each course;
5) Area co-ordinators for each of the four outlying areas.

In addition, a group of physicians and staff members in Medicine and Educational Television have participated in the project from the beginning.

Evaluation

The technology was assessed for its feasibility as a long-term method of bringing medical education to outlying areas. In order to facilitate this, Telemedicine evaluated all aspects of the experiment dealing with the delivery system including the curriculum and individuals involved as they relate to the delivery system. Four components of evaluation have been identified and explained by them.

1) Learning conditions

These learning conditions deal with two types of factors which may influence learning outcomes:- a) those that resulted in the student's decisions to participate in the courses, and b) those conditions that prevailed during their actual involvement. This was done by interview and questionnaire.

2) Audience participation rates were observed. This included the number of people present and the number of times each spoke.

3) Information load

This was based on the number of broadcast hours actually used for each program. These may vary with

the amount of content and interaction and also the extent of equipment problems, if any.

4) Cost factors

The costing of individual programs will be attempted and then compared to alternatives if Hermes had not been available.

Programing

There are three distinct program areas:

1) Continuing Medical Education (CME)

This was the key focus of the experiment and consumed 80% of the resources. The general objective here was to determine whether a satisfactory learning experience could be delivered to health care professionals without their having to leave their place of work. Judgement was based on three perspectives, viz:- (i) those funding and directing the effort, (ii) the participants, and, (iii) the patients. It is this program component which received the extensive evaluation previously described.

2) Teleconsultation

This involves the transmission of medical data such as x-rays, ultra-sound, microscope analysis, electrocardiograms and the like. The approved budget did

not allow for the special equipment involved here.

3) Community Health Education

The following eight programs, each of two hours duration were planned for each Tuesday and Thursday from 7:00 - 9:00 p.m., April 26 - May 19.

1. Prenatal Nutrition: information on general nutrition for pregnant women.
2. Diabetes: information on diet and control for juvenile diabetics.
3. Early Childhood Development: information on children and food for mothers of preschoolers.
4. Diabetes: information on diet and control of adult onset diabetics.
5. Breastfeeding: principals of breastfeeding explained to pregnant women.
6. Diabetes: information on diabetes generally.
7. Infant Feeding: basics of introduction of solids, formulae choices, homemade baby foods, etc.
8. Budgeting: geared for inservices of social workers in the field for their use in family contacts.

Each of the above programs was designed for a specific target group of about thirty people selected in each of the four outlying areas. A general program structure was decided upon; this was not restrictive but allowed for a plan of

general movement for each hour. One third of each program hour was allotted for interaction so the purpose of the experiment might be fulfilled. In addition, each hour was to include a ten minute opening talk, twenty minute videotape and a ten minute panel discussion. A formal evaluation of this component was undertaken by the student researcher in conjunction with the Telemedicine Evaluation Staff.

Communications Technology Satellite Evaluation

Daniel, Richmond and Côte were commissioned on contract by the Federal Department of Communications to carry out an overall evaluation of the Communications Technology Satellite experiments. The general purpose of the Communications Technology Satellite evaluation was to provide information which will allow an assessment of the effectiveness and feasibility of interactive telecommunications systems for solving problems associated with remote learning situations.[1] The real life situation in which these experiments occur is recognized by the group as an inherent constraint in the evaluation.[2] Development of the tool was further constrained by the diversity of experiments.[3] In

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[1] J. Daniel, M. Richmond, and M. Côte. Communications Technology Satellite Evaluation of Educational Experiments. Ottawa: Department of Communications, 1976, p.9.

[2] Ibid., p.6.

[3] Ibid., p.3.

addition, it was recognized that each experiment was the product of a cooperative effort of all people involved and each evaluator would need to modify the original tool to satisfy his situation.[4]

The Context, Input, Process, Product (CIPP) Evaluation model was used to develop the Communications Technology Satellite Evaluation Instrument. The research group has detailed the baseline data required for each of the four components - Context, Input, Process and Product Evaluation.[5] This model allows for both formative and summative evaluations. Four areas were identified as desirable for data collection by questionnaire:

- Technical performance equipment.
- Interactive aspects of communication.
- Participant attitudes.
- Attitudes of experimenters and their personnel.[6]

The first three areas were covered by this project and a fourth of knowledge status was added. The Communications Technology Satellite group recognized that evaluation of the content of the individual projects would be left to the individual experimenters.[7] The evaluation instrument, developed by this researcher has utilized the Communications

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[4] Ibid., p.3.

[5] Ibid., p.8.

[6] Daniel, et al, p.22.

[7] Ibid., p.5.

Technology Satellite evaluation instruments since they are so relevant and have been carefully developed.

Need For Evaluation of Health Promotion Programs

The need for evaluation of Health Promotion programs has received new impetus as the cost of health care escalates and the emphasis on prevention increases. Health Promotion programs are intended to reduce the need for health care as the individual takes increasing responsibility for his own health and welfare. The question of accountability is obvious, "Why do health care costs continue to increase when funding of preventative measures is also increasing?" One answer is that funding for prevention is too minimal to see striking results, another is that these are long-term results and the time lapse necessary for results has not been great enough. The final answer perhaps lies in lack of evaluation; health service programs are frequently not evaluated simply because they are service programs. Gordon and Scrimshaw have discussed this very problem in relation to Nutrition Promotion programs.[8] "Sometimes there is the view that all obligation ends with a program once instituted, often because of an absent interest in the less attractive task of formal

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[8] J. Gordon and N. Scrimshaw. "Evaluating Nutrition Intervention Programs", Nutrition Reviews, Vol. 30, No. 12. Dec. 1972, pp. 263-265.

evaluation, or an objection to the costs involved, or occasionally even a disinclination really to know a suspected lack of result."[9] Gordon and Scrimshaw believe that field study is the best method of evaluation for nutrition intervention programs. They recognize that evaluation may not cover the entire range of intervention but is rather an appraisal of the realities of intervention and with proper evaluation public health agencies can judge better the area of health demanding emphasis. The Science Council of Canada, in its Report No. 22, recommends evaluation as part of the reform process of the health care system to help it match the needs of individuals.[10] Novia Carter sees health promotion as a segment of "social development" requiring similar evaluation techniques.[11] She expresses the need for early involvement of the evaluator, i.e. in program development.[12] Both formative (on going) and summative (final) evaluation is desirable so that program segments may be evaluated and necessary changes implemented.[13] Carter

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[9] Ibid., p.263.

[10] Science Council of Canada Report No. 22, Science for Health Services. Toronto: Southam Murray, 1974, p.90.

[11] N. Carter and B. Wharf. Evaluating Social Development Programs. Ottawa: Canadian Council on Social Development, 1973, p.13.

[12] Ibid., p.32.

[13] Ibid., p.33.

emphasizes the need for designing an appropriate model for evaluation, for example, the CIPP Model used by the Communications Technology Evaluators. She also sees problems in Canada with evaluation and suggests that government should insist on evaluation of its programs, centralize and share evaluation resources and clearly state the work priorities of funding agencies.[14]

Summary

The Review of the Literature deals with three distinct topics.

1) The background of the Telemedicine Project discusses the origin of Telemedicine as an experiment in Medical Education funded by the Federal Government. It was part of a series of experiments in the use of a Communications Technology Satellite as an education delivery system for remote areas. Four communities (Goose Bay, Labrador City, Stephenville, and St. Anthony) were connected to the Memorial Medical School, the General Hospital, and the Educational Television Studio for interactive television programs. People in the regions could speak to and see people in St. John's. The St. John's people could only hear the regions. There were two Co-Principal Investigators for the experiment

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[14] Ibid., pp.140-142.

plus a team of research and technical experts. Evaluation was designed to assess the feasibility of using this technology as a long-term method of bringing medical education to outlying areas. Evaluation dealt with the delivery system including the curriculum and individuals involved as they relate to the delivery system. Program areas included Continuing Medical Education as the key focus and secondly a series in Community Health Education in which the researcher was involved.

2) The second area of literature review deals with the evaluation model set down by Daniel, Richmond and Côte as the basis of national evaluation of the Communications Technology Satellite. The model used was Context, Input, Process, Product (CIPP) and allowed for both formative and summative evaluations. Areas of data collection included technical performance equipment interactive aspects of communication, participant attitudes and attitudes of experimenters and their personnel.

3) The third area of literature review deals with the need for evaluation of Health Promotion programs. These are frequently not evaluated because they are service program but the authors cited agree that such costly programs require sound evaluation to justify themselves and to improve. The importance of involvement of the evaluator from the very beginning development of the programs is pointed out. This was the method used by the researcher.

CHAPTER III

PROGRAM DESCRIPTIONS AND OBSERVATIONS

Prenatal Nutrition

The Prenatal Nutrition program took place on April 26, 1977. Groups of pregnant women, some husbands, and health professionals were gathered in each of the four sites. The presentors of the program included two nutritionists and an obstetrician so that both the medical and nutritional aspects of prenatal care could be covered. The presentors had previously set up their program content and were prepared with visual aids and questions for interaction. The program is described in terms of its need, objectives, and content.

Definition of Need

Sound nutrition during pregnancy is essential for optimal growth and development of the child since the baby is built from the foods the mother eats. Absence of good nutrition may result in a variety of birth defects and a generally small baby, poorly prepared to meet the demands of growth and development ahead. Brain growth is of particular concern since it is mostly completed during the last trimester of pregnancy. Poor prenatal nutrition status

leads to high risk pregnancies, high risk infants and infant mortality. In Newfoundland we have the highest incidence of these measures for all of Canada. The need for Prenatal Nutrition is tremendous since it is so intimately related to a successful pregnancy and birth. This program has been developed to help meet that need and hopefully serve as a model for future programs.

Program Objectives

1) To instruct pregnant mothers on sound nutrition for pregnancy.
2) To influence the eating habits of pregnant mothers so they will eat nutritiously.
3) To motivate pregnant mothers to improve the nutrition quality of their family's diet.
4) To evaluate the success of the Satellite System for instruction and interaction.

Program Content

The program was presented in the following format and with appropriate assignment of topics to the presentors:

1) Introduction of panelists and encouragement for interaction

Nutritionist

2) Definition of nutrition and its effect on all stages

of life but especially pregnancy.

Doctor

3) How baby develops
4) Harmful effect of drugs, smoking, and alcohol
5) Brain cell development
6) Premature babies

Nutritionist

7) Weight gain and salt restriction
8) The baby building foods
9) Milk requirements and substitutes
10) Fruit and vegetable group, constipation problems

Doctor

11) Stages of fetal positions and problems

Nutritionist

12) Bread and cereal group
13) Meat group, vitamin supplements

Observations

The researcher observed this program in Labrador City, as planned in the Project Proposal. It was an opportunity to have first hand exposure to the program and to feel a part of the experimental group.

The experimental group at this site was composed of six expecting couples, a Public Health Nurse and the

hospital dietitian. A variety of mishaps occurred, beginning with a confusion on the program starting time as the half hour time difference to Labrador was not considered. Consequently the audience was late and due to lack of notification was only half the expected size.

