1976

Preparation of extension home economists as clothing consultants to physically disabled individuals

Jacquelyn Orlando Yep

Iowa State University

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AS CLOTHING CONSULTANTS TO PHYSICALLY
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Iowa State University, Ph.D., 1976
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1976
Preparation of extension home economists as clothing consultants to physically disabled individuals

by

Jacquelyn Orlando Yep

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of The Requirements for the Degree of DOCTOR OF PHILOSOPHY

Major: Home Economics Education

Approved:

Signature was redacted for privacy.

In Charge of Major Work

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For the Major Department

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For the Graduate College

Iowa State University
Ames, Iowa

1976

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INTRODUCTION

The role of home economics in assisting the handicapped has been emerging as home economists and health-related professionals recognize the contribution home economics can make to the field of rehabilitation. The nature and extent of involvement of home economics is influenced by the expansion which has taken place in the scope of rehabilitation itself.

The current view that the handicapped person in the process of rehabilitation involves the total individual is a change from the traditional concept of rehabilitation. During the first quarter of the century, rehabilitation was characterized by orthopedic surgery, physical therapy, occupational therapy, and vocational rehabilitation. It is now recognized that the needs of the whole person, physical and social, must be met and the task to accomplish these needs goes beyond medical therapy and requires the expertise and the work of a team of professionals (Rusk, 1971). The current concept of rehabilitation, therefore, comprises both a physical and a social component. Physical rehabilitation is directed toward the development or restoration of physical capacities, and the social component, the social restoration of the individual (Yep, 1975).

M. Switzer, Commissioner of Vocational Rehabilitation, U.S. Department of Health, Education, and Welfare, has defined rehabilitation as:

... whatever is necessary to get handicapped people from where they are to where they ought to be in view of their potential (U.S. Department of Health, Education, and Welfare, 1963, p. 11).
Home economics has an inherent contribution to make in enabling disabled persons to function to their capacity in the activities of home and family life.

Home economics, with its focus on the family and the individual, prepares the home economist to maximize the functioning of handicapped persons in the home environment. In addition, the basic training given home economists in all areas of homemaking enables them to offer instruction in the wide variety of homemaking activities needed and desired by handicapped persons (Knoll and Schwab, 1974, p. 42).

Home economics by means of content in the areas of textiles and clothing, food and nutrition, housing, human development and the family, and management can aid in assisting handicapped individuals in both the social and physical areas of rehabilitation. It can increase the independence of handicapped individuals and contribute to improved human relationships.

Within the clothing area, the physical act of dressing and undressing and the adaptive devices which expedite dressing can be considered an integral part of the physical area of rehabilitation. Clothing and personal appearance, which have impact on an individual's self-concept, are components of social rehabilitation. The social area can include both the feeling of independence in dressing and the feeling of self-confidence by using clothing to enhance personal appearance. Clothing that is both functional and attractive can assist in the total rehabilitation process.

Meeting the special clothing needs of physically disabled individuals has been a challenge over the years for family members and professionals working with the physically disabled.
Problems posed by the lack of convenient and comfortable clothing are frequently passed over as less important than other rehabilitation problems, or special clothing is seen only as an assistive device to be provided by a clothing technician. Today the thrust of rehabilitation is to minimize the handicap and emphasize the likeness to the non-handicapped person. Surely, special clothing designed to minimize a physical disability, to increase comfort and self-assurance should be recognized as a vital ally in the rehabilitation process (Banister & Behrens, 1966, p. iii).

Recent legislation including the 1973 rehabilitation amendments and the 1974 social services amendments has placed an increased emphasis on the rehabilitation of the severely disabled. This group will become the first priority of programs in federally funded rehabilitation centers and agencies. For many, the need for training in self-care including dressing, grooming, toileting, laundry, and personal food preparation takes precedence over vocational training considerations (Schwab & Fadul, 1975).

The Institute of Physical Medicine and Rehabilitation in New York City has been one of the centers most concerned with the clothing problems of physically disabled individuals. The concern came from observations of needs among patients at the Institute, numerous letters received on the subject, and from the Institute's work on self-help devices for the disabled (Rusk, 1961). A study which was conducted by Cookman and Zimmerman (1961) at the New York Institute found approximately one-half of the patients interviewed still had clothing related problems upon discharge from the rehabilitation facility. Local health-related professionals, such as vocational rehabilitation counselors and public health nurses, do not have the expertise or
competencies in the clothing area to assist these people once they return to their communities.

The lack of local expertise to aid physically disabled in their communities with clothing related problems is a reality not in New York alone, but in all parts of the country including Iowa. Insight in terms of how extension home economists could provide clothing services in their communities had been gained through personal contact and inquiries from physically disabled individuals. Such requests led to a series of meetings with disabled persons and professionals working with the disabled for the purpose of sharing research and applied information. As an outgrowth of the meetings, the information on clothing for the physically disabled from research and experiences was compiled into an extension publication in 1973 and was reprinted and revised in 1974 (Yep, 1974). The publication was able to bring clothing information to the physically disabled in Iowa and provide assistance with their general clothing needs. Requests on specific help, however, continued to come to the attention of the state clothing extension specialist. Because of the number of individual consultations requested, it became apparent that additional resource individuals were needed to provide this type of service.

Because of the apparent need, consideration was given to involving the county extension home economists who had strength and background in the clothing area as the channel for working with the disabled on individual and small group bases. The literature contains reports of the work of therapists, teachers, and parents who have found that individual contact seems to be a successful method of reaching
disabled persons. Research on designing garments to help specific individuals and the work of rehabilitation centers also make it apparent that individualized help has been effective. A study by Johnson (1972) on children with upper extremity disabilities investigated the clothing problems and evaluated garments that were designed to solve problems of a selected number of individuals from the original sample. The success of the individual contact during the designing process resulted in the recommendation that a specialist in clothing be available for consultation for physically disabled individuals in the community.

The county extension home economist appeared, therefore, to be a logical person to involve. Her educational background included a basic foundation of textiles and clothing subject matter. Her location would allow easier access for disabled people with clothing problems and she would be more able to make home visits where necessary than an extension specialist at a central state location.

Having adequate textiles and clothing subject matter background and being ideally located reinforced the practicality of involving the extension home economist; however, she was not totally equipped to begin the job. The home economist in her professional background usually would not have the knowledge of diseases or injuries and the disabling conditions that could affect clothing choices. Information in the literature concerning clothing for the physically disabled is of a specific nature and is usually not covered as a part of most undergraduate courses in textiles and clothing. The need arose,
therefore, for in-service education for the home economists in order to prepare them to function in this new role effectively.

Preparing the home economists to serve as clothing consultants to the physically disabled could lead to their working with the disabled in other home economics areas as well as clothing. If the health related information can be presented effectively in a format of activities of daily living as related to clothing, it may well be possible to make use of the same format for other aspects of daily living involving home economics content in future in-service experiences.

Objectives of the Study

With the goal of assisting physically disabled persons with their clothing problems, the present study was developed to carry out the following objectives. The major one was to explore the effectiveness of an in-service education program for extension home economists which would enable them to function as consultants to physically disabled individuals with clothing problems. Two objectives subordinate to the major one were to evaluate the use of the consulting services of the extension home economists by physically disabled individuals and to evaluate the strengths and weaknesses of the in-service program as perceived by the extension home economists. A secondary objective was to make recommendations for preparing and providing in-service programs for extension home economists serving as clothing consultants for the disabled.
Limitations of the Study

The limitations of the study were related to the number of home economists available to participate and the scope of coverage due to the time available for the in-service education series. The study was limited to participation of 17 extension home economists in Iowa and the involvement of 32 of the 99 counties in Iowa for which they had responsibility. The extension home economists participating in the study took on the responsibilities involved as a part of their regular work with no released time. The time allocated for the in-service education program was limited to two days.

Definition of Terms

Relevant terminology used in rehabilitation does not always carry the same connotation from one context to another. Specific definitions for several items, therefore, have been accepted for the present study.

Disease or injury: The medical condition which exists because of a physiological or anatomical loss or abnormality (Nagi, 1969).

Disability or disabling condition: Impairment (disease or injury) which imposes limitations upon the individual's capacities and levels of functioning (Nagi, 1969, p. 12).

Handicap: The social and physical consequences of a disability (Suchman, 1965).
In the development of the research problem and conducting the study, background information obtained from the literature dealt with two different dimensions. The first concerned clarifying the role of home economics in rehabilitation; the second, problems that the disabled have with clothing and the work that has been done toward the solution of these problems.

Involvement of home economists in working with physically disabled individuals over the years has aided in clarifying the role for home economics in rehabilitation. A historical perspective of the developments traces the progress that has been made and the emphasis given. The source of this background information was reports from people who have been involved in the movement. The trends which have implication for extension home economists working with the physically disabled are cited in this review.

A second facet of the literature dealt with the specific area of clothing for the physically disabled, which by nature was of two components. The first dealt with the progress made in identifying and meeting clothing needs of the physically disabled. The second concerned characteristics of clothing for the physically disabled and approaches taken to solve clothing problems.

The efforts made toward finding solutions to clothing problems of the disabled were traced from the early work in the area to present day. The review revealed sources of specific information on clothing needs of those with atypical figure problems and body movements.
Studies concerned with identifying characteristics of clothing, that were located in the literature, were limited in scope. Most investigations of this nature dealt with a small non-randomized sample and only a small number have been reported in comparison to the wide variations of disabling conditions and age range of the disabled. Studies reported in this review illustrate only a sampling of clothing characteristics. These are cited to illustrate the similarity of findings obtained among investigations.

All of the studies in the area of clothing for the physically disabled had the underlying concern of identifying characteristics of clothing that would meet special needs. Having this concern as a basis there appeared to be three approaches undertaken for solutions to meeting the clothing needs. One was the designing of special garments incorporating the clothing characteristics that had been identified earlier in the respective studies. The second involved making suggestions for adapting or altering ready-made garments. The third concerned assisting individuals with their clothing needs on a personalized basis. Selected studies will illustrate these three approaches assisting the physically disabled with clothing problems.

The Role of Home Economics in Rehabilitation

The earliest contribution of home economics in working with physically disabled individuals was related to helping the disabled homemaker conserve energy and time in her activities. This assistance was facilitated by the contribution of L. Gilbreth in work simplification
as early as 1914 (May, Waggoner, & Hotte, 1974). (Original source was unavailable.) Gilbreath applied a scientific approach to the study of ways in which work methods could save time and energy. Information from the work simplification studies of homemaking tasks in general was applied to the disabled homemaker. The application for the disabled became a special concern of Gilbreth's work.

The role of the homemaker in rehabilitation, however, did not become a recognized effort until 1954, when the United States Vocational Rehabilitation Administration (now the United States Vocational Rehabilitation Services) first recognized the homemaker as a rightful recipient of vocational rehabilitation services. This recognition had direct application for the involvement of home economics in rehabilitation (May, et al., 1974).

Professional organizations involving home economists were then encouraged to become actively involved in rehabilitation, either through representation on or sponsoring of workshops and committees. In 1955, AHEA was officially represented at a workshop on the "Team Approach to the Rehabilitation of Handicapped Homemakers" which was held at the School of Home Economics, University of Connecticut. In June of the same year, the home economists who attended the workshop reported on their experience at an AHEA Health and Welfare Section workshop on "Job Evaluation of the Home Economist Employed in Health and Welfare Agencies." An outcome of these workshops was discussion of the future opportunities and responsibilities of home economics in rehabilitation. A committee on rehabilitation was formed jointly between the Health and Welfare Section of AHEA and the American
Dietetic Association in 1956. The committee sponsored a workshop preceding the AHEA annual meeting on "Expanding the Services of the Home Economist in Rehabilitation." Representation of the American Home Economics Association existed also at the International Conference on Homemaker Rehabilitation in Stockholm in 1961 and on the President's Committee on Employment of the Physically Handicapped (Bricker, 1963).

In 1963, a national workshop on "Rehabilitation of the Physically Handicapped in Homemaking Activities" was held through sponsorship of the Vocational Rehabilitation Administration and American Home Economics Association. The purpose of the workshop was to bring together knowledgeable people from the field of home economics and from the medical and medically-related fields to advise the Vocational Rehabilitation Administration on the training activities for handicapped homemakers. Advice was sought on the planning and programming of these activities in order that handicapped homemakers could be better equipped to deal with difficulties encountered in carrying out homemaking responsibilities (Bricker, 1963). Home economics was beginning to be seen by health-related professionals as an important resource in rehabilitation. The question as to the role of home economists being employed in the field of rehabilitation, however, was not clearly defined.

At the national workshop, a study, which was reported by Stattel who was a consultant on rehabilitation centers with the National Society for Crippled Children and Adults in New York, investigated homemaking activity training in hospitals and rehabilitation centers (Stattel, 1963). She surveyed, through questionnaires, a selected list of people responsible for homemaking activity training.
Thirty-two reports were received; 15 of these were from hospital programs and 17 from rehabilitation center programs. In the 15 hospital programs, three of the directors of the homemaking activities were home economists; eight of the positions were filled by occupational therapists; and other directors included rehabilitation counselors, a dietitian, and a director of patient services. In addition to the director, other professional people working in these 15 programs included three home economists, seven dietitians, and two nutritionists. In the 17 rehabilitation centers, the homemaking activities were reported to have been directed by 16 occupational therapists and a nurse. Other professionals working in the programs included one home economist, four dietitians, and two nutritionists. The occupational therapist had the responsibility for the homemaking activity training in 24 of the 32 institutions reporting. Three home economists were involved in the directing of the programs and an additional three were working in the programs.

Another kind of contribution made by home economists in rehabilitation was working in a community setting to supplement the work of hospitals and rehabilitation centers. One such program was designed to enable the physically limited person to see and try out ideas for homemaker rehabilitation (Schwab, 1968). The School of Home Economics at the University of Nebraska took information directly to handicapped homemakers in a mobile, self-contained unit bearing the title "Homemaking Unlimited." The mobile unit was financed in part through a grant from the Nebraska Heart Association to the School of Home Economics. Ten bulletins on various phases of homemaking which were
on display were written for use in the project. The mobile unit was available to travel throughout the state. At the county level advisory committees were formed composed of Extension Service staff and representatives from the medical profession, health-related agencies, and civic groups. The advisory committees worked with the state staff to develop plans to use the mobile unit effectively in each community. This project was received with enthusiasm throughout the state, and plans were made to expand the program by revising and enlarging the coach and hiring a home economist to travel with the mobile unit.

The Minnesota Extension Service was involved in another kind of a community setting program effort for the limited homemaker (Melrose, 1969). The program developed through a grant that the Minnesota Department of Health received from the U.S. Public Health Service for the study and control of heart disease. Part of the grant was earmarked for a program of homemaker rehabilitation. The Minnesota Extension Service became involved in the program when the Minnesota Department of Health decided that a home economist could be the one to plan a program to assist limited homemakers in regaining some of their homemaking skills, self-confidence, and family role. Supplemental funds were obtained from the Minnesota Arthritis Foundation, the Minnesota Heart Association, and the Multiple Sclerosis Society and therefore the service was not limited to those homemakers suffering from the effects of heart disease. The objectives of the statewide Homemakers Limited program were: 1) to assist homemakers, both men and women, who are physically disabled and desire help in continuing homemaking activities; 2) to cooperate with others working
in the field of rehabilitation; 3) to share research and other knowledge which may help all those working in the field of rehabilitation and homemaking activities; and 4) to cooperate with individuals in professions other than rehabilitation with a knowledge that could contribute to homemaker rehabilitation.

Two programs were developed as an outgrowth of this project that served the disabled homemakers in Minnesota, one in five counties and the other serving the remaining 82 counties in the state. In the five-county area one home economist was employed to work with individuals with disabilities in helping them to find new ways to use their abilities and live within their limitations in homemaking activities. In addition to this individual consultation, the home economist conducted classes for homemakers in the outlying areas. The second program in the 82-county area consisted of classes organized by the extension home economists employed in these counties to assist handicapped homemakers with solving homemaking problems. The instruction was provided by the home economist working with individuals in the five-county program. Because of time and personnel limitations, some parts of the state were unable to be served.

As the role of home economics in rehabilitation was emerging, cooperative ventures in rehabilitation were becoming better established. Health-related professionals were recognizing the contribution of home economics in the field of rehabilitation. Bryce, an occupational therapist, saw professionals in her field turning to home economics for help in homemaking skills. She cited four ways in which the team approach could work (Bryce, 1969). The first was given as the
An occupational therapist who would obtain additional training in home economics in order to specialize in the treatment of the handicapped homemaker. The second possibility was to use the services of a home economist as a regular member of the rehabilitation team. The third possibility she saw was the home economist could be a part-time employee or volunteer on the team. The consultant services available through the university extension service were cited as an example of this approach. The fourth suggestion for home economics to play a part in rehabilitation was through research.

Another example of home economists in a team approach to rehabilitation was reported in a program at the University of Maryland. An interdisciplinary institute was held in Maryland in August, 1968, under the leadership of A. J. Bricker to assist teachers of the blind in homemaking areas. Courses were taught in food preparation, meal planning, food buying and storage, home management, and clothing and textiles including grooming. Home economists teamed up with a blind rehabilitation teacher to conduct the course (Kaarlela, 1969).

The team approach to rehabilitation of handicapped homemakers was also occurring in a hospital setting as reported by Lyman (1963). A team of professionals was organized to work with handicapped homemakers at the Newport City Hospital. The team included a rehabilitation counselor, a physician, the head of the social services department of the hospital, a physical therapist, the supervisor of nurses at the hospital, the director of the district nurse association, a psychiatric social worker, and Lyman, the extension home management specialist. Referrals for patients were made to the team by the social service
department of the hospital and by doctors. Cases were reviewed by
the team in a roundtable discussion and suggestions for therapy or
training were made. At times the patient was present. At the
recommendation of the team, one member or another was called upon to
participate in the rehabilitation of the individual. The individual
team member assistance was given outside of the regular team conference.
During the first year of this team project about 100 patients were
reported to be assisted individually.

In 1969, a second national interdisciplinary workshop was made
possible by a grant from the Rehabilitative Services Administration
(formerly the Vocational Rehabilitation Administration). Like the
first workshop held in 1963, the purpose was to strengthen and give
impetus to teaching, research, and service programs in which home
economists study or serve the disabled as reported in "Future Directions
for Home Economics in Rehabilitation" (1969).

At the 1969 workshop, the progress of home economics in rehabilita-
tion since the 1963 workshop was reported (May, 1969). More employ-
ment opportunities for home economists in rehabilitation were cited
as coming into existence. Some State Division of Vocational Rehabilita-
tion Offices were employing specialists to help handicapped homemakers
return to their jobs in the home. Home economists held positions as
consultants in some rehabilitation centers and in teaching homemaking
skills to disabled children. Home economists were reported to have
been involved in leadership training of other professional workers who
are a part of established programs and already have contact with
disabled individuals. Homemaker-home health aides and public health
nurses were examples of such groups. Extension workers were developing ways of bringing information to disabled homemakers in their homes and communities. A graduate trainee program was established by the American Home Economics Association to encourage and assist advanced study in home economics rehabilitation.

Since the 1969 workshop, efforts of home economics in rehabilitation have continued but have been on a less unified basis. Federal legislation may now bring about a more unified effort as more emphasis is placed on rehabilitation by home economists interested in maintaining a role for home economics in rehabilitation. The 1973 rehabilitation amendments directed state rehabilitation agencies to give priority to serving "those individuals with the most severe handicaps" (U.S. Department of Health, Education, and Welfare, 1975, p. 3). An effort to help individuals, therefore, attain as much independence as is possible in daily living skills will need to precede employment preparation for many of the severely handicapped. Another influencing factor was the 1974 social services amendments which provided that the social services fund be directed toward the goals of achieving or maintaining economic self-support to prevent, reduce, or eliminate dependency; and achieving or maintaining self-sufficiency, including reduction or prevention of dependency (U.S. Department of Health, Education, and Welfare, 1975). Finally, in regard to legislation, the 1974 education amendments require the states to establish a goal of providing full educational opportunities for all handicapped children. The bill mandates that handicapped children be integrated into regular classes whenever possible (U.S. Department of Health, Education, and Welfare,
1975). The latter means that an increasing number of home economics teachers are becoming involved in working with disabled students.

Before the impact of these amendments could be seen, but after they were in effect, Knoll conducted a survey to determine to what extent and in what areas home economists were employed in some type of rehabilitation programs (Knoll, 1972). Of the 255 rehabilitation administrators surveyed across the United States, 188 reported the need for a home economist to work with the physically disabled. The administrators stated they would consider employing a home economist who was appropriately prepared. Sixty-seven percent of the respondents indicated a home economist needed further academic course work to prepare her for a job in rehabilitation.

Knoll also surveyed 149 persons teaching homemaking skills in rehabilitation centers. Of this number, 66 were home economists and 83 had their academic preparation in other disciplines. When questioned as to their job classification, 71 of the 149 persons reported their job classification was that of therapist; 41 were classified as vocational teacher.

The survey also analyzed the homemaking related topics taught by home economists and by non-home economists. Both groups of instructors were found to be teaching much the same topics.

With more home economists becoming involved in rehabilitation and working with the disabled, the need existed to find out what preparation home economists were receiving for this role. A study was conducted in 1973 (Schwab & Fadul, 1975) to find out what rehabilitation subject matter was being taught to students in home economics units.
in higher education. Questionnaires were sent to 205 home economics units graduating more than 20 students in 1971. A total of 114 were returned and used in the data analysis. Eight of the institutions reported they offered an undergraduate major in some phase of rehabilitation. Another 75 institutions reported they taught many related subject matter concepts, but did not offer rehabilitation as a major area of study. Only 31 of the 114 respondents indicated that no change had been made in their classwork to accommodate the new emphasis on the disabled.

Schwab concluded from the study that there was still a great need for development of adequate educational programs for this expanding area of home economics. As was reported, the work has begun in a number of institutions of higher education. There were, however, no studies found in the literature on any in-service education programs on rehabilitation for home economists whose job responsibilities may now be broadening to include working with the physically disabled.

Clothing for the Physically Disabled

Because the present study was concerned with home economists working in the area of clothing for the physically disabled, insight as to the developments in meeting clothing needs of this particular group was of major importance. Research findings in the area contributed subject matter information which was incorporated into the instructional series developed as part of the study.

Two components concerning clothing for the physically disabled are reported in this section. More specifically, the areas are:
a) Progress made in identifying and meeting clothing needs of the physically disabled, and

b) characteristics of clothing for the physically disabled.

**Progress made in identifying and meeting clothing needs**

The earlier information about clothing for the disabled was developed and communicated informally from individual to individual. Parents of disabled children through trial and error found ways to facilitate the dressing process. Therapists and special education teachers also developed methods that aided disabled children in dressing themselves or made it easier on adults who were assisting the children in dressing. Information was shared by word of mouth for many years and progress in communication was slow (Wagner, 1963).

Later other means of communicating ideas developed. A system for sharing information on self-help, including dressing, was started at Riley Hospital in Indianapolis in the late 1930's. Ideas, drawings, and instructions were collected and the materials were on loan from the American Occupational Therapy Association. The Cerebral Palsy Round Robin, as it was known, was circulated among the existing cerebral palsy programs (Wagner, 1963).

One of the first articles that dealt mainly with clothing for the disabled was published in 1951 by an occupational therapist. Earlier, clothing related aids and suggestions had been included among self-help ideas, but not as a major emphasis. The article reported suggestions on clothing for the cerebral palsied child (Brown, 1951). A group of therapists in the New York City area rehabilitation centers
reported their experiences in a 1954 article on dressing. They had gathered information, developed new ideas, and refined and improved their teaching techniques on dressing methods as cited in "Dressing Techniques for the Cerebral Palsied Child" (1954).

Interest and progress in clothing for the disabled expanded in the 1950's. Self-help devices were assembled and developed by the Institute of Physical Medicine and Rehabilitation in New York. The devices included items to aid in dressing and undressing. An exhibit of clothing for disabled children was presented at the annual meeting of the American Physical Therapy Association. Twenty-five garments illustrating self-help features were included in the exhibit (Brown, 1966).

The problems of physically handicapped mothers in caring for their children were studied at the University of Connecticut. In an effort to provide assistance in meeting needs, 100 physically disabled mothers were asked to indicate difficult tasks in caring for their children. Many of them listed problems concerned with clothing. The clothing suggestions developed as a result of the investigation were published in a pamphlet form (Boettke, ca. 1962).

From 1953 to 1961 a special clothing research project was undertaken by the Institute of Physical Medicine and Rehabilitation in New York. Data were collected at the Institute by four methods: an analysis of dressing problems of 51 randomly selected patients at the Institute; an analysis of devices provided to solve dressing problems of patients at the Institute from 1953 to 1958; an analysis of letters received from 1954 to 1961 regarding clothing problems; and observation
of patients during dressing activities and discussion of problems with
parents, therapists, and nurses. Findings indicated approximately
one-half of the total number of patients in the random sample indicated
they still had clothing problems after discharge from the center. An
analysis of the problems these patients were having with dressing
showed that 50% of the problems concerned all types of clothing, 25%
were with shoes, 12% trousers, 5% shirts, 4% brassieres, and 4% corsets.
The analysis of the self-help devices found one-twentieth of all the
devices provided at the Institute were for dressing. Of these, 44%
were for fastening, 30% for all dressing problems, 20% for shoes and
socks, and 6% were classified for wear and tear. As a result of the
study, Cookman, a clothing designer, worked with Zimmerman, Lawton,
Judson, and others at the Institute in designing garments to meet
some of the needs identified in the study. A booklet on the research
activities and garments was published (Cookman & Zimmerman, 1961).

The Clothing Research and Development Foundation was established
in 1960 to carry on the work begun by the Institute of Physical
Medicine and Rehabilitation. The purpose of the Foundation was

... to research, design, develop, and promote
clothing that will make it possible for the
physically handicapped to dress themselves
without aid -- or with minimum aid -- and that
will make it easier to dress those who are
dependent on others (Wagner, 1963, p. 62).

During the late 1950's the Agricultural Research Service of the
United States Department of Agriculture initiated a study

... for the purpose of developing functional
clothing to meet the everyday needs of home-
makers who have ambulatory handicaps to gain
a better understanding of the problems and needs of physically handicapped women (Scott, 1959, p. 709).

In the first phase of the study, 70 handicapped homemakers were interviewed to identify their problems. The second phase was to develop clothing to meet the needs of the homemakers. The clothing suggestions developed from the study were published in a USDA bulletin (Scott, 1961).

A study concerning clothing for physically handicapped children was conducted jointly by the National Society for Crippled Children and Adults and the School of Home Economics at the University of Connecticut in 1962. The research was financed by a grant from Zeta Tau Alpha Fraternity. A questionnaire on problems and suggestions concerning clothes for handicapped children between the ages of 3 to 16 years was distributed to parents of handicapped children by staff members of rehabilitation centers, clinics, and health and welfare agencies. Clothing suggestions were summarized and others were developed based on the recommendations from the data. The suggestions were compiled in a pamphlet designed to serve as a guide for parents and professional personnel in the selection and adaptation of clothing for handicapped children (Bare, Boettke, & Waggoner, 1962).

Clothing problems of the disabled in the United Kingdom were investigated by the Disabled Living Foundation of London, England, in a one-year study. Data were collected through visits to hospitals, schools, and to home bound individuals. Clothing problems and solutions were identified by the disabled and by individuals working with the disabled. Using the clothing needs that were identified from the study as a guide, a series of publications was developed by the
Disabled Living Foundation. The series included clothing for the handicapped child, clothing for handicapped adults, clothing fasteners, and special foot problems of the handicapped. Information sheets were also developed on specialized physical problem areas including incontinence and stiff hips (Gamwell & Joyce, 1966).

A national seminar on functionally designed clothing and aids for the chronically ill and disabled was sponsored by the Vocational Guidance and Rehabilitation Services in Cleveland in 1966. The purpose of the seminar was to encourage an exchange of existing information and the development of new ideas. The objectives were:

... to assess the problems and unmet human needs in the area of clothing for the handicapped and chronically disabled; to assess the personnel and technical resources required to meet these problems and fulfill these human needs; and to determine the current gaps between the needs and resources, and to make recommendations in the areas of training, production, services, and research which could move toward closing these gaps (Banister & Behrens, 1966, p. 1).

In the assessment of needs, it was recognized that the problems of design and production were as numerous as the individual needs. Gaps between the needs and resources included the lack of adequate professional and technical training, research, new developments in design and production, information concerning the psychological and social impact of special clothing on the handicapped person, and promotion of available clothing designed for the handicapped.

Recommendations made included the establishment of a central information center for materials on special clothing, the development of training courses to educate health professionals in special clothing,
government subsidy of clothing centers, and the promotion of special clothing information.

**Characteristics of clothing for the physically disabled**

All of the reported studies in the area of clothing for the physically disabled had as their underlying concern identifying clothing needs and how they influenced characteristics of clothing. Findings from these studies indicated similarity of characteristics. After an initial investigation some application was made from the findings. The work that had been done in this second phase of these studies could be divided into three different approaches used to assist the physically disabled with their special clothing needs. Early information on characteristics of clothing led to the designing of clothing styles to meet these special needs and later to the marketing of garments and patterns incorporating many of the desired characteristics. The second approach used concerned the selection, adapting, and altering of clothing from the present wardrobe or from ready-to-wear clothing. The third approach that was found in the literature was the designing of garments for specific individuals. Studies were selected from the literature to be cited here which illustrate these approaches and contribute to the knowledge base for the development of the instructional series in the present investigation.

Leadership in designing garments to meet special clothing needs was provided by Scott at the Institute of Home Economics, Agricultural Research Service of the U.S. Department of Agriculture (Scott, 1961). She identified seven qualities of clothing which need to be considered
when designing garments for the physically handicapped woman:

Comfortable clothes, compatible with handicapped homemakers' ways of moving about and working, it was found, can help them to work more efficiently and easily.