There was no sound at this site for the first forty-five minutes of the program as the technical expert assigned to the site was not available. Eventually adjustments were made and the group could both hear and see the program. Brief instructions on the use of the microphone were given by the researcher as there was no group leader.

Interaction at this site was limited and all questions were fielded through the dietitian since she was close to a microphone. The audience appeared interested but reluctant to participate. They were most cooperative in completing the questionnaires when the program was over.

Since this was the first program of the Community Health Education Series, the speakers experienced problems of pacing themselves and of stimulating interaction. As this series developed, there was marked improvement in the interaction aspect of the system as both speakers and audience became more familiar with its use.

The problems experienced at this site did not occur at the others. One positive outcome was that the researcher was there to observe and report the mishaps and remedies were made where possible for future programs.

Juvenile Diabetes

The Juvenile Diabetes program took place on April 28, 1977. The audiences were composed of juvenile diabetics, their families, and health professionals. Family participation was encouraged since there were children involved and family support is very important in dealing with their condition. The program presentors were the Diabetic Teaching Team from the Janeway Child Health Centre. This team includes a dietitian, a nurse, and a doctor to deal with all areas of diabetic control. The team members were familiar to many of the audience as the Janeway is the only pediatric hospital in the Province and many children had been hospitalized there when first diagnosed. The team were used to working together and divided the program content according to their own areas of expertise. The program is described in terms of its need, objectives, and content.

Definition of Need

The control of diabetes requires considerable knowledge on the part of the diabetic concerning his disease. The better the control of the condition the healthier the lifestyle of the diabetic and the more productive a person he can be. Education of the diabetic will also reduce health care costs of hospitalization. Three major areas of instruction are necessary, the diet, the urine testing, and the insulin program. In addition, diabetics need to

know what to do if complications arise and how best to prevent these.

Program Objectives

1) To instruct the diabetic and his family on all aspects of the disease and its control.
2) To increase the awareness of diabetics concerning their own life and relationship to present day problems, eg. saccharin use.
3) To assist diabetics with personal problems or questions through interaction.
4) To evaluate the success of the Satellite System for instruction and interaction.

Program Content

The program content is described in the following outline. Appropriate visual aids were used and interaction spots were designated.

1) Introduction - encourage interaction

Doctor

2) Talk about initial diagnosis

Doctor and Nurse

3) Discuss the importance of urine testing and give demonstration
4) Discuss and demonstrate insulin injection

Dietitian

5) Discuss changes in diet from former habits, also adherence to diet and adjustability.

6) Discuss problem of artificial sweeteners

7) Point out difference between simple and complex sugars

8) Present food exchange system

9) Discuss what to do for special occasions, exercise or a reaction

Doctor

10) Discuss future plans for diabetes and its control

Observations

The researcher observed this program in Stephenville. Once again there was no site leader to explain the use of the microphone. In order to counteract this problem in future programs, the speakers gave an explanation at the start of each program. There was a good cross section of children, parents, and professionals in the audience. There was more interaction from all sites for this program. It should be noted that this was a new group of speakers with a new target group.

At one point an audience member at the St. Anthony site controlled the program content for a considerable period of time. While this was valuable to him and the

audience at this site and perhaps enhanced their positive reaction to the program, it could have had a possible negative reaction for the other sites. This point is discussed further in the Analysis of the Data. There appears to be a fine line where interaction from the audience may control the program at the expense of program content and movement.

Summary

This chapter provides a description of each of the two programs which the researcher evaluated and also some observations of the researcher's experience in the field at the time of each program.

The need for Prenatal Nutrition and Juvenile Diabetic education are identified, for Prenatal Nutrition it is the need to give each baby the best possible chance in life and for the Juvenile Diabetic it is the need to know how to best control one's condition so that a healthy lifestyle can be maintained.

The program objectives centre around instruction, motivation, increasing awareness, influencing habits, and evaluation of the Satellite System.

The program content was well scripted and involved a panel of three experts for each program. Interaction was encouraged through questioning from the presentors. The Prenatal Nutrition program dealt with the importance and the how of good nutrition in pregnancy. It also dealt with

problems and hazards that may arise and related all information to the development of the fetus. The Juvenile Diabetes program dealt with the three important areas of instruction, the diet, insulin and urine testing. It also discussed problems which may be encountered.

Observations were made in Labrador City for the Prenatal program and in Stephenville for the Juvenile Diabetes program. A variety of mishaps were recorded for the Prenatal program but these were minor to the overall impact and reception of the program. Interaction was guarded for the Prenatal program as the audience appeared to be shy. There was an increase in interaction for the Juvenile Diabetes program but at times it nearly controlled the program content and movement. There appears to be a fine line where interaction is adequate or uncontrolled. The quality of interaction improved as the series of programs continued and presentors became more adept at managing the programs.

CHAPTER IV

EVALUATION RESEARCH DESIGN AND QUESTIONNAIRE DESCRIPTION

Evaluation Research Design

The evaluation research design is not experimental in nature but rather a survey analysis to approximate experimental design. It is recognized that an inherent weakness is the lack of a control group or pre-test baseline for comparison but it is felt that sufficient and meaningful comparisons may be made between and within sites. Specified personal characteristics were recorded from each group and further comparisons were made on these. The following diagram depicts the overall survey design based on location and program.

Program Topic	Site Target Groups			
Prenatal Nutrition	Labrador City	St. Anthony	Goose Bay	Stephenville
Juvenile Diabetes	Labrador City	St. Anthony	Goose Bay	Stephenville

Each of the four site groups received the program

treatment of Prenatal Nutrition and of Juvenile Diabetes. Each individual in each group completed the evaluation questionnaire. There were two distinct evaluation questionnaires designed for the two distinct programs but Section A on each was the same and dealt with the program and delivery system while Section B dealt with personal characteristics and knowledge assessment. Comparisons were possible between sites (eg. Labrador City and Stephenville) and within sites (eg. between individual participants). In addition, comparisons were made between the target groups for either program (eg. between the Prenatal Nutrition group in St. Anthony and the Juvenile Diabetes group in Goose Bay).

Evaluation Questionnaire Description

Development

The evaluation attempted to collect data on as many factors as possible that could influence the outcome of the experiment. The researcher recognizes that there may be other influencing factors that have been overlooked and which may have influenced this outcome. The major areas of evaluation were identified as:

1. Knowledge level of participants concerning information covered by the program
2. Personal characteristics of the participants which may influence their role in the experiment
3. Satisfaction of the participants with the program

4. Preparation of the participants for the experiment
5. Attitudes of the participants towards the delivery system
6. Reaction of participants to the delivery system
7. Extent of and attitudes towards interaction

These areas include those set down by Daniel, et al,[15] as being representative on a national basis as major areas of evaluation for these educational experiments. In addition, the variations in the experiment at a local level required consideration. Based on both areas of information, questionnaire items were developed.

The researcher was personally involved in development of the two programs which were evaluated and because of this desired to examine a knowledge outcome as a result of the programs. A measure of knowledge would allow the program presentors to know if their message got across to the recipients and where there were problems. Since these programs may be presented again, this will be useful information along with other evaluation results to pinpoint weaknesses in the program. Items to measure knowledge status were developed from the program content and were perceived by the program developers as essential to their program. Answers to these items were distributed after

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[15] J. Daniel, M. Richmond, and M. Côte. Communications Technology Satellite Evaluation of Educational Experiments. Ottawa: Department of Communications, 1976, pp.22-23.

questionnaire completion so that participants could check their responses and be assured of having the information.

Questionnaire items designed to measure personal characteristics were based on key factors which would include the participant in the desired program target group and which could possibly influence his/her role in the experiment.

The final questionnaires had the first forty-four items in common and the remainder dealt with the knowledge assessment and personal characteristics of each group. Sample copies are included in the Appendices.

The choice of answer on most questions was either 'mainly no' or 'mainly yes', except where a definite yes or no was a more suitable response. This answer system was selected because of its simplification for interpretation and because it was felt that a greater number of answer choices would not necessarily enhance the quality of data obtained. Questions dealing with the knowledge assessment were multiple choice and true/false. These covered the major points of information the programmers wished to get across.

Testing

The questionnaire was examined by three officials of the Telemedicine Project Team:

1. The Research Associate Co-ordinator
2. A Co-principal Investigator

3. A Producer for ETV

In addition, the Evaluator for the Telemedicine experiment examined in detail the questionnaire items. The final instrument met with their approval.

Program planners examined the items dealing with knowledge testing. The judgement of these people is considered as a support to the face validity of the questionnaire.

Distribution and Collection

Questionnaires were mailed to the program co-ordinators in each of the four sites and follow-up phone calls confirmed their receipt and willingness to participate. Collection was also made through the mail except for the two sites where the researcher attended the program. All participants at each site completed the questionnaire. A breakdown of numbers by site is included in the section on Examination of Data. Co-operation was excellent.

Summary

This chapter depicts the research design and describes how the questionnaire was developed, tested, distributed, and collected. The research design is a survey analysis to approximate experimental design with an inherent weakness of

no control group or pre-test baseline for comparisons. The four sites were compared with each other and compared on the basis of the seven areas of evaluation; knowledge, personal characteristics, satisfaction, preparation, attitudes toward delivery system and interaction and reaction to the delivery system.

Questionnaire items were developed on the basis of these areas of evaluation and the researcher was personally involved in the program development. Items differed for the two programs only in the areas of knowledge assessment and personal characteristics. The choice of response was either 'mainly no' or 'mainly yes'.

The questionnaire was tested by officials of the Telemedicine Experiment. It was distributed and collected by mail, except where the researcher was present for the program. Cooperation from the sites was excellent.

CHAPTER V

ANALYSIS OF THE DATA

Introduction

Analysis of the data has resulted in three distinct areas of findings, 1) those questionnaire items that did not show or showed very little variation in response, 2) those questionnaire items that did show variation in response, and 3) those questionnaire items that dealt with personal characteristics and knowledge assessment. All questionnaire items were subjected to frequency distributions; these are included in the Appendices. Variation of response was determined from the frequency distributions and those items which showed variation of at least a 30:70 split were selected for further statistical analysis. This included application of Yule's Q statistic to determine the strength of relationship between the dependent and independent variables. One of the criterion for applying Yule's Q is that no cell expected frequency be less than five. In a sample size of fifty, as for this research, this criterion is met only if there is at least a 30:70 split in response variation. The basis for these and other criterion are more clearly defined in James Davis's text Elementary Survey Analysis.

This chapter is composed of three sections, each

dealing with one of the three distinct areas of findings. All findings are discussed in terms of the nominal definitions and where appropriate the two programs will be dealt with simultaneously so that between program comparisons can be made.

The following table shows the number of responses for each area and for each program.