Convenient clothes, easy to put on and take off, easy to fasten and unfasten, can make the difference between self-reliance and dependence on others in housework and self-care.

Safety in clothing is of utmost importance to those who do not react quickly, or who lack agility or tend to lose their balance.

Protection of clothing from soil and spills that are inevitable when arms and hands are unsteady, is high among the needs of handicapped homemakers.

Serviceability in both materials and workmanship is needed for the handicapped are unavoidably hard on clothes.

Fabrics with functional qualities can supplement garment designs in helping the handicapped to obtain increased efficiency, comfort, and pleasure.

Becoming, attractive clothes provide a lift for the handicapped (Scott, 1961, pp. 2-3).

Taking these factors into consideration, Scott made certain suggestions for designing and constructing garments for the physically disabled homemaker. They included: allow for easy fit in the waist, abdomen, and hips for comfort while sitting; include above-elbow sleeves for freedom of movement; provide front openings for ease in dressing and undressing; have closures suitable to the manual dexterity of the individual; and include roomy pockets placed for ease of access. Fabric suggestions included the use of cotton fabrics that are soft and absorbent, fabric finishes that are soil- and wrinkle-resistant,
printed fabrics that will not readily show soil and wrinkles, and
becoming and attractive colors in fabric choices.

Several special design features were developed as a result of
the study and were illustrated in sample garments. An underarm
extension of the bodice into the sleeves to provide for freedom for
reaching was featured in a shirtwaist dress and a blouse. Another
method used to provide more ease in the underarm area for reaching
was the addition of a narrow wedge of fabric in the underarm seamline.
This would provide extra fabric while reaching which would tuck into
the seam when the arm is lowered. Back pleats were used in blouses
to give added ease in movement. Three-quarter length sleeves with
surplice cuffs made to respond to elbow bends and changes in the
lower arm muscles were designed in a bolero jacket.

For convenience in carrying out homemaking activities, several
features were incorporated into aprons. They were made with towels
attached with buttons or pressure tape for quick drying of hands.
Bib portions of the apron were supported by plastic stays or nylon
boning. Pocket placement was made detachable so that contents would
not spill when the wearer sat. A waterproof lap apron was designed
creating a work surface on the wearer's lap. A wheel chair apron was
made with deep pockets at the sides to aid in handling and transport-
ing items. Pockets were designed for wheel chair arms also to carry
household and personal supplies in an easily accessible location.

While Scott, at the Agricultural Research Service, was involved
in designing clothing to meet the needs of the handicapped homemaker,
research and experimentation were occurring also at the Institute of
Physical Medicine and Rehabilitation in New York City (Cookman & Zimmerman, 1961). A foundation for clothing research and development was organized to expand the clothing research conducted at the Institute.

Cookman, a designer, was working on solutions for the same problems that were of concern to Scott. Many similarities are evident in the resulting designs. Whereas Scott designed back fullness in blouses by pleats, Cookman used pleats, gathers, or a yoke-back design for creating ease in movement. The problem of ease of arm movement was also worked on by Cookman; her solutions were to cut the sleeve high in the underarm or make gussets in the garment. The use of gussets is similar to Scott's inset of a fabric wedge, both creating more fabric to lessen the restriction of set-in sleeves. The use of pressure tape for easier to manage fasteners was suggested by both Scott and Cookman.

Other functional clothing designs developed by Cookman included a patent design for pants with full-length side seam zippers on both legs for ease in dressing over braces. Double cam lock two-way slider zippers enable the pants to be opened all the way from the bottom up or all the way from the top down, or half of the distance each way. Pants were also designed with a half-belt which would hold them in place while the back half could be dropped for toileting.

Cookman had other suggestions which could enhance the appearance of the wearer. A slight flare in the back of a skirt was used to give a more graceful appearance for the woman walking with crutches. Long skirts were suggested for attractive appearance when sitting in a wheel chair and to conceal braces.
Another study which investigated clothing characteristics leading
to specially designed clothing was concerned with daytime dress
preferences of teenage girls and young adults (Dallas, 1965). A
comparison in preferences was made between girls with cerebral palsy
and nonhandicapped girls of the same general age. Interviews with 48
girls, half of whom had cerebral palsy, indicated that the garments
worn and preferred by handicapped girls were similar in many ways to
those worn by nonhandicapped girls. Similarities in choice indicated
the shirtwaist style, one-piece dresses with round necklines, buttoned
closures, set-in belts, and action pleats in the bodice back. Differ­
ences found were in the silhouette and closures chosen. The bell-
shaped silhouette with more room for ease of movement was favored by
the cerebral palsied girls over the tubular choice of the nonhandicapped
girls. Center back closures fastened with zippers were selected by the
nonhandicapped girls, whereas the cerebral palsied girls preferred the
center front from neck to the hem closures that fastened with zippers.

Dallas designed dresses taking into account the findings of her
study in an attempt to incorporate aesthetic and functional qualities.
Designs incorporated styles that were fashionable with modifications
in design for ease in movement and dressing. The similarities in
clothing characteristics reported in the studies by Scott, Cookman
and Zimmerman, and Dallas would indicate that garments could be
designed with features that would suit individuals with different
disabling conditions. This was found to be true in an investigation
of clothing style preferences in dresses for physically handicapped
elderly women conducted by Schuster (1973). Professional staff members
and patients in selected nursing homes in Kansas were interviewed in an attempt to collect data for recommended clothing styles for physically handicapped elderly women. Schuster expected that each type of physical handicap would require a different set of preferred style features; however, this was not the case. The findings indicated that the same dress designs satisfied women having many types of physical handicaps. The preferred style features reported were one-piece shirt dresses, jewel necklines, convertible collars, above-elbow sleeves, raglan sleeves, straight-hem sleeve finishes, A-line skirts, zipper fasteners, center front closures from neck to hem, action pleats in back bodice, fabrics made of fiber blends, knit fabrics, floral designs, and red or pink colors.

The research in garment design conducted by Scott, Cookman and Zimmerman, Dallas, and Schuster provided many suggestions which could be incorporated into ready-to-wear lines or patterns available for home construction. The special designs, however, have not been used by major clothing and pattern manufacturers. Clothing which meets specific needs of physically disabled individuals, therefore, has been made available in the United States only through private, agency, and university sources. Problems have persisted with publicity and production and consequently only a few sources remain in business any length of time.

In 1962, D. Behren, of the Cleveland Vocational Rehabilitation Service, began designing garments to meet the needs of specific individuals at the rehabilitation center in Cleveland, Ohio. In 1964 a full clothing department including designing, constructing, and
selling was developed at the center. A catalog of 24 items was distributed and production of the items took place at the center often by disabled individuals in the workshop setting (Vocational Guidance and Rehabilitation Services, 1971).

Another source for clothing designed to meet special needs of the disabled was begun by O'Dell, who established her own mail order house in 1964. It was named Fashion able and provided lingerie and accessories for partially disabled women. Since the beginning of the business, clothing, grooming and kitchen aids, and basic clothing garments have been added to the items available by mail order (Fashion able, 1964).

A tailor in Chicago designed a suit for a customer in a wheel chair and it led to a mail order business for clothing for wheel chair bound men. Leinenweber designed coats and pants that are comfortable and have a neat appearance when sitting (Leinenweber, 1969).

A new development in clothing available to the physically disabled has come from the Textile Research Center at Texas Tech University. Patterns for home construction of clothing were developed to meet clothing needs of children and adults and made available from the research center under the name, The Natural Creations (Caddel, 1975).

The second method used in solving clothing problems was making suggestions for selecting and adapting ready-to-wear to meet many of the same needs as with designing garments. Suggestions for the selection and adaptations of ready-to-wear garments for handicapped children were made resulting from the work of Bare, Boettke, and
Waggoner (1962). Selecting knit shirts that have expandable necklines was suggested for the child with limited use of hands. A button opening can be converted to pressure tape to aid a child with limited small motor coordination. A crotch opening for overalls can make dressing easier. A ring, tie, or chain attached to a zipper pull enables children to manipulate the closure independently. A blouse and skirt can be kept together by placing strips of pressure tape on the waistband of the skirt and on the blouse. Suggestions for the child who cannot tie shoes included strap styles with a snap lock, moccasins or loafer styles, and replacing shoe eyelets with hooks so they can be laced all in one direction and held in place by a ring instead of tying.

Cookman's work, which was basically on designing clothing, also included a few suggestions on modifying garments available from regular stock clothing (Cookman & Zimmerman, 1961). Children's garments were changed by moving openings from back to front and using pressure tape closures. Pre-tied bows and the use of larger buttons were other modifications made which allowed for more independent dressing. Underwear was another area where Cookman suggested adaptations of ready-to-wear garments. Suggestions made for making brassieres easier to put on were the insertion of elastic in the straps and attaching fabric loops for the thumbs to aid in pulling the garment together to be hooked. Inserting two half zippers in girdles was another suggestion given. The zippers would be inserted on either side of the front with one opening from the top and one from the bottom.
Studies of an occupational therapist on self-help clothing also led to a number of suggestions on clothing selection and adaptation (Brown, 1966). Daily activity inventories were taken of 47 children with cerebral palsy in four classes in three public schools as a part of the cerebral palsy program of the New York State Department of Health. Thirty of the children performed no dressing and undressing. It was found that 14 were able to undress, but not dress, and none were able to both dress and undress. Although dressing and undressing require considerable coordination, a great deal of difficulty was a result of unsatisfactory clothing. Such clothing items causing problems were small buttons, back closures, and too small or tight clothing.

A daily time schedule was used in a second study conducted by Brown to analyze 26 categories of activities performed by a school staff (Brown, 1966). Clothing was mentioned as one of the major time consuming, annoying, and frustrating features dealt with by school staff. The importance of further study concerning clothing was stressed by the school staff to enable the goal of independence in dressing and undressing to be reached.

Brown suggested that ready-made clothing could meet many of the needs if self-help features are kept in mind when selecting clothing items. Suggestions for ready-to-wear clothing included stretchable T-shirt type shirts, loose fitting coats with large buttons, wrap-around denim skirts, playsuits for girls to double for underwear and gym suits. In some cases adaptations need to be made to encourage independent dressing. Clothing may still be purchased off the rack and simple changes made, such as the addition of full-length side
zippers inserted in jeans. Following this same idea of adapting clothing, patterns can be adapted to meet special needs. Openings can be changed to be more conveniently located and fastenings can be selected that are easier for manipulation.

The acquisition of clothing for the physically disabled and the adaptations or alterations needed were investigated in the studies of Taylor (1963), McGuire (1970), and Sindelar (1969). Similarities were found in the amount of altering necessary on ready-to-wear garments and also on the type of alteration needed.

Taylor found that 85% of the mothers of physically handicapped girls purchased garments ready made. Data were collected by a questionnaire from 23 mothers of physically handicapped girls who wore braces and used crutches and wheel chairs. After buying the ready-made garments, 60% of the mothers did major altering. Areas where alterations needed to be made were the hemline, waist, back placket, and the underarm sleeve.

In a similar study on the clothing and dressing problems of the cerebral palsied female child (McGuire, 1970), data were collected from 13 mothers and daughters by means of a mailed questionnaire. The percentage of mothers who purchased ready-made clothing was 69%, which was less than that found by Taylor. In both studies, however, the percentage of mothers who had to make alterations on the ready-made clothing remained the same; 60% in Taylor's study and 62% in McGuire's study. The alteration problems found by McGuire were the same as found by Taylor. Alteration problems mentioned by the mothers in McGuire's study were hemlines, tight fitting pant legs, waistline
for pelvic band attachment on braces, sleeves, and underarm seams, necklines, and shoulder line and cuffs.

Whereas Taylor and McGuire were investigating clothing problems of young girls, a study by Sindelar asked some similar questions regarding the clothing preferences of 46 physically disabled homemaker (Sindelar, 1969). Data were collected by questionnaire from 33 homemakers in Nebraska and 13 in New York City. The main concern of the participants was clothing that was hard to fit their specific disability. Home sewn garments were preferred over purchased ready-made items by 58% of the Nebraska homemakers and 23% of the New York homemakers. A higher percentage of these homemakers had need for alterations in ready-made clothing than was indicated in the Taylor and McGuire studies. Alterations were necessary in 75% of the ready-made clothing items purchased for both the Nebraska and New York City groups of homemakers.

Other clothing problems were identified in the three studies which contributed to the knowledge base of information on clothing suggestions for physically disabled individuals. Taylor found that the biggest problems in selecting appropriate garments were described as difficulty in fitting and lack of good design (Taylor, 1963). Fasteners that were easiest to manage were zippers, as indicated by 55% of mothers; buttons, by 30%; and snaps, by 18%. Pressure tape was only recorded by 5%; however, it should be noted that the product was quite new and may not have been known to many people.

Mothers of cerebral palsied girls in McGuire's study reported that features that would contribute to independence in dressing were often
missing in garments that were purchased. Restrictions on independence in ready-made clothing were small openings and back or inconvenient closures (McGuire, 1970).

Other clothing problem areas were also reported by the mothers of cerebral palsied girls. The excess of wearing and tearing of clothing from braces was a common complaint. Sixty-two percent of the mothers regarded the underarm seam the most troublesome area in terms of needed repair. Other areas reported were the sides of pants where the brace locks at the hip and knee joints are located. Problems mentioned by only a few of the mothers were panties tearing out at the sides, elastic wearing out, and tearing across the shoulders. Although the mothers reported these problems in the wearing of clothing, 77% did no reinforcing at points of extra strain and wear.

Fasteners were reported to present one of the greatest problems for the handicapped child. Zippers were chosen as preferred closures by almost 70% of the mothers for their daughters, with pressure tape and buttons each chosen by about 25%. Location and size of fasteners were considered as important along with the type of fastener.

The physically disabled homemakers in Sindelar's study identified features they desired in ready-made garments to be comfort; freedom of movement; easy on and easy off techniques; and becoming, attractive colors. Back closures were identified as presenting operational problems. Snaps, buttons, and zippers were the most difficult closures to manipulate. The women also cited problems with heavy coats and undergarments. Although special features have been developed to increase clothing independence, 54% of the women were familiar with such special
features, and 24% actually used special clothing features. Only six of the 46 women were aware of manufacturers who specialize in clothing for the physically disabled. However, 76% of the total group of homemakers expressed a desire to become acquainted with and purchase garments with special features. Sindelar concluded that:

... while valuable time and effort has gone into the development of adequate clothing for the physically disabled, clothing problems still remain for many of the severely physically disabled women. At the present, the physically disabled population of our society has not been familiarized with what has been done in the way of clothing to make them more independent in their dressing as a means towards total rehabilitation (Sindelar, 1969, p. 52).

Clothing research from the Disabled Living Foundation in London, England, led to the composite of many ideas and suggestions for both selecting and adapting clothing to meet special needs of the disabled (Macartney, 1973). In selecting clothing, importance is placed upon the appearance of the garment on the individual and consideration to styles that are fashionable. The artful use of proportion, color, pattern, texture, and decoration is suggested to camouflage figure faults or focus attention away from them.

Suggestions for aiding in the independence of the individual include several clothing aids and adaptations which have not been reported elsewhere. The use of fabric loops on socks, pants, skirts, and trousers can enable garments to be pulled up easily with the use of a hook on a long stick. Other dressing aids that can be made at home include clips or garters attached to a cord, a clothespin on a stick, and a flat wooden hanger with the wire removed and a rubber
thimble attached to one end and a hook to the other. These help an individual with limited range of motion in dressing.

Alterations and changes that can be made on ready-to-wear garments were suggested for attractiveness, comfort, and convenience. A skirt or dress can be made longer in the back to look better on a woman walking with crutches. The waistband on pants can be lowered in the front and raised in the back for the person in a wheel chair. Garments can be reinforced by seam tape and fabric patches on the inside of garments in areas of excessive wear. Shirts and blouses can be opened up the side seams and underarms and refastened with pressure tape to allow the garment to be placed over the head and avoid having to place the arms in the sleeves.

Studies that have been described up to this point have contributed to the knowledge of clothing characteristics for the physically disabled and aided in the development of specially designed clothing or suggestions for selecting and adapting ready-made clothing. The third method used to aid the disabled with clothing problems was working with individuals in solving clothing problems after an initial investigation of clothing characteristics. The emphasis in these studies was placed on meeting individual needs, however, in doing so garments were either designed or adapted; therefore, there are some studies which have used more than one of the three methods discussed in this review. Such is the case with Taylor and McGuire.

Taylor, based on the information gathered on clothing needs and characteristics, designed and constructed four dresses and one coat for selected individuals in her study. A variety of styles of garments
and adaptations within garments was made to accommodate the individualized needs of the girls. The coat had raglan sleeves, and the sleeve seams were put together with four and one-half inch bias strips of stretch nylon. The underarm seams were cut high for crutch walking. A cape was added to the coat to provide comfort and warmth for wheel chair sitting and crutch walking.

Other features incorporated into the garments included the use of pressure tape as fasteners, complete front openings, and adjustable sleeve cuffs. A playsuit was constructed with pressure tape on both shoulders and a full-length zipper up one side for ease in dressing over a leg brace.

The garments constructed were modeled by handicapped girls at style shows for parents, who evaluated the garments after the style shows. Taylor concluded that "Each handicap needs individual analysis but solutions can be worked out from a basic pattern" (Taylor, 1963, p. 66).

Using the results from her data collection, McGuire designed and constructed eight garments for selected girls. The garments were worn by the girls and evaluated by nurses and therapists observing the girls during a full day at a rehabilitation center. Designs that were evaluated as favorable included full-length openings either at the center front or side. Problems occurred with the use of pressure tape as it did not hold well. Children with the ability enjoyed unfastening their clothes (McGuire, 1970).

Another study which dealt with solving problems on an individual basis was concerned with the design and fitting problems for asymmetric
figures (Tharp, 1956). Thirty-two young women who had experienced one or more changes in their figure were interviewed. Data collected from the interviews provided information on the variety of attitudes toward clothing as well as specific clothing needs. The clothing properties of importance when selecting clothing were rated in the following order: style, fit, comfort, color, fiber, and texture.

Case studies were undertaken for two individuals: a polio victim and a cancer patient. The polio victim had a scoliotic curvature and a pronounced kyphosis condition. A basic garment was made to help in determining necessary alterations. Because of extreme deviation in contour, a bodice was draped over the figure and compared to the standard pattern. Flat pattern techniques were used from the draped pattern sloper to design garments for the figure. To assist in the garment designing and aid the participant in her future personal sewing, a dress form was constructed. A commercial paper dress form kit was used to mold a form over the participant's figure. The form was later mounted on a wooden frame. Fabric and padding were used on the participant as prosthetic devices to equalize portions of the body. A dress and jacket were designed and constructed to conceal the figure irregularities as much as possible. The second case study involved adapting garments and patterns to the needs of a woman who had a mastectomy which caused extreme swelling of the arm and hand. A pattern for a nightgown was altered to provide a deeper armseye than normal to permit ease in dressing. A house coat was altered from a pattern and a ready-to-wear coat was adapted to allow for extra room for dressing and comfort while wearing.
Individualized help was the end result of another study concerned with identifying problem areas associated with clothing for disabled boys and girls (Johnson, 1972). Fourteen mothers in the study identified the following problem areas with clothing: fasteners, sleeves, garment openings, garment discomfort, and garment modifications. As the second part of this study, one garment was constructed for each of four selected disabled children; two boys and two girls. The garments were worn by the children for 10 wearings of no less than four hours each over a six-week period. An evaluation was made following the six-week period.

Johnson took into consideration specific figure problems, functional problems in dressing, and preferences of each child. Figure problems such as arm length differences and overdeveloped shoulders were handled by pattern alterations. The changes made resulted in improved appearance, fit, and comfort. Functional problems in dressing ranged from difficulty with clothing construction features such as fasteners to varied abilities in functioning, such as stiffness on one side of the body. Some of the functional problems were dealt with by selecting an appropriate style of garment to meet the need, such as raglan sleeves, front openings, and zipper fasteners. On occasion, the pattern style needed to be changed slightly and special fasteners were used. Preferences of both the child and mother were used in designing the garments to create an interest in dressing and to please the child and mother. Preferences included color choice, fabric type, and garment details such as pockets.
The involvement of the individual in solving the clothing problems created a personalized approach which brought satisfaction to the children and mothers. Individual needs were met and preferences allowed for a personal involvement in the selection of the garments. Other studies which used an individualized approach in designing or adapting garments include Madsen (1967) and Richardson (1971).

One way to implement the individualized approach is through consultations where a home economist with a specialization in clothing could provide direct assistance to the disabled individual and family members with clothing related problems. Johnson noted the success of this method and the recommendations from her study included the following:

Investigate the feasibility of providing a state area clothing specialist to work directly with the disabled through home visits, clinics, special education centers, rehabilitation centers, and rest homes (Johnson, 1972, p. 67).

Summary

The literature reviewed revealed a trend toward an increasing effort on the part of home economics to become involved in rehabilitation. The efforts gained momentum in 1954 when the U.S. Vocational Rehabilitation Administration first recognized the homemaker as a rightful recipient of vocational rehabilitation services. This recognition encouraged home economics to become involved in research projects, demonstration programs, and workshops concerning rehabilitation. The initial thrust, however, tapered off and efforts continued on a less unified basis. In the 1970's two pieces of federal
legislation, the rehabilitation amendments of 1973 and the social services amendments of 1974, brought new emphasis to the education and care of the severely disabled. The education amendments of 1974 mandated that handicapped children be integrated into the regular classroom whenever possible. Thus, an increasing number of home economics teachers are becoming involved in working with disabled students. These opportunities have again challenged home economics to place increased emphases on the area of rehabilitation.

The literature concerned with clothing for the physically disabled revealed that information on clothing needs and solutions came from various sources. Many of the original ideas on clothing for the disabled came from therapists, special education teachers, and parents as solutions for clothing problems of specific individuals. Ideas on self-help which included dressing were passed along by professionals working in rehabilitation. Early journal articles provided practical information for other health professionals. One hospital was cited for starting an idea-sharing program where ideas, drawings, and instructions for all types of self-help activities were circulated among individuals in cerebral palsy programs. Suggestions for clothing were included in references; however, the first article on dressing alone was not published until 1951 by an occupational therapist (Brown, 1951). Also in the 1950's, the Institute of Physical Medicine and Rehabilitation in New York City set up a clothing research project to study the disabled and design garments to meet their needs. The work started at the Institute was carried on through the Clothing Research and Development Foundation established in 1961. The Foundation has
been operating through the services of volunteers in the New York City area.

Research studies reported in the literature concerning clothing for the disabled were of two major types: those investigating the desired clothing characteristics needed by an individual with a certain disability and those which involve the designing of clothing to meet the needs of disabled individuals. The studies of clothing characteristics (Dallas, 1965; Schuster, 1973; Sindelar, 1969) sought information about clothing needs from individuals with the same disability. The studies which involved the designing of articles of clothing (Johnson, 1972; McGuire, 1970; Taylor, 1963) were concerned with designing and evaluating garments made to solve the clothing problems of specific disabled individuals. Very little was found in the literature that dealt with the synthesis and integration of clothing suggestions for the disabled.
METHOD OF PROCEDURE

The major objective of the study was to explore the effectiveness of an in-service program for extension home economists which would prepare them to function as consultants to physically disabled individuals with clothing problems. Two subordinate objectives were identified in order to carry out the major objective. These were to evaluate the use of the consulting services of the extension home economists by physically disabled individuals and to evaluate the strengths and weaknesses of the in-service program as perceived by the extension home economists. Another objective was to make recommendations for preparing and providing in-service programs for extension home economists serving as clothing consultants for the disabled.

Establishing the Study

Preliminary to establishing the plan for the study, background information was gathered from several sources. The review of literature provided insight as to the role for home economics in rehabilitation and perception and present status of research and developments as related to clothing for the physically disabled. Direct contacts with disabled individuals and visits to rehabilitation centers added further insights into the clothing needs of the disabled and resources currently available.

The first-hand information obtained from disabled individuals through direct contacts created an awareness of specific problems and identified ways individuals have attempted to cope with their problems and adjustments made or solutions found that brought comfort
and satisfaction. Information was also obtained from professionals in the health field working with disabled individuals.

Further insights to the clothing needs of the disabled and the services that can be provided were gained from visits to rehabilitation centers. Visits were made to the Cleveland Vocational Guidance and Rehabilitation Center, Cleveland, Ohio, and the Institute of Physical Medicine and Rehabilitation in New York City. At the Cleveland Center consultation was held with the person who was designing clothing for the physically disabled. Clothing designs in progress were discussed and clothing production at the Center was observed. Insight was also gained from observing the process by which the Center worked with clients in relation to specific clothing needs. At the Institute of Physical Medicine and Rehabilitation in New York City, the researcher consulted with M. Zimmerman, who was serving as the chief occupational therapist and had worked on clothing projects at the Institute since initial involvement in the 1950's. Information was also obtained on the work of the Institute with the Clothing Research and Development Foundation. Garments from clothing displays at the Institute were also examined.

Overview of the Study

The study was exploratory in nature for the purpose of examining the feasibility and outcome of preparing extension home economists to serve as clothing consultants to physically disabled individuals. Extension home economists participated in an in-service instructional series as preparation for providing a clothing consultation service.
Agency and publicity contacts were made to solicit clientele. The consultation service operated for a six-month period following the in-service instruction during which time data were collected on the individual and group consultations. A final project evaluation was solicited from the participating extension home economists. Data were collected by knowledge and attitudinal evaluation devices, a project evaluation form, and data collection record forms. All of the instruments used to collect the data were developed as a part of the study with the exception of the attitudinal scale.

A cognitive test was administered at the opening and at the conclusion of the instructional series. Data collected by this instrument were used to identify what learning could be attributed to the instructional series.

An attitudinal evaluation device was administered prior to the instructional series to identify the attitudes of the home economists toward the disabled. These data were used later to study the relationship of attitudes toward the disabled and the performance of the extension home economist as clothing consultant to physically disabled individuals. The same device was administered at the conclusion of the study to determine if an attitudinal change occurred after participation in the study.

A form for evaluating the total project was administered to the extension home economists at the conclusion of the study. The purpose of the device was for the home economists to evaluate the project, the preparation they received from the in-service series, and their own performance in the project. Recommendations for future in-service
programs and work with the physically disabled audience were also obtained from the evaluation device.

Information on agency and publicity contacts and on individual and group clothing consultations were recorded by the participating extension home economists. Data on agency and publicity contacts were included to determine the relationship between the contacts made and the consultations requested. Data from the consultation record on the nature of the consultations were related to information included in the instructional series in order to evaluate if the series covered the information needed in the actual consultations.

Administrative Arrangements

Basic to carrying out the plans for the study were the administrative arrangements. Cooperation was obtained from the Iowa State University Extension Service in order that the extension personnel involved could include participation in the study as part of their plan of work. To facilitate the arrangement, a proposal was prepared and submitted to the extension administration for approval of the project as an in-service program. A presentation was also made before the extension area directors to gain support for the project. Approval was granted for extension home economists with subject matter emphasis in textiles and clothing to participate in the program. A period of two days was approved by the state extension in-service committee for the home economists to be on campus to attend the instructional series which was basic to the study. Permission was also granted for the evening
in between the two scheduled days to be used to provide additional time for the in-service activities.

Additional administrative details for the in-service series included securing the facilities of the textiles and clothing department at Iowa State University for classroom purposes. Permission was granted for the use of the facilities by the head of the textiles and clothing department. This arrangement was possible because the series was scheduled during the University quarter break.

Communication was established through correspondence with the extension home economists and their direct supervisors. The participating extension home economists and their area directors were notified by letter of their role in the study and anticipated participation in the in-service experience.

Description of the Sample

Subjects for the study were 17 extension home economists in Iowa. A non-randomized deliberate sample was used with the extension home economists being selected on the basis of their subject matter responsibility and geographic location. Extension area directors in the 12 geographic areas covering the state were asked to select at least one home economist from their area with subject matter responsibility in textiles and clothing to participate in the study. Five areas chose to have two participate. Of the 17 home economists who began the study, all were included in the data producing sample; however, it was not possible to collect all the desired data from two of the home economists.
Preparation of Educational Materials

With the preliminary work in establishing the study completed, plans were developed for preparing the educational materials and making the organizational arrangements that were integral parts of the study. The steps that were followed in carrying out the plans will be discussed in some detail in the following order:

a) Development of the in-service instructional series.
b) Establishment of a referral system with agencies working with the disabled.
c) Development of publicity for the consultation service.
d) Development of supportive material provided for extension home economists.
e) Implementation of the instructional series through teaching and coordinating activities.

While the following represents the steps taken in the preparation, the curricular materials can be found in the chapter, Instructional Series: Clothing for the Physically Disabled.

Development of the Instructional Series

Preparation of the instructional series began by identifying the competencies needed by the extension home economists to provide clothing consultation service to the disabled. The program objectives for the instructional series were written consistent with the competencies.

The next step was to identify the content encompassed in the objectives. Nine references which provided specific help were Bare, Boettke, and Waggoner (1962); Brown (1951); Cookman and Zimmerman (1961);
Forbes (1971); Gamwell and Joyce (1966); Macartney (1973); Rogers and Stevens (1966); Telford and Sawrey (1972); and Yep (1974).

From the objectives and content outline, a three unit series was developed for instructional purposes:

Unit I: Physical disabilities and disabling conditions that have an impact on clothing.

Unit II: Assisting the physically disabled with clothing problems.

Unit III: Cooperation with agencies serving the disabled.