TABLE 1

QUESTIONNAIRES RETURNED

Area	Program	
	Prenatal Nutrition	Juvenile Diabetes
1. Stephenville	22	10
2. St. Anthony	16	14
3. Goose Bay	16	14
4. Labrador City	13	10
Total	67	48

Items With Minimal or No Variation in Response

This constituted the majority of the forty-four

questionnaire items, thirty-three for the Prenatal Nutrition Program and thirty-seven for the Juvenile Diabetes Program. The response in general was an overwhelming positive one, possibly due to the intrigue and excitement of being involved in something new and different. The technical quality of the system is most impressive and those people receiving the program were selected and thus given special attention. This does not in any way slight the excellent work done by all those involved in the experiment but puts a tone of realism on the findings.

The questionnaire items which showed little or no variation in response are reported and discussed under the nominal definition of the variable they are associated with.

TABLE 2

PREPARATION FOR PROGRAM AND EQUIPMENT

(VARIABLE 1).

Item		Frequency Distributions	
No.	Name	Prenatal Nutrition	Juvenile Diabetes
		Mainly No/Yes	Mainly No/Yes
035	I was given clear instructions about using the microphones	9:91	13:88[16]
037	I found the microphone easy to use	5:18	2:29

[16] Responses for the Frequency Distributions are expressed in percentages.

The results given in Table 2 show that people felt quite positively that they were given clear instructions about using the microphone. This did not necessarily result in their use of the microphone as nine per cent of the sixty-seven respondents used the microphone for the Prenatal Nutrition program as did twenty-seven per cent of the forty-eight respondents for the Juvenile Diabetes program. The results of item 037 do not agree with these numbers, as item 037 was to be answered only by those who used the microphone. This indicates that people did not read the questionnaire clearly and serves as a check on the reliability of responses. It is possible that people may have found the microphone easy to use in practice but did not actually use it. Results indicate that of the people who responded, most found the microphone easy to use.

Both items 035 and 037 indicate that people felt they were given adequate preparation for the program and equipment.

The items given in Table 3 deal with various aspects of people's attitudes towards the delivery system. The figures recorded here exclude those showing greater variation. The above figures indicate that people felt quite comfortable during the session for both programs. The people who attended the Juvenile Diabetes Program also felt very positively that conversation was easy and there was a feeling of warmth in the room. Based on these aspects of attitude, one can conclude that people felt positively towards the delivery system.

TABLE 3

ATTITUDES OF PARTICIPANTS TOWARDS THE DELIVERY SYSTEM

VARIABLE 2

Item		Frequency Distributions	
No.	Name	Prenatal Nutrition	Juvenile Diabetes
		Mainly No/Yes	Mainly No/Yes
004	I felt comfortable during this session	8:91	0:100
008	Conversation was easy under these conditions	[17]	8:90
009	The feeling in the room was warm		

[17] Blank cells indicate that variation in response met the 30:70 split criterion necessary to Yule's Q analysis and these will be discussed in the section dealing with variation in response.

TABLE 4

QUALITY OF AND REACTION TO THE DELIVERY SYSTEM

(VARIABLE 3)

Item No.	Item Name	Frequency Distributions: Prenatal Nutrition	Frequency Distributions: Juvenile Diabetes
		Mainly No/Yes	Mainly No/Yes
018	The quality of the TV picture was good	0:100	10:90
019	I could see the TV monitor clearly	0:100	2:98
020	I could always hear what was being said	15:85	6:94
021	There were some problems with the equipment during this session	76:21	94:6
022	This communications system is good for teaching and learning	3:97	2:96
023	The equipment was distracting to the program	94:6	94:6
025	The material presented would be easier to understand if I was face-to-face with the instructor	94:6	
039	I would like to use this type of system again	3:97	2:96

The results given in Table 4 deal with the quality of and reaction to the delivery system and are all-inclusive of the questionnaire items used for this nominal variable. The single item which showed variation was item 025 for program Juvenile Diabetes. One can conclude that people felt the quality of the system was good and they reacted positively to it.

It was recorded in the section on Observations of the Program that equipment problems were experienced in Labrador City for the Prenatal Nutrition Program. A further breakdown by site of item 021 indicates a definite trend in Labrador City towards 'yes' on equipment problems.

TABLE 5

EQUIPMENT PROBLEM RESULTS

Area	Mainly No	Mainly Yes
Stephenville	20 (91%)	2 (9%)
St. Anthony	13 (87%)	3 (13%)
Goose Bay	15 (100%)	0
Labrador City	3 (25%)	9 (75%)

TABLE 6

SATISFACTION OF PARTICIPANTS WITH THE PROGRAM

(VARIABLE 4)

Item		Frequency Distributions	
No.	Name	Prenatal Nutrition	Juvenile Diabetes
		Mainly No/Yes	Mainly No/Yes
007	I felt satisfied with this program	13:87	0:100
010	I felt the program moved along well	10:88	2:98
011	The information I received was useful	5:96	0:100
012	The information I received met my needs	12:85	8:90
013	I was interested in what the speakers said	3:97	0:100
015	The speakers used words that were easy to understand	3:97	0:100
016	This program was too simple for me	88:12	83:8
017	I felt bored during this program	87:13	96:2
024	There were embarassing silences during this session	94:6	88:13
028	The content was presented in a confusing manner	85:15	96:2
030	The people presenting the program appeared comfortable	9:90	2:98
032	I would attend another program like this	2:97	2:96
033	I learned a lot from this program	18:79	19:81
038	I already knew a lot of the information	18:81	8:79
040	The program was too long		94:6
041	The program was too short	91:5	

The items given in Table 6 are all-inclusive of those designed to measure program satisfaction. Variation occurred appreciably only on items 040 and 041 which dealt with program length. On these items there is a reverse in response as people tended to feel the Prenatal Program was too long and the Diabetes Program was too short. Apart from this, satisfaction was excellent. Many aspects of satisfaction were considered and these dealt with the program content, duration, format, and the speakers' comfort and quality of presentation.

TABLE 7

EXTENT OF AND ATTITUDE TOWARDS INTERACTION

(VARIABLE 5)

Item		Frequency Distributions	
No.	Name	Prenatal Nutrition	Juvenile Diabetes
		Mainly No/Yes	Mainly No/Yes
014	I was interested in what other group members said	5:94	0:100
026	I had a good idea of how participants at other sites were reacting to the program		10:90
027	I had a feeling of personal contact with the groups in the other sites		19:81
029	It was difficult to talk with people in my own group during this session		79:21
031	All the discussion in my group was transmitted to the other groups		23:71

The results given in Table 7 indicate that variation of response was more prevalent in the Prenatal Program than the Juvenile Diabetes Program. Items 014, 026, 027, 029 deal with attitude towards interaction. The people who attended the Juvenile Diabetes Program expressed a very positive attitude towards interaction as indicated by the results. They were interested in and felt close to the other sites and their own group. The people attending the Prenatal Program were very interested in what other group members said but, on the other items varied considerably in their response. These items will be dealt with in the next section.

Item 031 dealt with extent of interaction, that is, whether people felt all group discussion was transmitted. The Juvenile Diabetes audience felt quite positively that discussion was transmitted. An additional item, No. 036, also dealt with extent of interaction by use of the microphone. The variation of response expressed for this item will be dealt with in the next section.

Summary

Minimal or no variation in response was observed for thirty-three of the forty-four items for the Prenatal Nutrition Program and thirty-seven of the forty-four items for the Juvenile Diabetes Program. Each item showing little variation was in the positive direction and favoured the program and delivery system.

Variable 1, preparation for the program and equipment, indicated a positive response on two of the three questionnaire items which dealt with this nominal variable, that is, people felt well prepared.

Variable 2, attitudes of participants towards the delivery system, dealt with a variety of attitudes such as comfort, shyness, familiarity, ease of conversation, and reluctance. Variation of response was indicated on most of the six items, particularly for the program on Prenatal Nutrition. Both program audiences felt comfortable but only the Juvenile Diabetes audience felt strongly that conversation was easy and the feeling in the room was warm.

Variable 3, quality of and reaction to the delivery system dealt with many aspects of program and system quality. Results indicate a strong positive response of the eight items with only one exception, the Juvenile Diabetes audience varied in their response to the item 025, that the material would be easier to understand if face-to-face with the instructor. It can be concluded that the delivery system was of excellent quality and people reacted well to it.

Variable 4, satisfaction of participants with the program dealt with a variety of areas of satisfaction with the program content, format, and duration and the speakers comfort and quality of presentation. Response indicates that the audiences were very satisfied. The only extensive variation in response was with the items dealing with the

length of program. The Prenatal audience varied on response to the program being too long and the Diabetes audience varied on response to the program being too short.

Variable 5, extent of and attitude towards interaction demonstrated that the Juvenile Diabetes audience felt very positive towards interaction but the Prenatal Nutrition audience showed variation in response. Both groups were interested in what other group members said but both groups showed limited use of the microphone, thus indicating a limited extent of interaction.

Items With Variation in Response

There were a limited number of items which showed variation in response as great as the 30:70 split required for application of Yule's Q. Results of the Frequency Distributions indicated eleven such items for the Prenatal Nutrition Program and seven items for the Juvenile Diabetes Program. The frequency distributions of response for these items follows. It should be noted that some items showed variation for only one program. All items are listed under the appropriate nominal definition.

TABLE 8

VARIATION IN RESPONSES TO NOMINAL VARIABLES

Nominal Definitions		Frequency Distributions	
		Prenatal Nutrition	Juvenile Diabetes
		Mainly No/Yes	Mainly No/Yes
1. Preparation for program and equipment			
	Item		
VAR 003	knew what to expect	33:66	35:63
2. Attitude towards delivery system			
	Item		
VAR 005	many familiar people	39:61	29:69
VAR 006	too shy to speak	69:31	66:33
VAR 008	conversation easy	40:58	
VAR 034	reluctant to use mic	33:66	56:40
3. Quality of and reaction to delivery system			
	Item		
VAR 025	easier if face-to-face		63:35
4. Satisfaction with program			
	Item		
VAR 040	program too long	66:33	
VAR 041	program too short		69:27
5. Extent of and attitude towards interaction			
	Item		
VAR 026	ideal of reaction in other sites	42:55	
VAR 027	feeling of personal contact	66:34	
VAR 029	difficult to talk with own group	52:46	
VAR 031	all discussion transmitted	45:52	
VAR 036	used microphone	55:9	48:27

Nominal definitions which showed more than one item with variation in response were subjected to further cross tabulations of these items to determine if the items could be grouped together as a measure of the nominal definition. This was done for variable 2, Attitude Towards the Delivery System for both programs and for variable 5, Extent of and Attitude Towards Interaction for the Prenatal Nutrition program. Results indicated that items did not vary together but rather were separate variables that could not be grouped as a single measure of the nominal definition with which they were concerned. This supported empirical observations that attitudes towards the delivery system and interaction are complex and not closely associated. It was concluded then that even though there were many familiar people, individuals did not necessarily feel less shy, find conversation easier, nor were they less reluctant to use the microphone. It was also concluded that a good idea of reaction in other sites did not necessarily give a feeling of personal contact, make it less difficult to talk within group, result in transmission of discussion, nor use of the microphone. Based on these observations all items were treated as separate variables and subjected to further cross tabulations of dependent by independent variables with Yule's Q applied to measure the strength of association between them.