Unit I: Physical disabilities and disabling conditions that have impact on clothing

The overall purpose of Unit I was to introduce the extension home economists to information about disabling conditions to help them analyze clothing problems and make suggestions for clothing. Objectives and generalizations with supporting facts were identified to achieve this purpose. Learning activities were planned for achieving the objectives. They consisted of observing lecture-demonstrations, viewing a slide presentation, examining a chart of information, participating in a discussion following a panel presentation, and observing a film.

A lecture demonstration on the incidence of physically disabled persons in Iowa was included to give some indication of the need for the consultation service. A breakdown of the number and type of disabled individuals by county was to provide help to the home economists in relating to their own localities.

A slide presentation was prepared to introduce the extension home economists to the types of clothing and adaptations that can be helpful
to physically disabled individuals. The slides featured a quadraplegic individual and showed the kind of help she needed to meet her clothing needs. To prepare the slide set, the subject was visited and with her assistance the clothing items she would be wearing and showing in the slides were identified. Because of the difficulty in dressing and undressing, one outfit was chosen to be worn and others to be shown. The subject was then visited in her home by the researcher and a photographer who took the colored slides. A script was written to describe the various clothing articles, a copy of which can be found in Appendix F.

A chart that provided medical names and facts likely to be unfamiliar to the learners was prepared to provide visual stimuli to expedite the learning process on diseases and disabling conditions. Copies of the chart were to be distributed to participants and used during a presentation concerning the diseases and disabling conditions that relate to clothing. See Appendix F for a copy of the chart, Diseases or Injuries and Disabling Conditions Related to Clothing.

A panel presentation with opportunity for questions was included in the unit to provide first-hand information on clothing problems. Suggestions for the composition of the panel included disabled individuals and parents of disabled children.

Examples of extreme problems in dressing were to be covered through the use of a film. The dressing problems of a quadraplegic could be observed in detail through the use of the visual media.
Unit II: Assisting the physically disabled with clothing problems

Unit II was developed to prepare the extension home economists for consulting with the physically disabled about clothing problems. The content involved providing practical clothing suggestions to meet specific needs. Objectives and generalizations with supporting facts were identified to achieve this purpose. Diversified learning activities were selected. The activities included examining a classification system of disabling conditions, observing lecture-demonstrations, viewing an overhead transparency presentation on clothing suggestions, and examining sample garments. Other activities encouraged participation in a laboratory experience, discussion groups, and a clothing consultation experience.

A classification of disabling conditions with related clothing suggestions was developed. Research findings and information on clothing suggestions for the disabled were organized into an existing framework dealing with motor ability. The framework used was one developed for the psychomotor domain of objectives (Harrow, 1972). Corresponding clothing suggestions were made for each disabling condition by interpreting the psychomotor classifications as disabling conditions. This classification provided a base from which clothing suggestions could be taught. A copy of A Classification of Disabling Conditions with Related Clothing Suggestions is included in Appendix F.

Reference was made in this unit, also, to the chart on disabling conditions from Unit I. This chart was to be used as a companion piece to the classification system described above. Integration of the two frameworks makes a flow of information from disease to
clothing suggestions. If the extension home economist received information only on the individual's disease, she could refer to the chart to locate the possible disabling conditions and then, in referring to the classification system, would be prepared for the consultation with possible clothing suggestions.

The instructional series suggests presentations on orthopedic and prosthetic appliances and medical equipment including wheelchairs, walkers, crutches, and small aids to daily living. These presentations demonstrate the purpose and function of the equipment and how it can affect clothing.

A set of overhead transparencies with slides was developed depicting clothing suggestions with emphasis on attractiveness, comfort, convenience, care, and safety. These transparencies were to be used along with examples of garments adapted for specific disabling conditions. These teaching aids were combined as a kit which is described in Appendix F.

A laboratory activity was planned for the extension home economists to apply the principles of pattern alterations to irregular body shapes. Five dress forms were constructed, using the foam dress form method (Hollen, 1971), based on the researcher's experience working with half-scale forms with figure irregularities during a workshop on clothing for the disabled and elderly at the State University of Iowa. The figures were carved and padded to represent variations of torso irregularities. Various stages of scoliosis, kyphosis, and lordosis were illustrated. A medical team at the University Hospital, State University of Iowa, reviewed the forms to help the researcher get a
A more accurate interpretation of body shapes. Once the forms were constructed, a basic pattern was altered and design changes made to improve the appearance for each of the five forms. A garment was then constructed for each of the forms. Overhead transparencies were made giving general guidelines and showing the changes from the original pattern for the five forms. Illustrations of the forms with corresponding garments and script for the overhead transparencies are included in Appendix F.

Seven case situations were developed to provide an opportunity for the extension home economists to analyze clothing problems and make suggestions. The case situations were selected to represent a variety of disabling conditions. These studies were fictional, but were created from experiences of the researcher. Copies of the case situations are included in Appendix F.

A list of resources was prepared to provide the participants with additional background information. Sources for purchasing clothing and aids for the physically disabled were included on the list. See Appendix F for a copy of the list.

In order to assist the extension home economist with the consultation interview, a schedule of questions was prepared. A simulated consultation experience was planned for the extension home economists to try out the interview schedule. The Suggested Clothing Consultation Interview Schedule can be found in Appendix F.
Unit III: Cooperation with agencies serving the disabled

The purpose of Unit III was mainly to inform the extension home economists of agencies in their respective areas of the state serving the disabled and the potential cooperation that could be established. Strategies for cooperation with these agencies were examined. Objectives and generalizations with supporting facts were identified to achieve this purpose. Learning activities were selected for achieving the objectives. They included participation in a lecture-presentation and discussion of materials prepared for the extension home economist to use in their consultation service.

The lecture-presentation included identification of the major public and private agencies in the state and in local communities that serve the disabled. The role of each agency was a part of the discussion. A referral system involving other agencies and organized from the state level was discussed.

Follow-up materials were prepared to activate the agency referral system. A list of local agency personnel was to be made available as a reference for each extension home economist. A sample letter of introduction was written for the home economist's use. (A copy of the letter is included in Appendix B.) A schedule for follow-up activities was developed and dates were to be set for each activity based on the group discussion and group agreement. A sheet that contained information used as basis for developing the schedule can be found in Appendix F.
Establishment of a Referral System

The next facet of the project was the identification of appropriate organizations and agencies that would be willing to serve as referral agencies for the consultation service and to gain their approval for participation. Because the Cooperative Extension Service in Iowa had not been known as working particularly with disabled persons, it was thought that organizations and agencies that were working with the disabled might be concerned about duplication of services. These groups, therefore, were involved from the initial stages of the study in order to gain their cooperation and support.

A four-phase plan was developed to identify the agencies to become involved in the study. These were: identifying the criteria for selection of agencies for consideration, surveying a directory of services for potential agencies, narrowing down the number of agencies to be involved by establishing and applying criteria for the agencies which would be most appropriate for involvement, and selecting four agencies from among those that were interested in participating in order to allow concentration of efforts by the extension home economist.

The technique used for the first phase of identifying agencies consisted of the domain method (Levine and White, 1961), which aids in locating organizations which stake out claims based upon problems, programs or services, and population. In applying the domain method, agencies would be considered for involvement if they met at least one of these criteria. The organizations or agencies could be concerned with the problem of the disabled as a function of their existence. They could be providing programs or services to the disabled audience.
or they could have the disabled as at least one of the populations they were serving.

Using these criteria, the second phase consisted of surveying the Human Resource Directory (Greater Des Moines United Way, 1975) to locate a list of appropriate agencies. Thirty-three organizations and agencies were cited that had some involvement with physically disabled individuals.

In the third phase, more definitive criteria were established for sorting and identifying those agencies among the ones previously located who most appropriately would contribute to the study. The first criterion was that the agency be a statewide organization because the project would be reaching all parts of the state. The second was that the agency had some type of local structure which could be used to publicize the consultation service locally. Finally, the agency needed to be concerned with clothing problems for the physically disabled. By applying these criteria, seven agencies were selected from the organization and agency listing. These were Developmental Disabilities Council of Iowa, Easter Seal Society, Iowa Association for Retarded Citizens, Iowa Department of Health, Iowa Department of Social Services, Iowa Department of Special Education, and Iowa Department of Vocational Rehabilitation.

The state administrators for the seven agencies or organizations were contacted by phone by a state extension sociologist who had previous contact with the state agency administrators. Representatives of the agencies were invited to attend a meeting for the purpose of learning about the clothing consultation project. A follow-up letter
was sent to the seven administrators to inform them of the details of the meeting. The Easter Seal Society offered office facilities for a meeting place in Des Moines, Iowa. A total of 12 representatives from the seven agencies attended the informational meeting with all the agencies sending at least one representative. Agency representatives included one executive director; two assistant directors; two program directors; two public relations directors; three consultants, one each in physical therapy, occupational therapy, and in education; and two instructors.

The agenda for the meeting included a welcome and self-introductions, a description of the study, and a discussion concerning ways that the groups could contribute to the study. Publicity and referral procedures were discussed along with a description of Extension Service's planned publicity. Publicity flyers were available in quantity to the agencies. The representatives agreed to inform their local staff of the project. They also consented to send the researcher a list of local staff from counties participating in the project so that the local extension home economist could contact the local agency personnel.

The fourth phase further narrowed the listing, from seven to four agencies. These agencies had easily accessible local personnel and provided a listing of the county personnel. The four agencies were Iowa Department of Vocational Rehabilitation, Iowa Department of Health, Easter Seal Society, and Iowa Association for Retarded Citizens.

Agency involvement in accomplishing the task required both horizontal and vertical coordination (Warren, 1970). A state extension personnel worked with personnel of other state agencies, thus horizontal
coordination occurred. State agency personnel informed their local staff members of the project and encouraged them to participate, using vertical coordination. Then, when the extension home economists contacted local agency personnel inviting them to ask their clients to participate in the program, horizontal coordination existed at the local level. Through the state agency cooperation, the project was approved within the agency before local contact was made through the extension home economists.

In order to make arrangements for the extension home economists to contact the local level personnel of the selected four agencies, a list of these individuals was prepared for distribution. Each extension home economist received a sheet listing the names and addresses of the local agency personnel she was asked to contact. Suggestions of other agencies to contact were also given. A sample letter was provided to the home economists as one means of making the local agency contacts. See Appendix B for a copy of the sample letter.

Publicity for the Consultation Service

A publicity plan was developed in order to spread public awareness of the availability of the clothing consultation service. Newspaper and radio media were used to inform possible clients of the clothing consultation service. Mailings were another means used to inform people of the service. See Appendix C for copies of the publicity materials developed.
A newspaper article was prepared for adaptation and use by each extension home economist along with a picture which had been taken of her with one of the physically disabled individuals when they were participating in the lesson series. A radio script was also prepared for use by local radio stations.

A one-page flyer describing the clothing consultation service was prepared also for use in publicizing the service. The reverse side of the flyer listed every county in which the service was available along with the name of the extension home economist to contact in that county. One hundred copies of the flyer were distributed to each extension home economist at the in-service series for her use in her local community. Additional copies would be made available from the extension textiles and clothing specialist's office.

After the first data report had been collected from the home economists, an attempt was made to increase the use of the service by initiating a special publicity effort. The extension home economists had been asked in the first data report to indicate if they would like to have fewer, the same, or more consultations. Two counties with extension home economists who indicated they would like more consultations were selected to participate in a mailing to individuals who might be interested in making use of the consultation service. A letter was composed describing the clothing consultation service and indicating by name the local extension home economist to contact. The Easter Seal Society of Iowa cooperated with this phase of the study by addressing the envelopes for the letters using their mailing
list of disabled individuals and friends of the disabled. See Appendix C for copy of the letter.

Implementation of the Instructional Series

As soon as the plans for the two-day instructional series were completed, the implementation got underway. Speakers were contacted, visuals were prepared or obtained, and managerial problems including division of time were worked out.

The in-service instructional series was held on February 26-27, 1975. The time allotment utilized for the various portions of the instructional series is shown in Figure 1. The introductory matters were handled in less than one hour on the first morning. Unit I was given approximately the equivalent of a half a day. Unit II required the greatest amount of time, approximately three-quarters of a day and the evening session. Unit III, including the follow-up plans and procedures, was completed in approximately two hours.

When the extension home economists met at the beginning of the lesson series, certain preliminary matters relative to the total study were presented. The participants were given background information on the establishment of the study and their involvement and contribution to the study were discussed. An overview of the two-day instructional series was presented. Following the introduction, a pretest of the content to be covered during the in-service series and a scale that also assessed attitudes toward the disabled were administered.

In implementing the first unit in the series, several people gave presentations and visuals were used to aid in the learning process.
<table>
<thead>
<tr>
<th>First Day of Instructional Series</th>
<th>Second Day of Instructional Series</th>
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<tbody>
<tr>
<td><strong>Morning</strong></td>
<td><strong>Afternoon</strong></td>
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<tr>
<td><strong>Introduction</strong></td>
<td><strong>Dressing problems of severely</strong></td>
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<tr>
<td>Overview of instructional series</td>
<td>disabled</td>
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<tr>
<td>Administration of cognitive and</td>
<td><strong>Unit II</strong></td>
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<td>affective evaluation devices</td>
<td><strong>Disabling conditions related</strong></td>
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<td>to clothing</td>
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<td><strong>Suggestions</strong></td>
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<td><strong>Unit I</strong></td>
<td><strong>Sources of clothing for</strong></td>
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<tr>
<td>Incidence of disabled in Iowa</td>
<td>disabled</td>
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<tr>
<td>Introduction to clothing problems</td>
<td>Orthopedic and prosthetic equipment</td>
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<tr>
<td>faced by the disabled</td>
<td>related to clothing needs</td>
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<tr>
<td>Diseases and disabling conditions that affect clothing</td>
<td>Application of information through case situations</td>
</tr>
<tr>
<td><strong>Evening</strong></td>
<td><strong>Fitting problems of irregular</strong></td>
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<td>figures</td>
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<td></td>
<td><strong>Application of fitting principles</strong> through laboratory experience</td>
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<tr>
<td><strong>Unit III</strong></td>
<td><strong>Guidelines for attractive clothing choices</strong></td>
</tr>
<tr>
<td>Organization and agency referral</td>
<td><strong>Medical equipment related to clothing needs</strong></td>
</tr>
<tr>
<td>system</td>
<td><strong>Procedures for clothing consultations</strong></td>
</tr>
<tr>
<td><strong>Follow-up procedures</strong></td>
<td><strong>Application of in-service series through consultation experience</strong></td>
</tr>
<tr>
<td><strong>Administration of cognitive evaluation device</strong></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Organizational plan for the two-day in-service instructional series
A vocational rehabilitation counselor discussed the incidence of physically disabled individuals in Iowa. The researcher presented a series of slides introducing the extension home economists to the type of clothing selection and adaptation ideas helpful to physically disabled individuals. An occupational therapist talked to the home economists about diseases and the disabling conditions that affect clothing. A panel of two physically disabled individuals and two parents of physically disabled children discussed disabling conditions as they affect clothing. A film on the dressing problems of a quadriplegic was rented from the University of Illinois to depict the problems and solutions of severely disabled individuals. At the conclusion of this session, the researcher and the occupational therapist answered questions related to this unit on disabling conditions as they affect clothing.

Having created an awareness of the disabling conditions which the home economists might be expected to encounter, the next facet of the in-service program, as part of Unit II, brought into focus how clothing can be selected or modified to meet individual's needs. A classification system for looking at clothing suggestions in relation to disabling conditions was presented by the researcher. Clothing suggestions in the areas of attractiveness, convenience, comfort, serviceability, and safety were illustrated by the use of overhead transparencies and sample garments. Sources where clothing for the physically disabled can be obtained were supplied. An orthopedist gave a demonstration-presentation on how various orthopedic and prosthetic appliances can affect clothing. Small groups of participants were formed to work on case situations and then shared suggestions in a discussion with the
entire group. This section of the second unit was organized into approximately one-third of the day.

A laboratory experience on altering patterns for irregularities in body form provided an opportunity for application of knowledge acquired. An extension specialist in textiles and clothing and the researcher reviewed the general guidelines for pattern alterations and demonstrated the pattern changes made on irregular half-scale forms by use of overhead transparencies. Basic patterns for the half-scale forms along with gingham fabric were provided to the home economists for use in carrying out the laboratory activities. Each home economist chose one half-scale form, altered the basic pattern, and constructed a simple garment. An evening session of approximately two and a half hours was used for the laboratory experience.

The next morning the home economists were encouraged to share with each other the garments they constructed in the laboratory session. Comments on fit and attractiveness of style were contributed by the researcher. Further insight as to the implications equipment such as wheel chairs and crutches can have on clothing was provided by a dealer of equipment commonly used by the disabled.

Participation in the consultation portion of the study was introduced through discussion of a schedule of questions prepared to assist the home economist with clothing consultations. Data collection forms for use with individuals and groups were distributed to each home economist and their purposes were discussed. Later, the home economists were taken by motor car to a nursing home to gain the experience of conducting a clothing consultation. Arrangements had been made in
advance through the management of the nursing home to select residents with clothing problems. The extension home economists worked in groups of two in providing clothing consultation to the selected residents.

After returning from the nursing home, final arrangements concerning agency involvement in the study were presented. An extension sociologist who worked with the researcher in establishing the referral system with other agencies presented background information on the referral system. Information concerning local agency personnel was given to the home economists for their follow-through responsibilities.

The in-service session was concluded with explanation of administrative details of the study. A list of detailed follow-up procedures was provided. Dates for completion of the agency contacts and publicity were discussed and mutually agreed upon by the home economists and the researcher. Each home economist was provided with newspaper and radio releases for publicity. During the in-service activities a picture had been taken of each of the home economists consulting with a physically disabled individual. Copies of the pictures were made available to the home economists for local newspaper coverage. One hundred copies of a flyer describing the clothing consultation service were provided to each extension home economist. Additional copies were available when needed from the office of the extension textiles and clothing specialists.

The final activity of the in-service series was responding to an evaluation device for measuring cognitive achievement gained during the instructional series. The same instrument as was used at the beginning of the two-day series was given to the extension home economists as the posttest.
Operation of the Consultation Service

For a six-month period, March 1, 1975, to September 1, 1975, the clothing consultation service for the physically disabled was in operation in 32 counties by the 17 extension home economists who had received the in-service education. They responded to inquiries from individuals by phone, letter, and personal visits. At times the consultation necessitated a home visit for the service to be rendered.

Group presentations were made by the home economists to groups of disabled individuals or to groups who would know of disabled individuals for the purpose of publicizing the service. The home economist responded to requests that came to her county office to speak on the subject of clothing for the physically disabled and in some cases she initiated the contact with the group.

Certain materials were used by the extension home economist to assist her in conducting both group and individual consultations. A bulletin and visuals provided her with the resources to demonstrate clothing suggestions in her consultations.

The extension publication entitled "Clothes to Fit Your Needs - for the Physically Limited" (Yep, 1974) was used with individual consultations and as a resource for individuals attending group meetings. This publication had been written by the researcher before the clothing consultation project began. It gives assistance to the physically disabled in the clothing areas of attractiveness, comfort, convenience, serviceability, and safety.

A set of visuals made from teaching aids provided at the in-service series was used at meetings. Overhead transparencies could be made.
from the set and used to introduce the consultation service or in the actual teaching of clothing for the physically disabled.

Two types of visuals were borrowed from the office of the extension textiles and clothing specialist. One was a slide set on the needs of one physically disabled individual that had been shown to the home economists during the in-service lesson series. Another was a kit of visuals that included clothing adaptations and dressing aids. The kit also included slides of the dress forms with figure irregularities and the completed garments for each form.

Selection and Development of the Instruments

In order to obtain data necessary to accomplish the objectives of the study, six instruments were developed or selected. A description of each instrument and use follows.

**Evaluation device for measuring cognitive achievement**

An instrument was constructed to measure the cognitive learning resulting from the instructional series. An analysis of the objectives and the plan of instruction for achieving the objectives provided guidelines for the emphasis and distribution of test items. As shown in Table 1, approximately 36% of the emphasis within the instructional series was given to Unit I: Physical disabilities and disabling conditions that have an impact on clothing; approximately 60% to Unit II: Assisting the physically disabled with clothing problems; and approximately 4% to Unit III: Cooperation with agencies serving the disabled. Achievement level of behavioral outcome was expected to be nearly equal in proportion at the knowledge and comprehension levels and
Table 1. Table of specifications used to construct knowledge test

<table>
<thead>
<tr>
<th>Content</th>
<th>Behavior</th>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Knows terms and facts</td>
<td>Comprehends principles</td>
<td>Applies principles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Unit I</td>
<td></td>
<td>12</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Definitions of disabling conditions</td>
<td></td>
<td>12</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Disabling conditions related to clothing</td>
<td></td>
<td>12</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Unit II</td>
<td></td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Movement in relation to dressing</td>
<td></td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Clothing suggestions</td>
<td></td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Achieving good fit</td>
<td></td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Enhancing the appearance through clothing</td>
<td></td>
<td>4</td>
<td></td>
<td>4</td>
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<tr>
<td>Unit III</td>
<td></td>
<td>4</td>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td>Resources available to the disabled</td>
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<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>40</td>
<td>36</td>
<td>24</td>
</tr>
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</table>
lesser at the application level. Items were written to reflect both the proportionate distribution of emphasis given to the content and the level of behavioral outcome anticipated as indicated in the table of specifications.

The first draft of the instrument was reviewed by professionals in the field of rehabilitation and in the areas of home economics education and textiles and clothing. After minor revision, the instrument was administered to 24 extension home economists who were not among those who would be attending the in-service instructional series. An item analysis was undertaken on the data, and the findings were used as the basis for further improving the instrument. The analysis revealed the reliability as measured by the Kuder Richardson 20 method was .12. Low reliability was attributed in part to the length of the test and the small sample size. Another factor which may have been operating was the variability of knowledge and experience among the home economists. The average item difficulty index was .35. Twelve of the 25 items fell below the .30 difficulty level which was considered acceptable as the test was to be used as a posttest as well as a pretest. The average item discrimination index was .29. Most of the distractors in the 25 item test were functioning; however, the several that were not were rewritten. The final form of the evaluation device appears in Appendix D.

Scale for assessing attitudes toward disabled persons

Attitudes of the extension home economists toward disabled persons were of concern because of the expectation that they would have an
impact on the success of the home economist's involvement in the study. Many extension home economists had not had previous contact with disabled individuals and, therefore, it was assumed that there could be a change in attitude after participating in the program. The attitudes of the extension home economists toward disabled persons, therefore, were measured before and again at the conclusion of the study.

The instrument used to measure the attitudes was The Attitude toward Disabled Persons Scale (Form B) developed by Yukor, Block, and Campbell (1970) and copyrighted by the Human Resources, Inc., who granted permission to use the instrument. (See Appendix D for copy of instrument.) Form B consisted of 30 items with a rating scale for the items ranging from plus three, I agree very much, to minus three, I disagree very much.

Forms for recording consultations and contacts

Data on the consultations and the agency and publicity contacts were collected from the extension home economists on forms developed for that purpose. Forms were prepared for recording both individual and group consultations. A form for recording information on the contacts made with other agencies and with the media was also prepared. Copies of the various forms used to collect data can be found in Appendix E.

The forms prepared to record individual consultations included information about the client and the nature of the consultation. The home economist was to record information on the client's disability, age, sex, county of residence, clothing problems, and clothing
preferences as well as the consultation service provided. Additional information collected included the referral source for the consultation, the estimated length of time of the consultation, and any follow-up with and feedback from the client.

The form prepared for group consultations was used to gather data on the type of group and the nature of the meeting. A check list was included for the extension home economist to indicate the resources used in her presentation to the group. Also on this form was to be recorded the number of people in attendance, the referral source, and an estimate of the length of time of the meeting. Space was provided to record any individual help given at the group meeting. If the suggestions given following a presentation were informal and brief, they were to be recorded on this form. If more detailed help was given, it was to be recorded on the individual data form.

A form was provided for the extension home economist to record the agency and publicity contacts made. She was to specify whether it had been a letter, phone, or personal contact. The home economist was asked to respond on this form as to whether in her opinion the number of requests for consultations received were within expectations and realistic.

**Evaluation device for assessing the total project**

The form developed for the final evaluation of the total project was divided into four sections; project evaluation, in-service lesson series evaluation, self-evaluation of participation, and recommendations for further involvement. The section on project evaluation
sought information as to success of agency contacts and publicity as well as evaluation of the nature and success of the project in general. The in-service education section asked for evaluation of instruction received prior to offering the consultation service and recommendations for receiving additional needed information on clothing for the disabled. The third section of the final evaluation form encouraged a self-evaluation by the home economist on her participation in the project. The final section solicited recommendations for further involvement in working with the physically disabled in home economics subject matter areas. A copy of the final evaluation can be found in Appendix D.

Collection of Data

Administration of the instruments

Data were collected during the instructional series in February, 1975, and during the six-month period that followed. The evaluation device for the instructional series was administered to the 17 participants before and at the conclusion of the in-service instructional series. The attitude scale was administered to the 17 extension home economists before the in-service instruction and again at the conclusion of the six-month study. Data forms on agency and publicity contacts and the forms on individual and group consultations were collected at two-month intervals throughout the six-month project in order to keep in regular contact with the home economists and monitor the progress of the consultation service. The evaluation device for the total project was mailed to the participants at the conclusion of the six months in September, 1975.
Of the 17 extension home economists participating in the study, complete data were available from 15. The knowledge and attitude pretests were not available for one of the home economists who arrived late for the in-service instruction. Another home economist left the session due to illness and did not take the knowledge and attitude instruments as posttests. This home economist later left her job before the six-month study had been completed and, therefore, final evaluation data were not available from her.

**Correspondence with the extension home economists**

Contact was maintained with the extension home economists throughout the six months of the project. A letter was sent to the extension home economists prior to the first data collection period. (See Appendix A for a copy of the letter.) Included with the letter were the agency and publicity data collection forms and some clothing design ideas for meeting specific clothing needs. The researcher was teaching a class dealing with clothing for the disabled in the Textiles and Clothing Department, Iowa State University, at the time and enclosed clothing ideas which students in the class had designed as a class project. The designs were included for the purpose of maintaining and stimulating interest in the subject and promoting an atmosphere of sharing innovations.

At the time of the second two-month data collection point, a letter was sent to the extension home economists that summarized the progress of the first two months. (See Appendix A for a copy of the letter.) The numbers of agency and publicity contacts were given as
had been reported on the forms for the first two months' activities. The individual consultations were listed by extension home economist's name and indicated the disability of the client. Group consultations were summarized in total. The purposes of the report for all the participants were twofold; to establish inter-communication among home economists and to encourage participation on the part of those who had not been active in the project up to that time.

At the close of the six-month period, the letter to the extension home economists expressed appreciation for their cooperation and included two final evaluation devices. (See Appendix A for a copy of the letter.) One was the instrument for assessing attitudes toward the disabled and the other, the evaluation form for assessing the total project. Instructions were given for returning the two evaluation devices along with the consultation forms from the last two months' activities.

Analysis of Data

Responses from certain of the data-collecting instruments were taken directly from the forms and treated as directed by the Computation Center, Iowa State University; whereas others required some preparation before computation. Data were treated directly from the knowledge test. Responses from the attitude instrument required conversion before treatment could be done. Answers on the individual and group consultation forms, the record forms for agency and publicity contacts, and the final evaluation forms were hand coded.
The data available from the knowledge test were used to compute the means and standard deviations for both the pre- and post-administrations. A reliability coefficient for the knowledge test was computed on both administrations of the test. The t-test was used to determine the statistically significant difference between the means obtained from the two administrations. Scores on the knowledge posttest were correlated with the contact and publicity scores, the knowledge pre-test scores, the attitude posttest scores, the number of individual and group consultations, and the final evaluation scores.

The responses on the Attitude Toward Disabled Persons Scale (Form B) required special treatment in preparation for analysis. The six point scale ranged from a plus three to a minus three. Because not all items were stated in the same direction, responses to certain items had to be reversed. Then, in order to eliminate negative scores a constant of 90 was added to the individual scores. The range of scores could be from 0 to 180 with a high score reflecting positive attitudes. Means and standard deviations were obtained for both the pre- and post-administrations. The t-test was again used to determine the statistically significant difference between the means obtained for both administrations. Correlations were also computed on the attitude pretest scores with the same selected variables as correlated with the knowledge posttest scores.

The data obtained by the record forms for the agency and publicity contacts were summarized and means and standard deviations were computed. The agency contacts were given ratings according to the kind of contact. Personal contacts with agencies were given three points; phone contacts,
two points; and letter, one point. An agency contact score was then computed for each home economist by multiplying the rating for the contact by the number of times that contact was made and running a total. A publicity score was obtained for each home economist by summing the number of publicity efforts made. Means for each of the contact and publicity scores were correlated with the number of individual and group consultations reported.

The data obtained as the individual and group consultation forms included both objective and subjective responses. Objective data were tabulated and summarized. The subjective data were summarized and frequencies recorded for each of the areas of functional clothing problems, figure clothing problems, clients' clothing preferences, and the consultation provided. A cross-tabulation was made of the type of disability involved with the clothing problems and suggestions given in the consultation. A cross-tabulation was also prepared on the number and percentage of consultations with the source of the agency or publicity referral.

The final evaluation device which was composed of sections on program evaluation, self-evaluation, and recommendations collected data that required some specific preparation for analysis. The program evaluation section consisted of nine items. Three of them were negative indicators, thus the possible range of scores was plus six to minus three, including zero. The scores were converted to positive values with a range of one to 10. The in-service education evaluation and self-evaluation each consisted of six items. Conversion of the negative indicators resulted in a positive value range of one to seven.
Means were obtained for each of the three sections. The recommendation section of the final evaluation was analyzed by tabulating the frequency of responses.