TABLE 9

RESULTS OF YULE'S Q

Dependent Variables	Independent Variables 003		005		006		008		034		025	
	Pre Natal	Juv Diab	Pre Natal	Juv Diab	Pre Natal	Juv Diab	Pre Natal	Juv Diab	Pre Natal	Juv Diab	Pre Natal	Juv Diab
040	neglig		-.364		.153		-.538		.337			
041		.130		-.576		.498				.412		-.333
026	-.313		.351		-.621		.601		neglig			
027	-.100		.405		-.499		.767		.101			
029	.204		-.455		neglig		-.707		.281			
031	-.260	neglig	.189	neglig	-.183	-.165	neglig		neglig	-.753		-.468
036	1.000	neglig	.208	.516	-1.000	-.111	.357		-.875	-.552		-.135

The conventions for describing Q value are:

± .70 or higher	A very strong positive/negative association
± .50 to ± .69	Substantial positive/negative association
± .30 to ± .49	Moderate positive/negative association
± .10 to ± .29	Low positive/negative association
± .01 to ± .09	Negligible positive/negative association
.00	No association

The results of Yule's Q show that there are a variety of strengths of association between the dependent and independent variables for both programs. The variables examined were the following:

Independent Variables

No. 1 Preparation for program and equipment

VAR 003 I knew what to expect during this session

No. 2 Attitudes of participants towards the delivery system

VAR 005 There are many familiar people here
VAR 006 I felt too shy to speak in this group
VAR 008 Conversation was easy under these conditions
VAR 034 I was reluctant to use the microphone

No. 3 Quality of and reaction to the delivery system

VAR 025 Material easier to understand if face-to-face with the instructor

Dependent Variables

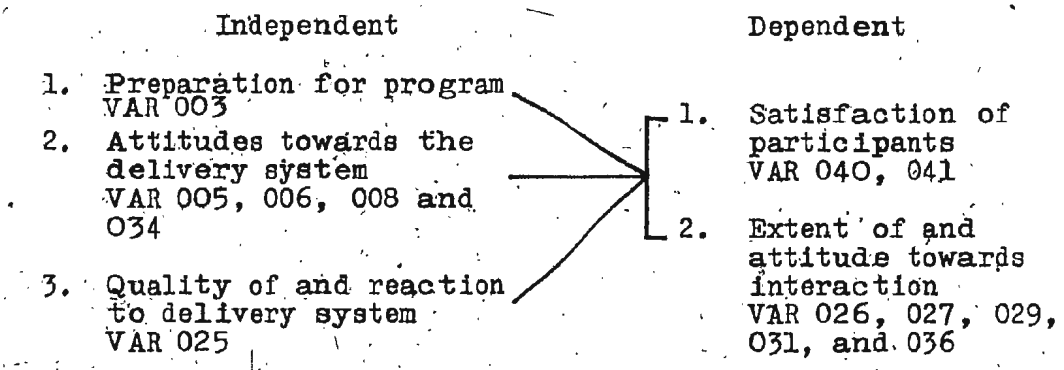
No. 4 Satisfaction of participants with the program

VAR 040 The program was too long
VAR 041 The program was too short

No. 5 Extent of and attitude towards interaction

VAR 026	Good idea of participant's reaction elsewhere
VAR 027	Feeling of personal contact with other groups
VAR 029	Difficult to talk in my own group
VAR 031	All my group discussion was transmitted
VAR 036	I used a microphone during this session

Each of the dependent variables is discussed in terms of its relationship with the independent variables. The following diagram shows the hypothesized relation between the independent and dependent variables.



These are the major nominal definitions and the operational variables tested are discussed under each. Operational variables are the questionnaire items which showed variation.

Dependent

Variable 4, Satisfaction of participants with the program

Variable 040, The program was too long

The first dependent variable to be discussed is VAR 040, the program was too long. This is considered as

a measure of the nominal definition, satisfaction of the participants with the program. It is the single item which showed variation in response for the Prenatal Nutrition program. Yule's Q indicates the following strengths of association with the independent variables.

TABLE 10

STRENGTH OF ASSOCIATION OF THE INDEPENDENT VARIABLES WITH LENGTH OF THE PROGRAM

Independent Variables		Dependent Variable
		VAR 040, program was too long
VAR 003	knew what to expect	neglig
VAR 005	many familiar people	-.364
VAR 006	too shy to speak	.153
VAR 008	conversation easy	-.538
VAR 034	reluctant to use microphone	.337

The results given in Table 10 provoke some observations to be made regarding these variables.

1) There is a negligible association between program satisfaction and preparation for the program as expressed by VAR 003, knew what to expect.
2) Items 005, 006, 008, and 034 represent attitudes of participants towards the delivery system. Results indicate a moderate, negative association between satisfaction and many familiar people and

a substantial negative association with ease of conversation. This can be interpreted to mean that participants who knew many people and who found conversation easy did not feel the program was too long, that is they had a positive attitude and hence were satisfied.

3) A low positive association is observed between shyness to speak and program satisfaction and a moderate positive association between reluctance to use the microphone and program satisfaction. This can be interpreted to mean that people who were shy and reluctant also felt the program was too long, that is, they had a negative attitude and hence were dissatisfied.

TABLE 11

STRENGTH OF ASSOCIATION OF THE INDEPENDENT VARIABLES WITH LENGTH OF PROGRAM

Independent Variables		Dependent Variable
		VAR 041, program was too short
VAR 003	knew what to expect	.130
VAR 005	many familiar people	-.576
VAR 006	too shy to speak	.498
VAR 034	reluctant to use microphone	.412
VAR 025	material easier to understand if face-to-face	-.333

The results given in Table 11 are for the Juvenile Diabetes program only. Three Independent Variables are represented and show degrees of association with the Dependent Variable, program satisfaction as expressed by 'the program was too short'. People who felt the program was too short were probably more than satisfied with it and this is not considered as representative of dissatisfaction. Those who felt the program was not too short were also satisfied with the program.

1) Results show a low positive association with those who knew what to expect and program satisfaction, that is, people were prepared and consequently were satisfied.

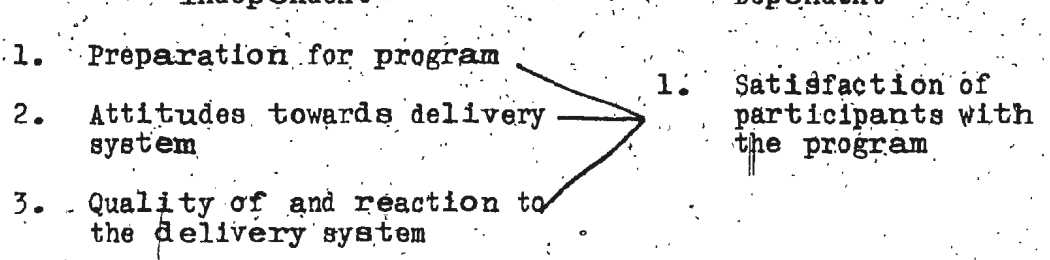
2) Attitudes towards the delivery system, as represented by 'many familiar people' showed a substantial negative association, that is, people were familiar with each other but felt the program was not too short. Attitudes of shyness and reluctance showed moderate positive associations with satisfaction, that is, people felt shy and reluctant and also felt the program was too short. This can be interpreted to mean that participants expressed a negative attitude but were still satisfied.

3) Quality of and reaction to the delivery system is indicated by VAR 025, material easier to understand if face-to-face. A moderate negative association is shown and can be interpreted to mean that the material would not be easier to understand if face-to-face and the program was too short. People expressed a positive reaction

to the system and were satisfied.

Summary and Testing of Hypotheses 1, 2, and 3

It is now possible to test hypotheses 1, 2, and 3 which deal with the dependent variable, Satisfaction of Participants with the Program. The following diagram depicts the hypothesized relation between these independent and dependent variables.



Hypothesis 1. There is a relationship between the extent of preparation for the program and participants' satisfaction with the program.

Results show a negligible relationship for the Prenatal Program and a low negative relationship for the Diabetes Program. This is a limited testing of the hypotheses as only one item varied in response for each program. Program shortness is considered as a measure of satisfaction and so this hypothesis supports a positive relationship between the dependent and independent nominal variables.

Hypothesis 2. There is a relationship between the attitudes of participants towards the delivery system and satisfaction with the program.

Four aspects of attitude were tested for their association with a single measure of satisfaction. Results show that familiar people is associated positively with satisfaction. Shyness and reluctance are associated positively with satisfaction but both are considered as negative attitudes. Ease of conversation is associated negatively with satisfaction for the Prenatal Program. It can be concluded that there is no definite support for this hypothesis in the negative or positive direction. It is felt that a single measure of program satisfaction does not adequately test the hypothesis but results of the study produced limited variation in response for testing.

Hypothesis 3. There is a relationship between the quality of and reaction to the delivery system and the participant's satisfaction with the program.

This relationship was tested only for the Juvenile Diabetes Program. Results support a positive relationship between these nominal definitions based on one item for each definition. Other items gave no variation of response but were strongly positive. This lends support to the variables tested.

Variable 5, Extent of and attitude towards interaction

This is the second dependent variable to be discussed and is represented by five questionnaire items which showed variation. These are divided into two categories: 1) those that measure extent of interaction, and 2) those that measure attitude towards interaction.

Attitude towards interaction is measured by:

VAR 026 Good idea of participants' reaction elsewhere
VAR 027 Feeling of personal contact with other groups
VAR 029 Difficult to talk in my own group.

The above items showed variation only for the Prenatal Nutrition Program.

Extent of interaction is measured by:

VAR 031 All my group discussion was transmitted
VAR 036 I used a microphone during this session

These variables are now discussed with each of the independent variables.

TABLE 12

RELATIONSHIP OF PREPARATION FOR THE PROGRAM AND ATTITUDE TOWARDS INTERACTION

Independent Variable		Dependent Variables	
Preparation for the program		Attitude towards interaction	
VAR 003	knew what to expect	VAR 026	Good idea of reaction
	-.313		
	-.100	VAR 027	Feeling of personal contact
	.204	VAR 029	Difficult to talk in own group

The values given in Table 12 for Yule's Q are from the Prenatal program as items 026, 027, and 029 showed variation only for this program. Results indicate a moderate and a low negative association between preparation for the program and the attitudes expressed by VAR 026 and VAR 027. This means that people tended to be prepared but expressed a negative attitude. The low positive association between preparation and 'difficult to talk in own group' supports a negative attitude towards interaction even though people were prepared. It can be concluded that these people tended to have a negative attitude towards interaction whether or not they were prepared for the program.