For purposes of computing a score to evaluate the performance of each home economist, a performance rating formula was developed. This rating was obtained by summing the contact score, the publicity score, the number of individual group consultations, and the number of individual consultations multiplied by the time spent on each individual consultation. That score by individual was correlated with the pre- and post-administrations of the knowledge and attitude tests and the program evaluation, the in-service evaluation, and the self-evaluation components of the final evaluation.
INSTRUCTIONAL SERIES:
CLOTHING FOR THE PHYSICALLY DISABLED

Overview

The instructional series was developed to be used as an in-service educational experience for extension home economists preparing them to consult with physically disabled individuals with clothing problems. The overall objectives for the series are the following.

Having attended the in-service series, the extension home economist would be expected to:

a) Be aware of the disabling conditions of individuals and how clothing choices are affected by these conditions.

b) Analyze clothing problems of physically disabled individuals and make the necessary suggestions for alleviating the problem.

c) Be aware of her role as a clothing consultant and her relationship to the agencies working with physically disabled individuals in the state.

The series was divided into three units developed to achieve the objectives.

Unit I: Physical disabilities and disabling conditions that have an impact on clothing.

Unit II: Assisting the physically disabled with clothing problems.

Unit III: Cooperation with agencies serving the disabled.

The units provide guidelines for implementing each of the topics. Curricular components for each unit include: objectives, generalizations and supporting facts, learning activities, teaching aids, and references.

Resource materials prepared for the series are included in actual form or are pictured or described in Appendix F. The instrument that
can be used to evaluate the knowledge gained from the series can be found in Appendix D.

Unit I: Physical Disabilities and Disabling Conditions that Have an Impact on Clothing

Objectives

Having had the instruction, the extension home economist would be better able to:

1. Recognize the potential audience of physically disabled individuals who could use assistance in solving clothing related problems.

2. Identify disabling conditions of specific diseases and injuries.

3. Use a working vocabulary of the names of the most commonly found diseases or injuries.

4. Recognize the possible relationship of the disabling conditions to clothing problems.

Generalizations and supporting facts

1. Iowa has a significant number of physically disabled people that are a potential audience for a clothing consultation program.

   1.1. A 1968 rehabilitation report stated that there were 393,590 physically disabled individuals in Iowa between the ages of 17 and 65.

   1.2. From the available data the number of persons disabled in the counties participating in the study ranged from 8,850 to 69,940, 17 years of age and above.

2. Each disease or injury experienced by a physically disabled person has certain disabling conditions that can affect the individual in terms of dressing and undressing, clothing comfort, and fit of clothing.

   2.1. The five common forms of arthritis are rheumatoid arthritis, osteoarthritis, ankylosing spondylitis, rheumatic fever, and gout.
2.1a. Rheumatoid arthritis is an inflammatory, chronic, progressive disease primarily attacking the joints, but which can affect the whole body. It begins with the fingers and then the wrist, knees, elbows, and toes usually become involved. In advanced stages a patient may be tired, have some loss of sensation, weight loss, and may wear braces or splints to maintain joint position. Patient may assume a position of flexion to relieve pain and this position may become permanent. The ratio of women to men is three to one, and the range of age at onset of the disease is 25 to 50 years.

2.1b. Osteoarthritis is usually a mild, noninflammatory disease of the joints which results from a wearing away of protective cartilage between the bones of the joint. It usually affects the weight-bearing joints such as the lower spine, hip, and knee. There is usually joint pain, stiffness, and swelling. It affects mostly females, and age at onset is over 50 years.

2.1c. Ankylosing spondylitis is a chronic inflammatory arthritis of the spine. It is similar to rheumatoid arthritis except that it is located in the low back and may eventually affect the entire spinal cord. It affects mostly males, ages 25 to 45.

2.1d. Rheumatic fever, an acute disease which follows a streptococcus infection, can be damaging to the heart and causes a temporary arthritis of the joints with joint stiffness and pain.

2.1e. Gout is an inherited disease which painfully attacks small joints, such as fingers, toes, wrists, and ankles. It affects mostly males.

2.2. Cardio-vascular diseases are due to heart attack, arteriosclerosis, and hypertension and can be acute or chronic in nature, causing limitation of energy expenditure and in some cases paralysis. Generally, activity is limited and the patient may observe shortness of breath and exhaustion.

2.3. Cerebral palsy is a group of conditions having in common a disorder of motor control originating in the brain occurring before, during, or after birth.
2.3a. Spasticity is characterized by the tendency of the muscles to contract when put under stretch causing awkward or involuntary movements. It can affect all parts or portions of the body. Muscle tone is affected so that when a flexed arm is pulled into extension, there is resistance to pull. Extreme spasticity limits the joint range of motion and results in incoordination. Voluntary control is very difficult.

2.3b. Athetosis is characterized by a constant recurring series of slow, involuntary, and uncoordinated movements of the hands and feet. A patient can usually demonstrate some voluntary movement necessary to learn simple self-help skills.

2.3c. Ataxia is characterized by the failure of muscular coordination and disturbance of balance. Patients are usually awkward and uncoordinated. They have difficulty in balance when walking and tremor when completing fine motor activities.

2.3d. Tremor is characterized by rapid rhythmical movements.

2.3e. Rigidity is characterized by resistance to slow movement.

2.4. Multiple sclerosis; a chronic, usually progressive, crippling neurological disease striking persons usually between 20 and 40 years of age; can cause double vision, lack of balance, numbness of parts of the body, extreme weakness, and bladder difficulties. Incoordination and tremors may occur and may lead to wheel chair confinement. Symptoms and progression vary greatly.

2.5. Muscular dystrophy, a chronic and progressive disease, is manifested by gradual loss of muscle control and decrease in size of the muscles but an increase in body girth in the shoulders, upper arms, thighs, back, and face, and ultimately in the lower limbs.

2.5a. Pseudohypertrophic muscular dystrophy is sex linked, occurring mostly in males with an onset of about three to 10 years of age. Weakness in pelvic girdle eventually confines child to wheel chair by adolescence. Muscle girth increases, muscles weaken, and flexion contractures and scoliosis may occur.
2.5b. Facio-Scapulo-Humeral muscular dystrophy is inherited with onset occurring in adolescence. Weakness begins in shoulder girdle with progression affecting facial muscles, shoulders, and upper arms. Slow progression usually does not limit the patient until late in life.

2.5c. Juvenile muscular dystrophy is a hereditary disease, striking in childhood or adolescence and progressing slowly, allowing many patients to reach middle age.

2.5d. Mixed types of muscular dystrophy strike between the ages of 30 and 50 and progress rapidly often causing death in five to 10 years.

2.6. Hemiplegia is a paralysis of one lateral half of the body or part of it causing loss of sensation, loss of balance, loss of spatial sense, and muscle movement.

2.7. Paraplegia is a paralysis of the lower half of the body resulting in no lower limb muscle movement and usually incontinence.

2.8. Quadriplegia is a paralysis or partial paralysis (depending upon location of damage to spinal cord) of all four limbs resulting in no or limited muscle movement and usually incontinence.

2.9. Amputation is the loss of limbs or parts of limbs through accident, cancer, or diabetes.

2.10. Scoliosis is a lateral curvature of the spine. Thoracic spine (upper) curves to the right, lumbar spine (lower) curves to the left, causing elevation of the right shoulder and left hip, leg length difference, and a prominent hump on right scapula area. Condition becomes apparent in growing years eight to 13, especially in girls.

2.11. Kyphosis is a condition of a high rounded curvature of the spine at the back causing a protrusion between the shoulders.

2.12. Lordosis is a condition causing a rounded curvature of the spine raising the seat and hollowing the back waist.

2.13. Parkinson's disease is degenerative and appears in men and women 50 years of age or older. Clinical signs include rigidity in muscles, tremor, and flexion posture.
2.14. Spina bifida is a congenital defect in the spinal column consisting of an absence of vertebrae arches through which spinal cord membranes, with or without the spinal cord, protrude. Most often results in paraplegic and scoliotic conditions.

2.15. Aging is the final stage of growth which includes certain physiological changes that appear gradually and in various degrees. Physiological changes which may occur include loss of vital capacity, slower reaction time, body circulation changes, reduction in body weight, and osteoarthritis.

3. Two or more diseases or injuries can have similar disabling conditions causing the same clothing problems.

4. The same disease or injury in different individuals will not always cause the like motor impairments or equal degree of impairment.

5. To arrive at individual needs, clothing problems of disabled individuals can be dealt with according to the disabling conditions rather than the disease or injury.

Learning activities

1. Participate in a presentation that provides an overview of the incidence of physically disabled in Iowa and also specific data on the counties of each extension home economist involved in the in-service program. This presentation can be made by a vocational rehabilitation counselor.

2. View a slide presentation on meeting the clothing needs of a selected physically disabled individual as an introduction to the type of clothing and adaptations that can be suggested in providing assistance to disabled individuals with special clothing needs.

3. Participate in a discussion of diseases and disabling conditions as related to clothing problems which may be led by an occupational therapist. Record information from the discussion on a chart providing basic definitions and an outline of possible disabling conditions.

4. Listen to a panel of disabled individuals and parents of disabled children discuss clothing problems as related to their diseases and disabling conditions.

5. View the film Quadraplegic Training Film - Dressing, and discuss the following questions:
What movements and procedures are involved in the dressing process that able bodied individuals often take for granted?

What differences in disabling conditions did you notice among the quadraplegics in the film?

**Teaching aids**

1. Meeting the Clothing Needs of a Selected Physically Disabled Individual, a slide set, Textiles and Clothing Extension, Iowa State University.

2. Outline of Diseases or Injuries Related to Disabling Conditions. See Appendix F.

3. Diseases or Injuries and Disabling Conditions Related to Clothing, a reference chart. See Appendix F.

4. Quadraplegic Training Film - Dressing, film, Rehabilitation-Education Center, Oak Street at Stadium Drive, Champaign, Illinois, 61820.

**References**


**Unit II: Assisting the Physically Disabled with Clothing Problems**

**Objectives**

Having had the instruction, the extension home economist would be better able to:
1. Recognize the body movements necessary for an individual to dress and undress.

2. Identify the disabling conditions that may interfere with dressing.

3. Identify differences in the joint movement necessary to reach different garment closures.

4. Choose appropriate clothing for individuals with specific disabling conditions that will enable them to become more independent.

5. Recognize good fit on irregular body shapes.

6. Alter patterns to achieve good fit on irregular body shapes.

7. Select clothing styles which enhance an individual's appearance.

8. Select fabric with characteristics of easy care and durability.

9. Recognize the importance clothing can play in the social and psychological adjustment of disabled individuals.

10. Identify sources of ready-to-wear and clothing aids for the handicapped.

Generalizations and supporting facts

1. The physical abilities or movements associated with independent dressing can be categorized as reflex movements, basic-fundamental movements, perceptual abilities, physical abilities, and skilled movements.

2. The large motor movements necessary to reach and move the body and limbs in dressing and undressing are the most basic of the fundamental movements.

3. Small motor body movements and the development of the skill in using these movements are needed for manipulating simple garment closures in independent dressing.

4. The physical ability of perception is required for the body awareness and discrimination in the process of getting clothing on and off of the body.

5. A modest amount of physical strength and agility is necessary for an individual to be independent in dressing.
6. Joint movement can be minimized for individuals with limited large motor movements when consideration is given to the placement of garment openings and closures and to the use of dressing aids.

6.1. The average amount of variation from natural body angles to joint movement necessary to reach garment closures is greatest in reaching the middle of the center back.

6.2. Flexion or bending of the elbow is greatest in openings at the center front at the interclavical notch and the middle of the center back.

6.3. The joint movement of the wrist is greatest in reaching the mid-back.

6.4. The least amount of overall joint movement is needed to reach garment closures nine inches below the waistline at center front, center back, or side.

7. Independent dressing can more likely be achieved by persons with limited small motor movements when consideration is given to the type of closures used and the use of dressing aids.

7.1. Recommended clothing construction details and aids for individuals with limited small motor movements include front openings, large buttons, button shanks, button-hooks, pressure tape, elastic button cuffs, zippers, zipper pulls, pull-over or pull-on garments, and elastic shoelaces.

8. Limiting the amount of perceptual ability needed in dressing can be done by the type of openings and styles of garments.

8.1. Recommended clothing styles and aids for individuals with perceptual difficulties include wrap-around garments, complete length front openings, pants with seam openings, and pressure tape.

9. The physical strength needed for dressing can be reduced by considering the garment style, openings, closures, and the method used in dressing.

9.1. Recommended clothing styles and dressing procedures for individuals with limited physical strength include front openings, pressure tape, and a seated dressing procedure.

10. Many clothing needs of the disabled can be met through careful selection of regular ready-to-wear garments.
11. Many regular ready-to-wear garments can be adapted to meet the needs of the disabled for independent dressing.

12. Clothing styles that take into account an individual's limited physical abilities and the use of auxiliary equipment can be more comfortable and pleasing to the individual.

12.1. Clothing with enough ease for unrestricted movement is needed for individuals with limited motion.

12.2. Clothing that allows for ease of movement and a neat appearance while walking is needed for individuals using crutches.

12.3. Clothing styled around the body measurements of the seated figure is needed for individuals in wheel chairs.

12.4. Clothing for individuals using orthoses or prostheses needs to be styled to incorporate the device as a part of the body allowing for ease in fit and reinforcements for wear.

13. A garment pattern can be adjusted for individual needs by applying the techniques of pattern alteration and flat pattern design.

13.1. When making pattern changes, the designated breaking points are at the intersection of two lines or curves on the outer edge of a pattern or the point of a dart.

13.2. When cutting into a pattern, a slash may be started from any point but must end at a breaking point.

13.2a. A breaking point is the junction of two lines or curves on the outer edge of a pattern or at the point of a dart.

13.3. When pattern changing techniques result in pattern pieces with uneven edges, the edge is straightened by extending the line that will add to the pattern rather than the line that would decrease the pattern size.

13.4. Darts may be moved to accommodate body bulges, but the use of darts can emphasize a deformity by accentuating the irregularity.

14. In fitting an irregular figure, design ease can be skillfully utilized to de-emphasize orthoses, prostheses, or body deformities.
15. Attention can be directed to and away from areas of the body by the skillful use of line, color, shape, and texture.

16. Fiber, fabric construction, and finish characteristics are considerations when making clothing suggestions to meet special clothing needs of the physically disabled.

17. Being able to be independent in dressing and wearing clothing that is attractive and comfortable can have an impact on an individual's self-concept.

18. Several mail order sources provide items of clothing designed specifically for the disabled.

19. Medical supply sources sell self-help aids to make dressing and undressing easier for some disabling conditions.

Learning activities

1. Examine and discuss a classification of disabling conditions with related clothing suggestions.

2. Examine orthopedic and prosthetic appliances. Discuss implications for clothing. Invite a dealer to show the appliances.

3. Examine medical equipment including wheel chairs, walkers, crutches, and small aids to daily living, and discuss implications for clothing. Invite a dealer to show equipment.

4. View a presentation of overhead transparencies and slides on clothing suggestions for the physically disabled in the areas of attractiveness, comfort, convenience, care, and safety.