TABLE 13

RELATIONSHIP OF ATTITUDE TOWARDS DELIVERY SYSTEM AND ATTITUDE TOWARDS INTERACTION

Independent Variables	Dependent Variables		
Attitude towards delivery system	Attitude towards interaction		
	VAR 026	VAR 027	VAR 029
VAR 005	.351	.405	-.455
VAR 006	-.621	-.499	neglig
VAR 008	.601	.767	-.707
VAR 034	neglig	.101	.281

The Yule's Q results given in Table 13 are for the Prenatal Nutrition Program. A variety of observations may be made on the variety of attitudes examined for both nominal variables.

VAR 005, there were many familiar people here, shows two moderate positive and one moderate negative association with the Attitudes Towards Interaction. All three associations are indicative of a positive relationship between the two sets of attitudes, that is, familiar people tended to 1) have a good idea of participants' reaction elsewhere, 2) feel personal contact with other groups, and 3) not find it difficult to talk in their own group.

VAR 006, I felt too shy to speak in this group, shows two substantial negative associations with Attitude Towards Interaction. This means that people who tended not to be shy also tended to 1) have a good idea of participants reaction elsewhere, and 2) have a feeling of personal contact with other groups. These findings support a positive association between the two sets of attitudes.

VAR 008, conversation was easy under these conditions, shows two positive (a very strong and a substantial) and one very strong negative association with Attitudes Towards Interaction. This means that people who found conversation easy also tended to 1) have a good idea of participants' reaction elsewhere, 2) have a feeling of personal contact and 3) did not find it difficult to talk in their own group. These findings support a positive association between the two sets of attitudes.

VAR 034, I was reluctant to use the microphone, shows two low positive associations with Attitude Towards Interaction. This means that people who tended to be reluctant also tended to 1) have a feeling of personal contact, and 2) found it difficult to talk in their own group. The results are mostly indicative of negative

attitudes and a negative relationship between the two sets of attitudes.

Conclusion: These results tend to strongly support a positive relationship between Attitude Towards the Delivery System and Attitude Towards Interaction. There were twelve Yule's Q results to examine and only two supported a low negative relationship.

The following section deals with variables associated with Extent of Interaction.

TABLE 14

RELATIONSHIP BETWEEN PREPARATION FOR PROGRAM AND EXTENT OF INTERACTION

Independent Variables	Dependent Variables	
Preparation for Program	Extent of Interaction	
VAR 003	VAR 031	VAR 036
Prenatal Nutrition Program	-.260	1.000
Juvenile Diabetes Program	neglig	neglig

Results of Yule's Q given in Table 14 are for the Prenatal Program and indicate a low negative association and very strong positive association between Preparation for the Program and Extent of Interaction. This means that people who were prepared tended to 1) not feel that group discussion was transmitted and 2) use the microphone. This is a more favourable support for a positive relationship between Preparation and Extent of Interaction.

TABLE 15

RELATIONSHIP BETWEEN ATTITUDE TOWARDS DELIVERY SYSTEM AND EXTENT OF INTERACTION

Independent Variables		Dependent Variables	
Attitude Towards Delivery System		Extent of Interaction	
		VAR 031	VAR 026
VAR 005	Prenatal Nutrition	.189	.208
	Juvenile Diabetes	neglig	.516
VAR 006	Prenatal Nutrition	-.183	-1.000
	Juvenile Diabetes	-.165	- .111
VAR 008	Prenatal Nutrition	neglig	.357
	Juvenile Diabetes		
VAR 034	Prenatal Nutrition	neglig	-.875
	Juvenile Diabetes	-.753	-.552

The results of Yule's Q given in Table 15 include both programs. Observations are made on each and between programs for the relationship between Extent of Interaction and Attitude Towards the Delivery System.

VAR 005, there are many familiar people here, shows positive associations for both programs with Extent of Interaction. This means that familiar people tended to 1) feel that all group discussion was transmitted, and 2) used the microphone. These results support a positive relationship between Extent of Interaction and Attitude Towards the Delivery System.

VAR 006, I felt too shy to speak in this group, shows four negative associations with Extent of Interaction. This means that people who tended not to be shy also tended to use the microphone and they felt that all group discussion was transmitted. It can be concluded then that the extent

of interaction was not due to shyness. These results support a positive relationship between Attitudes Towards the Delivery System and Extent of Interaction.

VAR 008, conversation was easy under these conditions, shows a moderate positive association with Extent of Interaction for the Prenatal Program. This means that people who found conversation easy tended to use the microphone.

VAR 034, I was reluctant to use the microphone, shows two very strong and one substantial negative association with the Extent of Interaction. This means that people who tended to not be reluctant to use the microphone also tended to 1) feel that all group discussion was transmitted and 2) use the microphone. This supports a positive relationship between Attitudes Towards the Delivery System and Extent of Interaction.

Conclusion: These results tend to strongly support a positive relationship between Attitudes Towards the Delivery System and Extent of Interaction

TABLE 16

RELATIONSHIP BETWEEN QUALITY OF AND REACTION TO THE DELIVERY SYSTEM AND EXTENT OF INTERACTION

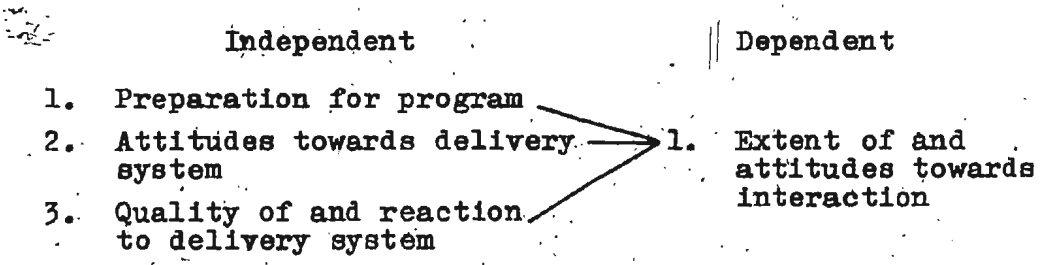
Independent Variable	Dependent Variable	
Quality of and Reaction to Delivery System	Extent of Interaction	
	VAR 031	VAR 036
VAR 025	-.468	-.135

VAR 025, material easier to understand if face-to-face with the instructor.

The results given in Table 16 are for the Juvenile Diabetes Program and they show a moderate and a low negative association with Extent of Interaction. This means that people who tended to be satisfied with the quality of the delivery system also tended to 1) feel all group discussion was transmitted and 2) use the microphone. This supports a positive relationship between Quality of and Reaction to the Delivery System and Extent of Interaction.

Summary and Testing of Hypotheses 5, 6 and 7

It is now possible to test hypotheses 5, 6 and 7 which deal with the dependent variable Extent of and Attitude Towards Interaction. The following diagram depicts the hypothesized relation between these independent and dependent variables.



Hypothesis 5. There is a relationship between the extent of preparation for the program and the extent of and attitude towards interaction.

Results for the Prenatal Program show that even though people tended to be prepared, they expressed a negative attitude towards interaction but those who were prepared tended to use the microphone. This can be interpreted to mean a negative relationship between preparation and attitude towards interaction but a positive relationship between preparation and extent of interaction.

Hypothesis 6. There is a relationship between the attitudes of participants towards the delivery system and the extent of and attitude towards interaction.

Results tend to support a positive relationship between these two variables. There were thirty-five Yule's Q values reported, seven were negligible and twenty-six supported a positive relationship. It can be concluded then that positive attitudes towards the delivery system tend to result in positive attitudes towards interaction and in interaction itself.

Hypothesis 7. There is a relationship between the quality of and reaction to the delivery system and the extent of and attitude towards interaction.

This hypothesis was tested for the Juvenile Diabetes program and results support a positive relationship. This is based on a single measure of quality and reaction to the delivery system.

Personal Characteristics and Knowledge Assessment of Respondents

This section of the evaluation questionnaire was different for both programs and is here discussed

separately for each. Observations are made on each item and this is followed by a general summative observation. This aspect of the research project is designed to inform the program planners of the success of their program based on data other than that dealing with aspects of the delivery system and more pertinent to an evaluation of the success of the actual program content.

Prenatal Nutrition Program

Variable: Personal Characteristics of Respondents

Questions 45 to 49 of the evaluation questionnaire dealt with personal characteristics of the respondents. Results showed the following:

No. 45. Which pregnancy is this for you?

Forty-two per cent of the respondents were in their first pregnancy, twenty-one per cent in their second, and twelve per cent had experienced more than two pregnancies.

Of the sixty-seven respondents, twenty-two per cent were not pregnant, this would include husbands and observing health care personnel.

It was anticipated that women in their first pregnancy would be more receptive to the program since others may have heard the information before. The above responses also offer a profile of participants for the programmers.

No. 46. Do you feel that you eat well now?

Eighty-two per cent of the respondents usually ate well. It was anticipated that people who ate well would be interested and responsive to a program concerning nutrition since they had already expressed an interest through their personal habits.

No. 47. Have you had previous exposure to the topic of nutrition?

Eighty-seven per cent of respondents had previous exposure to nutrition through some form of study, twenty-one per cent by course, twenty-seven per cent by lecture, three per cent by workshop, twenty-eight per cent by self-study, and eight per cent by other means.

It was anticipated that previous exposure to nutrition study would predispose the respondent to a desire to learn more about the topic, particularly dealing with nutrition in pregnancy. The other danger might be a redundancy of information, resulting in boredom for the recipient.

No. 48. What is your area of work?

Results showed that twenty-one per cent of respondents were involved in the medical/nursing field, three per cent in food service/nutrition, forty-five per cent housewives, and twenty-eight per cent other. The latter group included housewives with another profession such as teaching, and also husbands.

It was anticipated that participants from the

medical/nursing or nutrition area would score higher on the knowledge assessment and perhaps be more critical of the program quality.

No. 49. What is your present level of education?

Sixty-one per cent of respondents had above high school education, only three per cent below high school, and thirty-three per cent had high school basic.

It was anticipated that those below high school level of education would be less prepared or able to understand the program content.

Variable: Knowledge assessment of participants.

Questions 50 to 60 dealt with test items on program content. Results showed the following:

No. 50. Eighty-five per cent answered correctly, that milk is the best source of calcium.

No. 51. Ninety-nine per cent answered correctly, that pregnant women should drink four cups of milk per day.

No. 52. Ninety-seven per cent answered correctly that cheese may be substituted for milk.

No. 53. Ninety-nine per cent answered correctly, that liver is a meat especially high in iron.

No. 54. A good weight gain during pregnancy provided a

variety of answers. The correct answer, as specified by the program, was "as much as needed (unlimited)" and thirty-three per cent answered this. However, medical advice varies, so it is not surprising that twenty-two per cent answered fifteen to twenty pounds, forty-two per cent answered twenty-five to thirty pounds, and thirty per cent didn't answer.

No. 55. Ninety-nine per cent answered correctly; it does matter what food the mother eats during pregnancy.

No. 56. Fifty-five per cent answered correctly that vitamin supplements are necessary during pregnancy. Forty per cent answered incorrectly thus reflecting medical opinion or lack of knowledge on this matter.

No. 57. Ninety-six per cent answered correctly that it is not just as good to take calcium pills as it is to drink milk.

No. 58. Ninety-six per cent answered correctly that pregnancy is not a good time to lose weight.

No. 59. Eighty-seven per cent answered correctly that smoking during pregnancy may injure the baby.

No. 60. This question required three answers. Forty-three per cent, forty-eight per cent, and eighteen per cent answered each correctly that grains, fruits, and vegetables may relieve constipation.

Summary

Results were very promising as most respondents answered the questions correctly. This was reassuring for the programmers and encouraging for future programs. Questions that showed a variety of incorrect responses are obvious targets for future program improvement. The question of desired weight gain is a definite matter of concern.

There will be no further statistical analysis of this data as most test scores were very high and variation due to personal characteristics was not expressed in test scores.

Juvenile Diabetes Program

Variable: Personal Characteristics of Respondents

No. 45. Results show that:

Fifteen per cent of respondents were juvenile diabetics over age fifteen, ten per cent of respondents were juvenile diabetics age fifteen or under, twenty-five per cent were parents or relatives, forty-six per cent were "other" but didn't specify.

Observations during the program indicated that many health care personnel were present.

These results are valuable for planning future programs as they give a profile of the group makeup and

demonstrate that contacting diabetics requires further research and effort.

No. 46. Ninety per cent of respondents had received previous instruction on diabetes.

Variable: Knowledge assessment of participants.

Results of questions 47 to 60 demonstrate the knowledge ascertained by or previously known by participants.

No. 47. Ninety-six per cent answered correctly that the usual cause of diabetes is failure of the pancreas to make insulin.

No. 48. Eighty-three per cent answered correctly that insulin causes blood sugar to be used by the body cells.

No. 49. Ninety-four per cent answered correctly that a good daily urine testing program is before breakfast and supper.

No. 50. Twenty-nine per cent answered correctly that a diabetic should test for acetone when urine is five per cent. Sixty-five per cent answered incorrectly as when urine is between two per cent and five per cent. This discrepancy could be due to the fact that many diabetics still use the old testing method of (+) and (-).

No. 51. Fifty-six per cent answered correctly that if a diabetic plans unusually heavy exercise for the day he

should take usual insulin and eat more. Thirty-eight per cent felt he should take less insulin and eat more. It may be possible that some diabetics regulate their insulin on a daily basis, but the correct answer is the usual insulin rule.

No. 52. Ninety-two per cent answered correctly that if a diabetic is having an insulin reaction, he should take some form of concentrated sugar.

No. 53. Forty-six per cent answered correctly that exchange lists are designed so that foods in one list can be exchanged for foods in the same list. Forty-four per cent answered incorrectly that foods in one list can be exchanged for foods in another list. This discrepancy may be due to inadequate teaching or poor reading of the question.

No. 54. Ninety-eight per cent answered correctly that if nauseated and ill with the flu, a diabetic should take insulin dose and eat soft foods.

No. 55. Ninety-four per cent answered correctly that a diabetic diet is a well balanced diet that the whole family can use.

No. 56. Ninety-six per cent answered correctly that diabetics are not required to use diet foods.

No. 57. Sixty-seven per cent answered correctly that you

may not exchange one weiner for one half a cup of milk. Seventeen per cent answered incorrectly and seventeen per cent didn't answer. Since the basis of the exchange system was poorly understood in question No. 53, these results are not surprising.

No. 58. Seventy-five per cent answered correctly that diabetics do not need to watch the amount of salt and water they consume. It is possible that because of other complications this may be necessary but frequently this is a misconception.

No. 59. Ninety-four per cent answered correctly that diabetics should not eat only if they feel hungry.

No. 60. Ninety-eight per cent answered correctly that it is necessary to rotate injection sites even if you have good strong muscles.

Summary

Respondents answered most questions correctly. However, results show definite problem areas to be considered for future programs. These deal with urine testing by the per cent method, how to handle heavy exercise, proper use of the exchange lists for diet control and the misconception of salt and water consumption. Since only fifty per cent of the respondents were diabetics and relatives of diabetics, consideration should be given to a more effective method of contacting the target group.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary and Conclusions

The results of the evaluation questionnaire for the Telemedicine Programs dealing with Prenatal Nutrition and Juvenile Diabetes show an overwhelming positive response. Various aspects of the program and delivery system were evaluated and these include:

Independent Variables

1. Preparation for the program
2. Attitudes towards the delivery system
3. Quality of and reaction to the delivery system
4. Personal characteristics and knowledge assessment of participants

Dependent Variables

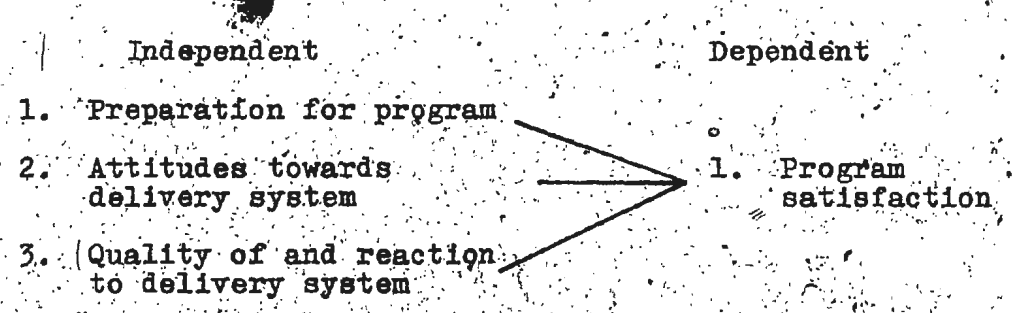
5. Satisfaction of participants with the program and delivery system
6. Extent of and attitude towards interaction

A number of questionnaire items dealt with each of these nominal definitions and were examined in terms of them. Results showed that of the forty-four items dealing with the program and delivery system, thirty-three for the Prenatal

Program and thirty-seven for the Diabetes Program were in the positive direction thus supporting both the program and delivery system.

The items dealing with knowledge assessment also demonstrated a very positive response in that the test scores were quite high. This served as a confirmation that a certain level of knowledge existed but given the limitations of the design, it is not possible to attribute it to the program itself.

Variation in response did occur for eleven items on the Prenatal Nutrition Program and for seven items on the Juvenile Diabetes Program. These items were treated as separate dependent and independent variables and tested for their strength of association by application of the Yule's Q statistic. Observations were made on these relationships and based on these observations hypotheses were tested between the following independent and dependent variables.



A single measure of program satisfaction was used to test the hypotheses for each program as all other questionnaire items dealing with satisfaction were strongly positive. This is a limited testing of the dependent

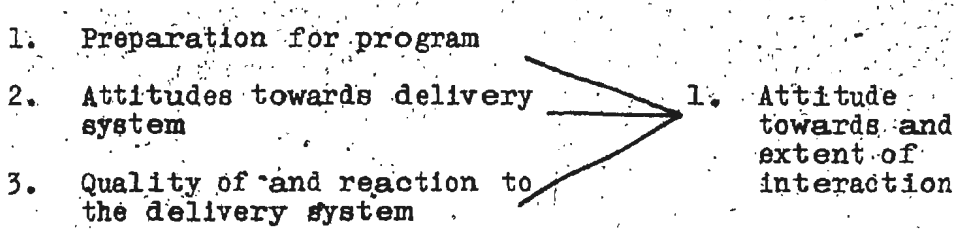
variable 'program satisfaction'. It should be noted that the single measure used dealt with the length of the program. This item was 'too long' for the Prenatal Program and 'too short' for the Diabetes Program. The 'too short' response was considered as a positive measure of satisfaction since it can be interpreted to mean that people felt so satisfied they wished the program was longer. This can be further interpreted to mean that people tended to be more satisfied with the Diabetes Program than with the Prenatal Program.

The results of Yule's Q dealing with these variables provide a weak indication of a positive relationship between program preparation and satisfaction and between quality of and reaction to the delivery system and satisfaction. This weak support comes from the relationship between single variables for one program.

The relationship between attitudes and satisfaction is inconclusive since some aspects of attitude were positive in their relationship with satisfaction and some were negative. It is possible that familiarity, shyness and ease of conversation are aspects of attitude that do not affect satisfaction. Shyness is a personal characteristic in some aspects and not totally dependent on the environment. The extent of the number of familiar people present can be interpreted in a variety of ways depending on how people interpreted the word familiar. Ease of conversation is dependent on personal attitudes as well as accessability to the equipment. The global picture of all these results

continues the trend of a positive response to the program and a positive relationship between designated variables.

A second group of hypotheses were tested based on the following variables.



The results of Yule's Q generally support a positive relationship between these variables. One exception is for the Prenatal Program where people felt prepared but tended to feel a negative attitude towards interaction and at the same time tended to interact.

There was considerable support for the positive relationship between attitudes towards the delivery system and attitudes toward interaction based on the Prenatal Program. Since the Prenatal Program showed far greater variation in response to items dealing with attitude towards interaction, it is possible that this represents a general trend of less positive reaction to the Prenatal Program. The Juvenile Diabetes Program showed less total variation and more uniform positive response.

The variation that did occur was valuable in that it allowed results to be tested and observations to be made on the strengths and direction of relationships. These, in

turn, tended to support the overall positive response indicated by the other questionnaire items.

Recommendations

1. Since thirty-four per cent of all participants responded 'mainly no' to the item 'I knew what to expect during this session', it is recommended that the contact person at each of the four sites be given guidelines for program preparation. This would include a basic outline of the program, the format to be followed, what is expected of the audience, and use of the microphone. Such guidelines would ensure that adequate preparation was given to participants and that it was fairly consistent.

2. Since results of Yule's Q indicate considerable support for a positive relationship between the two sets of attitudes, that is, those towards the delivery system and those towards interaction, it is recommended that principle of interaction be more explicitly explained and that techniques for effective interaction be developed. It was observed that the type and extent of interaction varied considerably, at times the audience was totally non-responsive and at other times the program was audience controlled. Neither situation is desirable, the program presentors should carry the gist of the program but stimulate effective audience participation through

appropriate questions and response. There may be a tendency on the part of the presentors to let the audience handle the program if they so desire but the risk of losing the program content is great if this occurs; if there is not a set program then audience control is desirable.

3. Problems were reported from the sites in their efforts to contact the target audience. It is recommended that considerable lead time be given to the contact people and where possible records be kept of certain target groups such as diabetic persons. This could be implemented through hospital records and through the local branches of the Newfoundland Diabetic Association.

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APPENDIX A

PROGRAM EVALUATION QUESTIONNAIRE

Purpose

Your attitude and reaction to the program and equipment are important in helping us find out how useful you found them to be.

The purpose of this questionnaire is to measure your attitude and reaction to this program and the equipment.

Instructions

For each of the following statements please circle the answer which is closest to the way you feel. Each answer can be either 'mainly no' or 'mainly yes', depending on your feeling. "Mainly no" could mean seldom or never, and "mainly yes" could mean always or usually.

An example

	Mainly no	Mainly yes
I felt bored during the program.	1	2

If you were seldom bored during the program, then you would circle the number 1.

Please try to answer every question even though some may be a bit hard. Remember that in cases where the possible answers do not reflect exactly how you feel, then select the one that is closest to how you feel.

It should take you about fifteen minutes to answer all the questions.

Section A

Do not write in this space.

1. Location of Hospital (1) ____

   1. __ Stephenville
   2. __ St. Anthony
   3. __ Goose Bay
   4. __ Labrador City

2. Questionnaire no. ____ (2-4) ___

Please complete as previously directed.

		Mainly no	Mainly yes	
3.	I knew what to expect during this session.	1	2	(5) ____
4.	I felt comfortable during this session.	1	2	(6) ____
5.	There are many familiar people here.	1	2	(7) ____
6.	I felt too shy to speak in this group.	1	2	(8) ____
7.	I felt satisfied with this program.	1	2	(9) ____
8.	Conversation was easy under these conditions.	1	2	(10) ____
9.	The feeling in the room was warm.	1	2	(11) ____
10.	I felt the program moved along well.	1	2	(12) ____
11.	The information I received was useful.	1	2	(13) ____
12.	The information I received met my needs.	1	2	(14) ____
13.	I was interested in what the speakers said.	1	2	(15) ____
14.	I was interested in what other group members said.	1	2	(16) ____
15.	The speakers used words that were easy to understand.	1	2	(17) ____

		Mainly no	Mainly yes	Do not write in this space.
16.	This program was too simple for me.	1	2	(18) ____
17.	I felt bored during this program.	1	2	(19) ____
18.	The quality of the TV picture was good.	1	2	(20) ____
19.	I could see the TV monitor clearly.	1	2	(21) ____
20.	I could always hear what was being said.	1	2	(22) ____
21.	There were some problems with the equipment during the session.	1	2	(23) ____
22.	This communications system is good for teaching and learning.	1	2	(24) ____
23.	The equipment was distracting to the program.	1	2	(25) ____
24.	There were embarassing silences during this session.	1	2	(26) ____
25.	The material presented would be easier to understand if I was face-to-face with the instructor.	1	2	(27) ____
26.	I had a good idea of how participants at the other sites were reacting to the program.	1	2	(28) ____
27.	I had a feeling of personal contact with the groups in the other sites while using this system.	1	2	(29) ____
28.	The content was presented in a confusing manner.	1	2	(30) ____
29.	It was difficult to talk with people in my own group during this session.	1	2	(31) ____
30.	The people presenting the program appeared comfortable.	1	2	(32) ____
31.	All the discussion in my group was transmitted to the other groups.	1	2	(33) ____

		No	Yes	Do not write in this space.
32.	I would attend another program like this.	1	2	(34) ___
33.	I learned a lot from this program.	1	2	(35) ___
34.	I was reluctant to use the microphones.	1	2	(36) ___
35.	I was given clear instructions about using the microphones.	1	2	(37) ___
36.	I used a microphone during this session. (if no, skip to 38)	1	2	(38) ___
37.	I found the microphone easy to use.	1	2	(39) ___
38.	I already knew a lot of the information.	1	2	(40) ___
39.	I would like to use this type of system again.	1	2	(41) ___
40.	The program was too long.	1	2	(42) ___
41.	The program was too short.	1	2	(43) ___

42. What was the best part of this program? (Check one only) (44-45) __ __

1. __ material presented.
2. __ meeting group members.
3. __ being part of an experiment.
4. __ using the equipment.
5. __ other (please specify)

_____

43. What was the worst part of this program? (Check one only) (46-47) __ __

1. __ material presented.
2. __ meeting group members.
3. __ being part of an experiment.
4. __ using the equipment.
5. __ other (please specify)

_____

44. What change would you make to improve this program? (48-49) __ __

Section B
Prenatal Nutrition

Do not write in this space.

45. Which pregnancy is this for you? (50) ____

___ first
___ second
___ more than two
___ not pregnant

46. Do you feel that you eat well now? (51) ____

___ usually
___ sometimes
___ rarely

47. Have you had previous exposure to the topic of nutrition? (52) ____

___ course
___ lecture
___ workshop
___ self-study
___ other (please specify)

_____

48. What is your area of work? (53) ____

___ medical/nursing
___ food service/nutrition
___ housewife
___ other (please specify)

_____

49. What is your present level of education? (54) ____

___ below high school
___ high school
___ above high school

50. The milk group is the best source of (55) ____

___ iron
___ calcium
___ Vitamin C

51. Pregnant women should drink _____ cups of milk a day? (56) ____

___ 4
___ 1½
___ 2½

52. Which food may be substituted for milk? (57) ____

___ bread
___ liver
___ cheese

Do not write in this space.

53. Which meat is especially high in iron? (58) ____

___ pork chop
___ roast beef
___ liver

54. A good weight gain during pregnancy is? (59) ____

___ 15-20 lbs.
___ 25-30 lbs.
___ as much as needed (unlimited)

Circle 1 for true or 2 for false for each of the following statements.

		True	False	
55.	It doesn't matter what food the mother eats during pregnancy as the baby will take what it needs.	1	2	(60) ____
56.	Vitamin supplements are necessary during pregnancy.	1	2	(61) ____
57.	It is just as good to take calcium pills as it is to drink milk.	1	2	(62) ____
58.	Pregnancy is a good time to lose weight.	1	2	(63) ____
59.	Smoking during pregnancy may injure the baby.	1	2	(64) ____

Fill in the blanks.

60. The following foods may relieve constipation: (65-67) ___

_____

_____

_____

Section B

Juvenile Diabetes

Do not write in this space.

45. I am answering this questionnaire as: (50) ____
___ a juvenile diabetic over age 15
___ a juvenile diabetic, age 15 or under
___ a parent or relation of a juvenile diabetic
___ other (please specify)

46. Have you been instructed on diabetes before? NO YES (51) ____
1 2
If yes, please specify how

---

47. The usual cause of diabetes is: (52) ____

___ eating too much sugar
___ failure of the pancreas to make insulin
___ too many ketones in the urine
___ a deficiency of glucagon

48. Insulin causes blood sugar to (53) ____

___ remain in the blood
___ to be used by the body cells
___ increase in the blood

49. A good urine testing program is a daily routine at regular times such as (54) ____

___ before breakfast and before evening meal
___ before and after breakfast
___ after breakfast and after noon meal
___ at mid afternoon and after evening meal

50. A diabetic should test for acetone when: (55) ____

___ urine is between 2% and 5%
___ urine is under 2%
___ urine is 5%

51. If you are planning unusually heavy exercise for the day you should (56) ____

___ take more insulin and eat less
___ take less insulin and eat more
___ take more insulin and eat as usual
___ take usual insulin dose and eat more

52. If a diabetic is having an insulin reaction, he should (57) ____

___ lie down and rest
___ take some form of concentrated sugar
___ go for a walk
___ take extra insulin

Do not write in this space.

53. Exchange lists are designed so that (58) ___

___ foods in one list can be exchanged for foods in another list
___ foods lists can be easily read
___ foods in one list can be exchanged for foods in the same list
___ foods can be exchanged from one meal to another

54. If nauseated and ill with the flu, you should (59) ___

___ skip insulin dose and eat less
___ skip urine tests
___ take insulin dose and eat soft foods
___ take insulin but do not eat

Circle 1 for True or 2 for False for each of the following statements:

		True	False	
55.	A diabetic diet is a well balanced diet that the whole family can use	1	2	(60) ___
56.	Diabetics must use diet foods	1	2	(61) ___
57.	You may exchange 1 weiner for ½ cup milk	1	2	(62) ___
58.	Diabetics must watch the amount of salt and water they consume	1	2	(63) ___
59.	Diabetics should eat only if they feel hungry.	1	2	(64) ___
60.	It is not necessary to rotate injection sites if you have good strong muscles	1	2	(65) ___

APPENDIX B

OPERATIONAL DEFINITIONS

PROGRAM: PRENATAL NUTRITION

Nominal Definitions

Frequency Distributions

1. Preparation for program and equipment

Var. No.	Item	Mainly No	Mainly Yes
003	I knew what to expect during this session.	33	66
035	I was given clear instructions about using the microphones.	9	91
037	I found the microphone easy to use.	5	18

2. Attitudes of participants towards delivery system.

Var. No.	Item	Mainly No	Mainly Yes
004	I felt comfortable during this session.	8	91
005	There are many familiar people here.	39	61
006	I felt too shy to speak in this group.	69	31
008	Conversation was easy under these conditions	40	58
009	The feeling in the room was warm.	10	90
034	I was reluctant to use the microphones.	33	66

3. Quality of reaction to delivery system

Var. No.	Item	Mainly No	Mainly Yes
018	The quality of the TV picture was good	0	100

Var. No.	Item	Mainly No	Mainly Yes
019	I could see the TV monitor clearly.	0	100
020	I could always hear what was being said.	15	85
021	There were some problems with the equipment during the session.	76	21
022	This communications system is good for teaching and learning.	3	97
023	The equipment was distracting to the program.	94	6
025	The material presented would be easier to understand if I was face-to-face with the instructor.	94	6
039	I would like to use this type of system again.	3	97

4. Satisfaction of participants with program.

Var. No.	Item	Mainly No	Mainly Yes
007	I felt satisfied with this program.	13	87
010	I felt the program moved along well.	10	88
011	The information I received was useful.	5	96
012	The information I received met my needs.	12	85
013	I was interested in what the speakers said.	3	97
015	The speakers used words that were easy to understand.	3	97
016	This program was too simple for me.	88	12
017	I felt bored during this program.	87	13
024	There were embarassing silences during this session.	94	6
028	The content was presented in a confusing manner.	85	15
030	The people presenting the program appeared comfortable.	9	90
032	I would attend another program like this.	2	97

Var. No.	Item	Mainly No	Mainly Yes
033	I learned a lot from this program.	18	79
038	I already knew a lot of the information.	18	81
040	The program was too long.	66	33
041	The program was too short.	91	5

042, 043, 044 - see following page

5. Extent of and attitude towards interaction.

Var. No.	Item	Mainly No	Mainly Yes
014	I was interested in what other group members said.	5	94
026	I had a good idea of how participants at the other sites were reacting to the program.	42	55
027	I had a feeling of personal contact with the groups in the other sites while using this system.	66	34
029	It was difficult to talk with people in my own group during this session.	52	46
031	All the discussion in my group was transmitted to the other groups.	45	52
036	I used a microphone during this session.	55	9

4. Satisfaction of Participants and Program continued

PROGRAM: PRENATAL NUTRITION

VAR 042 What was the best part of this program?

Material presented	78%
Meeting group members	5%
Being part of an experiment	13%
Using the equipment	3%
No answer	1%

VAR 043 What was the worst part of this program?

Material presented	3%
Meeting group members	13%
Being part of an experiment	5%
Using the equipment	25%
Other	24%
No answer	30%

People who responded to other were asked to specify what area they meant. Responses included:

1) tone and volume, malfunction of equipment

2) speakers spoke too quickly

3) sitting so long without a break

VAR 044 What change would improve this program?

No answer	69%
Answered	31%

The changes suggested by respondents included:

1) have operator to make proper adjustments
2) have speakers slow down
3) use only one speaker to avoid repetition
4) shorten program and/or provide a break
5) improve visual aids and add case studies
6) more between and within group interaction
7) more microphones for easy reach
8) one person felt the program was ineffective due to fear of the microphone and a local class would be better.

OPERATIONAL DEFINITIONS

PROGRAM: JUVENILE DIABETES

Nominal Definitions		Frequency Distributions	
1. Preparation for program and equipment			
Var. No.	Item	Mainly No	Mainly Yes
003	I knew what to expect during this session.	35	63
035	I was given clear instructions about using the microphones.	13	88
037	I found the microphone easy to use.	2	29
2. Attitudes of participants towards delivery system			
Var. No.	Item	Mainly No	Mainly Yes
004	I felt comfortable during this session.	0	100
005	There are many familiar people here.	29	69
006	I felt too shy to speak in this group.	66	33
008	Conversation was easy under these conditions.	8	90
009	The feeling in the room was warm.	2	98
034	I was reluctant to use the microphones.	56	40
3. Quality of reaction to delivery system			
Var. No.	Item	Mainly No	Mainly Yes
018	The quality of the TV picture was good.	10	90

Var. No.	Item	Mainly No	Mainly Yes
019	I could see the TV monitor clearly.	2	98
020	I could always hear what was being said.	6	94
021	There were some problems with the equipment during this session	94	6
022	This communications system is good for teaching and learning.	2	96
023	The equipment was distracting to the program.	94	6
025	The material presented would be easier to understand if I was face-to-face with the instructor.	63	35
039	I would like to use this type of system again.	2	96

4. Satisfaction of participants with program.

Var. No.	Item	Mainly No	Mainly Yes
007	I felt satisfied with this program.	0	100
010	I felt the program moved along well.	2	98
011	The information I received was useful.	0	100
012	The information I received met my needs.	8	90
013	I was interested in what the speakers said.	0	100
015	The speakers used words that were easy to understand.	0	100
016	This program was too simple for me.	83	8
017	I felt bored during this program.	96	2
024	There were embarassing silences during this session.	88	13
028	The content was presented in a confusing manner.	96	2
030	The people presenting the program appeared comfortable.	2	98

Var. No.	Item	Mainly No	Mainly Yes
032	I would attend another program like this.	2	96
033	I learned a lot from this program.	19	81
038	I already knew a lot of the information	8	79
040	The program was too long.	94	6
041	The program was too short.	69	27

042, 043, 044 - see following page

5. Extent of and attitude towards interaction.

Var. No.	Item	Mainly No	Mainly Yes
014	I was interested in what other group members said.	0	100
026	I had a good idea of how participants at the other sites were reacting to the program.	10	90
027	I had a feeling of personal contact with the groups in the other sites while using this system.	19	81
029	It was difficult to talk with people in my own group during this session.	79	21
031	All the discussion in my group was transmitted to the other groups.	23	71
036	I used a microphone during this session.	48	27

4. Satisfaction of Participants with Program continued

PROGRAM: JUVENILE DIABETES

VAR 042 What was the best part of this program?

Material presented	63%
Meeting group members	6%
Being part of an experiment	23%
Using the equipment	0
No answer	4%

VAR 043 What was the worst part of this program?

Material presented	0
Meeting group members	0
Being part of an experiment	6%
Using the equipment	38%
No answer	44%
Other	13%

Those who answered other, specified the following:

1) couldn't see the other groups

2) room was too warm

3) program was too short

VAR 044 What change would improve this program?

No answer	67%
Answered	33%

The changes suggested by respondents included:

1) lengthen program and have more
2) have pre-program discussion for preparation
3) better sound
4) improve room comfort, eg. reduce heat and smoke
5) have group leader to deal with questions and overcome shyness
6) reduce delay in responses from groups

APPENDİX C

Results of Cross Tables to Determine if Variables Can be Grouped

Prenatal Nutrition Program

Variable 2: Attitudes of participants towards delivery system.

006

005	No	Yes
No	28	10
Yes	40	21

008

005	No	Yes
No	23	15
Yes	18	44

034

005	No	Yes
No	18	20
Yes	15	47

008

006	No	Yes
No	21	47
Yes	20	12

034

006	No	Yes
No	32	38
Yes	2	29

034

008	No	Yes
No	12	28
Yes	22	39

Variable 5: Extent of and attitude towards interaction.

027

026	No	Yes
No	42	2
Yes	23	34

029

026	No	Yes
No	16	28
Yes	36	20

031

026	No	Yes
No	22	22
Yes	24	32

036

026	No	Yes
No	38	10
Yes	48	8

036

027	No	Yes
No	24	12
Yes	33	2

036

029	No	Yes
No	45	5
Yes	43	7

036

031	No	Yes
No	36	7
Yes	50	7

029

027	No	Yes
No	29	36
Yes	24	11

031

027	No	Yes
No	35	31
Yes	11	23

031

029	No	Yes
No	20	33
Yes	27	20

Juvenile Diabetes Program

Variable 2: Attitudes of participants towards the delivery system.

005	006 No	006 Yes
No	22	8
Yes	46	24

005	034 No	034 Yes
No	11	18
Yes	49	22

006	034 No	034 Yes
No	53	13
Yes	7	27

APPENDIX D

Results of Cross Tables and Yule's Q for the Prenatal Nutrition Program

Sample N = 67

Independent Variable

Preparation for program
VAR 003

Dependent Variable

Extent of and attitude towards interaction
VAR 026, 027, 029, 031 and 036

026

003	No	Yes	
No	11	22	33
Yes	33	34	67
	44	56	100

Q = -.313 N = 64

027

003	No	Yes	
No	21	12	33
Yes	46	21	67
	67	33	100

Q = -.100 N = 66

029

003	No	Yes	
No	20	14	34
Yes	32	34	66
	52	48	100

Q = .204 N = 65

031

003	No	Yes	
No	13	20	33
Yes	34	33	67
	47	53	100

Q = -.260 N = 64

036

003	No	Yes	
No	31	0	31
Yes	55	14	69
	86	14	100

Q = 1.000 N = 42

Independent Variable

Attitude towards delivery system
VAR 005, 006, 008, 034

Dependent Variable

Satisfaction with program
VAR 040

040

005	No	Yes	
No	21	17	38
Yes	45	17	62
	66	34	100

Q = -.364 N = 66

040

006	No	Yes	
No	47	21	68
Yes	20	12	32
	67	33	100

Q = .153 N = 66

040

008	No	Yes	
No	20	20	40
Yes	46	14	60
	66	34	100

Q = -.538 N = 65

040

034	No	Yes	
No	24	8	32
Yes	42	26	68
	66	34	100

Q = .337 N = 65

Independent Variable

Attitude towards delivery system
VAR 005, 006, 008, 034

Dependent Variable

Extent of and attitude towards interaction
VAR 026, 027, 029, 031, 036

026

005	No	Yes	
No	22	18	40
Yes	22	38	60
	44	56	100

Q = .351 N = 65

026

006	No	Yes	
No	22	46	68
Yes	21	11	32
	43	57	100

Q = -.621 N = 65

026

008	No	Yes	
No	27	16	43
Yes	17	40	57
	44	56	100

Q = .601 N = 64

027

005	No	Yes	
No	30	9	39
Yes	36	25	61
	66	34	100

Q = .405 N = 67

027

006	No	Yes	
No	40	28	68
Yes	26	6	32
	66	34	100

Q = -.499 N = 67

027

008	No	Yes	
No	36	5	41
Yes	30	29	59
	66	34	100

Q = .767 N = 66

027

034	No	Yes	
No	23	11	34
Yes	42	24	66
	65	35	100

Q = .101 N = 66

029

005	No	Yes	
No	15	24	39
Yes	38	23	61
	53	47	100

Q = -.455 N = 66

029

008	No	Yes	
No	12	29	41
Yes	42	17	59
	54	46	100

Q = -.707 N = 65

034	No	Yes	
No	20	12	32
Yes	32	36	68
	52	48	100

Q = .281 N = 65

031

005	No	Yes	
No	20	19	39
Yes	26	35	61
	46	54	100

Q = .189 N = 65

031

006	No	Yes	
No	29	39	68
Yes	17	15	32
	46	54	100

Q = -.183 N = 65

036

005	No	Yes	
No	37	5	42
Yes	49	9	58
	86	14	100

Q = .208 N = 43

036

006	No	Yes	
No	56	14	70
Yes	30	0	30
	86	14	100

Q = -1.000 N = 43

036

008	No	Yes	
No	44	5	49
Yes	42	9	51
	86	14	100

Q = .357 N = 43

036

034	No	Yes	
No	22	12	34
Yes	64	2	66
	86	14	100

Q = -.875 N = 42

Results of Cross Tables and Yule's Q for the
Juvenile Diabetes Program
Sample N = 48

Independent Variable
Preparation for program
VAR 003

Dependent Variable
Satisfaction with program
VAR 041

041

003	No	Yes	
No	29	9	38
Yes	44	18	62
	73	27	100

Q = .130 N = 45

Independent Variable

Attitudes towards delivery system
VAR 005, 006 and 034

Dependent Variable

1. Satisfaction with program
   VAR 041
2. Extent of attitude towards interaction
   VAR 031 and 036

041

005	No	Yes	
No	16	13	29
Yes	58	13	71
	74	26	100

Q = -.576 N = 45

036

005	No	Yes	
No	23	6	29
Yes	40	31	71
	63	37	100

Q = -.517 N = 35

041

006	No	Yes	
No	51	13	64
Yes	20	16	36
	71	29	100

Q = .498 N = 45

031

006	No	Yes	
No	14	52	66
Yes	9	25	34
	23	77	100

Q = -.165 N = 44

036

006	No	Yes	
No	46	29	75
Yes	16	9	25
	62	38	100

Q = -.111 N = 35

041

034	No	Yes	
No	50	11	61
Yes	25	14	39
	75	25	100

Q = .412 N = 44

031

034	No	Yes	
No	7	55	62
Yes	18	20	38
	25	75	100

Q = -.753 N = 44

036

034	No	Yes	
No	38	27	65
Yes	29	6	35
	67	33	100

Q = -.552 N = 34

Independent Variable

Quality of and reaction to delivery system
VAR 025

Dependent Variable

1. Satisfaction with program
   VAR 041
2. Extent of and attitude towards interaction
   VAR 031 and 036

041

025	No	Yes	
No	44	22	66
Yes	27	7	34
	71	29	100

Q = -.333 N = 45

031

025	No	Yes	
No	11	52	63
Yes	14	23	37
	25	75	100

Q = -.468 N = 44

036

025	No	Yes	
No	46	26	72
Yes	20	8	28
	66	34	100

Q = -.135 N = 35