5. Examine sample garments adapted to solve specific clothing problems of the physically disabled.

6. Observe a presentation on applying the principles of pattern alterations to irregular body shapes.

7. Observe a demonstration on pattern changes made for five irregularly shaped half-scale dress forms.

8. Construct a pattern and sample garment for a half-scale dress form with figure irregularities.

9. Discuss the aesthetic effect of clothing designs on irregular figures using the garments made to fit the half-scale dress forms for the demonstration and those made by the participants.
10. Discuss in small groups case situations involving physically
disabled individuals, analyzing the clothing problems and
making suggestions for solutions.

11. Using a schedule of questions as a guide, confer with an
elderly man or woman with clothing problems and offer
suggestions to aid the individual.

12. Discuss the consultations with the elderly and share ideas
and suggestions for carrying out future clothing consultations.

Teaching aids

1. A Classification of Disabling Conditions with Related Clothing
Suggestions, a reference chart. See Appendix F.

2. Clothing for the Physically Limited Kit, Textiles and Clothing
Extension Service, Iowa State University. See Appendix F for
description of kit.

3. Half-scale irregular shaped dress forms, overhead transparencies
illustrating pattern changes, and completed garments. See
Appendix F for illustrations of the forms and garments and
script for the transparencies.

4. Case Situations of Individuals with Special Clothing Needs.
See Appendix F.

5. Reference and Resources of Clothing for the Disabled. See
Appendix F.

6. Suggested Clothing Consultation Interview. See Appendix F.

References

1. American Foundation for the Blind. Aids and appliances

2. Bare, C., Boettke, E. & Waggoner, N. Self-help clothing
for handicapped children. Chicago: National Society
for Crippled Children and Adults, 1962.

3. Boettke, Eleanor. Suggestions for physically handicapped
mothers on clothing for preschool children. School of


24. Vocational Guidance and Rehabilitation Services. Functionally designed clothing and aids for chronically ill and disabled (catalog). 2239 E. 55th St., Cleveland, Ohio, 44103.


**Unit III: Cooperation with Agencies Serving the Disabled**

**Objectives**

Having had the instruction, the extension home economist will be better able to:

1. Identify state and local agencies working with the physically disabled.
2. Identify the kinds of services provided by agencies working with the physically disabled.

3. Work cooperatively with health-related agencies by offering a clothing consultation service for their clients.

**Generalizations and supporting facts**

1. The major public agencies working with the physically disabled in Iowa communities are the Iowa State Department of Public Instruction, Rehabilitation Education and Services Branch; Iowa Department of Social Services; and Iowa Department of Public Health.

   1.1. Vocational rehabilitation counselors, working through the Division of Rehabilitation Services, provide services to disabled individuals necessary to enable optimum physical and mental functioning toward adjustment into self-supporting employment.

   1.2. The Department of Social Services, through the social service worker, provides financial assistance, medical services, and family services.

   1.3. Public health nurses provide nursing care and treatment to anyone ill or injured, living at home, and under the care of a private physician or clinic.

2. Private agencies representing specific concerns and disease assist disabled individuals.

   2.1. Some of the private agencies assisting the disabled in Iowa include American Cancer Society, Easter Seal Society of Iowa for Crippled Children and Adults, Iowa Chapter Arthritis Foundation, Iowa Heart Association, Muscular Dystrophy Association of America, National Multiple Sclerosis Society, and United Cerebral Palsy Association of Iowa. (Names appear as listed in the Human Resources Directory prepared by the Greater Des Moines United Way.)

3. Agencies and organizations who have direct contact with physically disabled individuals can help in making the consultation service known to those who could benefit by using it.
Learning activities

1. Participate in a lecture-discussion identifying the major public and private agencies in the state and in local communities that serve the disabled.

2. Discuss the implementation of the follow-up materials to be used for activating the agency referral system.

Teaching aids

1. Listing of local contact persons for agencies involved in the study for each county participating in the study. (Listing not included in this unit because of the specific nature of the contents.)

2. Follow-up for Clothing Consultation Project Schedule. See Appendix F.

References

FINDINGS AND DISCUSSION

The findings of the study concern the effectiveness of the in-service education program in enabling extension home economists to function as consultants to physically disabled individuals with clothing problems. The effectiveness of the program was assessed by three means. The first was the knowledge acquired; second, the attitudinal change as related to working with the disabled; and third, the performance of the home economists in working with the disabled. The findings also included recommendations for future involvement for extension home economists as related to areas other than clothing and expansion of the service to the entire state.

Effectiveness of the In-service Education Series: Knowledge Acquired

The assessment of knowledge acquired from the in-service education experience by the extension home economists was obtained through both direct and indirect means. The pre- and post-administration of an evaluation device provided a direct indicator of the information gained. An analysis of the nature of the consultations provided by them compared with the information included in the instructional unit gave some indirect indication of the adequacy of the preparation of the home economist to perform the consultation service.

Knowledge evaluation device

The results of the pre- and post-administrations of the evaluation device showed an increase in knowledge concerning the physically disabled after participation in the in-service series. Seventeen extension
home economists participated in the in-service series; however, complete data on the knowledge evaluation measures were available for only 15 of the participants. The home economists came to the series with varied amounts of experience and knowledge in the area of clothing for the disabled as evidenced by the eight point differential in the pretest scores as can be seen in Table 2. Only two had more than half of the 25 items on the instrument correct. Eleven of the 15 extension home economists gained at least five points on the posttest with the individual who had the lowest score showing the greatest gain. Mean scores for the two administrations show a five point difference with a greater standard deviation for the pretest than the posttest.

Table 2. Individual scores on the knowledge test

<table>
<thead>
<tr>
<th>Extension home economist</th>
<th>Knowledge Pretest</th>
<th>Knowledge Posttest</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>14</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>18</td>
<td>7</td>
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<tr>
<td>11</td>
<td>14</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>7</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>13</td>
<td>12</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>9</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>15</td>
<td>11</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>17</td>
<td>10</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Mean</td>
<td>10.063</td>
<td>15.75</td>
<td>5.867</td>
</tr>
<tr>
<td>S.D.</td>
<td>2.144</td>
<td>1.807</td>
<td>2.475</td>
</tr>
</tbody>
</table>
In a comparison of the pre- and posttest scores, a t-value of 9.18 was calculated. This value indicated a statistically significant difference beyond the .001 level, which at 14 degrees of freedom was 4.14. Because a measure of knowledge was obtained at the beginning of instruction, the gain achieved can be attributed to the in-service experience.

The knowledge posttest scores did not correlate significantly with any of nine selected variables, as shown in Table 3. Findings did not indicate that the knowledge gain was related to performance as measured by the selected quantitative variables. The home economists attaining higher knowledge scores may or may not have worked as diligently on the consultation service and those with lower scores on the test may or may not have devoted more time and effort to the program.

Table 3. Correlation coefficients showing relationships between the knowledge posttest and selected variables

<table>
<thead>
<tr>
<th></th>
<th>Knowledge posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-service evaluation</td>
<td>.376</td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>.214</td>
</tr>
<tr>
<td>Attitude post-administration</td>
<td>.044</td>
</tr>
<tr>
<td>Contact score</td>
<td>.006</td>
</tr>
<tr>
<td>Program evaluation</td>
<td>-.015</td>
</tr>
<tr>
<td>Knowledge pre-test</td>
<td>-.167</td>
</tr>
<tr>
<td>Publicity score</td>
<td>-.319</td>
</tr>
<tr>
<td>Individual consultations</td>
<td>-.348</td>
</tr>
<tr>
<td>Group consultations</td>
<td>-.463</td>
</tr>
</tbody>
</table>

*Table value for r at .05 level of significance with 16 d.f. is .498.*
The overall lowness of the test scores even in the posttest may be due to several factors. The fault could lie with the quality of the test or the test may not have been of sufficient length. Another possible factor could be there was too much information to be covered in the two days of the in-service education series. The reliability coefficient for the posttest was .33. The average difficulty index was .63, and the average item discrimination index was .28. The item analysis for the knowledge posttest can be found in Appendix G.

**Individual clothing consultations**

A profile of the clients who sought help and received individual clothing consultations was formulated to provide a basis of comparison with the information included in the instructional series. Clothing suggestions given in the instructional series were to reflect the needs of the clientele and provide the home economist with the necessary information to carry out the consultation service. The first portion of this section will present the profile; at the conclusion of the section, the relation of the profile to the lesson series will be discussed.

**Profile of clients participating in the consultation service**

There were 16 different disabilities represented by the individuals who participated in the 50 individual consultations as shown in Table 4. The most frequent were arthritis and stroke followed by paraplegia and cerebral palsy.

There was a wide range in age and distribution of sex among the clients using the individual consultation service. The age ranged
Table 4. Incidence of disabilities of persons participating in individual consultations

<table>
<thead>
<tr>
<th>Disability or disabling condition</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td>8</td>
</tr>
<tr>
<td>Stroke</td>
<td>8</td>
</tr>
<tr>
<td>Paraplegic</td>
<td>6</td>
</tr>
<tr>
<td>Cerebral palsy</td>
<td>5</td>
</tr>
<tr>
<td>Kyphosis</td>
<td>4</td>
</tr>
<tr>
<td>Milwaukee brace</td>
<td>3</td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>3</td>
</tr>
<tr>
<td>Quadraplegic</td>
<td>3</td>
</tr>
<tr>
<td>Leg brace (no disability given)</td>
<td>2</td>
</tr>
<tr>
<td>Polio</td>
<td>2</td>
</tr>
<tr>
<td>Birth defect</td>
<td>1</td>
</tr>
<tr>
<td>Blindness</td>
<td>1</td>
</tr>
<tr>
<td>Hemiplégie</td>
<td>1</td>
</tr>
<tr>
<td>Mascedectomy</td>
<td>1</td>
</tr>
<tr>
<td>Prosthesis</td>
<td>1</td>
</tr>
<tr>
<td>Spina bifida</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

from infancy to nearly 90 years. Table 5 shows that 60% were 40 years of age or older. There was close to a two to three ratio of men to women who were seeking clothing advice through the consultation service as shown in Table 6.

Table 5. Age distribution of persons participating in individual consultations

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 19</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>20 - 39</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>40 - 64</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>65 - 90</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Table 6. Sex distribution of persons participating in individual consultations

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>Male</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

The home economists recorded the functional problems, figure problems, and client clothing preferences for each individual consultation. The most frequently stated functional problems were dressing independently, interference of wheelchair with clothing, and comfort associated with style and fabric. Dressing was the most frequent of the functional problems handled. (See Table 7.) Problems associated with being in a wheelchair such as comfort and ease of movement followed as the next most frequent. Most of those with wheelchair functional problems were concerned with better fitting and looking pants. Problems associated with comfort included styles that afforded ease of movement and soft and absorbent fabrics.

Figure problems recorded were headed by those relating to body irregularities as shown in Table 8. This group included four individuals with a kyphosis condition, one of whom was a man. All were interested in achieving more attractive and more comfortably fitting garments. The second greatest problem recorded in this area was achieving good fit over braces to allow ease in dressing without sacrificing attractive fit.
Table 7. Functional problems recorded from individual consultations

<table>
<thead>
<tr>
<th>Functional problems</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dressing independently</td>
<td>21</td>
<td>36.2</td>
</tr>
<tr>
<td>Interference of wheel chair with clothing</td>
<td>15</td>
<td>25.9</td>
</tr>
<tr>
<td>Comfort associated with style and fabric</td>
<td>11</td>
<td>19.0</td>
</tr>
<tr>
<td>Wear length of garment</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>Interference of crutches with clothing</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>Rigidity affecting dressing</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Incontinence</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Comfortable shoes</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Figure problems recorded from individual consultations

<table>
<thead>
<tr>
<th>Figure problems</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fit on body irregularity</td>
<td>9</td>
<td>47.4</td>
</tr>
<tr>
<td>Fit over braces</td>
<td>7</td>
<td>36.8</td>
</tr>
<tr>
<td>Weight</td>
<td>3</td>
<td>15.8</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Client clothing preferences were summarized according to type as shown in Table 9. Most preferences were concerning two facets of style. One, which referred to the specific disabling condition, included features that were easy to manage in dressing and loose clothing for added comfort. The second facet of style preferences referred to personal tastes for "stylish clothes" or dresses with collars or dresses in preference to slacks. "Dressing stylish" was mentioned by both men and women participating in the study. Even though there was some style-consciousness, only a few individuals were concerned with fabric composition and color.
Table 9. Client clothing preferences recorded from individual consultations

<table>
<thead>
<tr>
<th>Client preference</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Style</td>
<td>16</td>
<td>76.2</td>
</tr>
<tr>
<td>Fabric</td>
<td>4</td>
<td>19.0</td>
</tr>
<tr>
<td>Color</td>
<td>1</td>
<td>4.8</td>
</tr>
</tbody>
</table>

The home economists also recorded the type of assistance made available to each individual. These are summarized in Table 10. Providing resources proved to be the most frequent assistance given. The resources included the Extension publication, Clothes to Fit Your Needs (Yep, 1974), which was recorded only when it actually serviced the client's need and not when it was given to the client as an additional reference. Other resources included the names and addresses of places where clothing and dressing aids for the disabled could be purchased. Adapting clothing was the type of assistance given in

Table 10. Type of assistance provided during individual consultations

<table>
<thead>
<tr>
<th>Assistance provided</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources</td>
<td>22</td>
<td>33.9</td>
</tr>
<tr>
<td>Adapting</td>
<td>18</td>
<td>27.7</td>
</tr>
<tr>
<td>Altering</td>
<td>11</td>
<td>16.9</td>
</tr>
<tr>
<td>Selection</td>
<td>6</td>
<td>9.2</td>
</tr>
<tr>
<td>Dressing aids</td>
<td>4</td>
<td>6.2</td>
</tr>
<tr>
<td>Referral</td>
<td>3</td>
<td>4.6</td>
</tr>
<tr>
<td>Fabric suggestion</td>
<td>1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

100
nearly 30 percent of the consultations. It included the adapting of ready-made pants for wheelchair fit and comfort by using the method described in the Extension publication on clothing for the physically limited. Other adaptations suggested were the addition of reinforcements in areas of garment stress and the changing garment fasteners for easier dressing. More than one type of assistance was provided in 30 percent of the consultation with clients.

Earlier, the kinds of functional problems, figure problems, and client clothing preferences found among those seeking assistance were presented. There also was concern for examining these problems and preferences in relation to specific disabilities and disabling conditions. (See Tables 11a and 11b.) The functional problems occurring most frequently with each disability were identified. (See Table 11a.) Dressing was the most frequently occurring problem with stroke, arthritis, and cerebral palsy victims. Wheelchair and comfort were the most common functional problems of paraplegics. Most disabilities have a multiplicity of functional clothing problems. A pattern relating functional problems to disabilities does not emerge from the limited number of cases in the study.

In analyzing figure problems by disability, fit on body irregularities was most common for kyphosis and fit over braces for clients wearing a Milwaukee brace. (See Table 11b.) Fitting problems appeared to be of less concern to the clients than the functional problems.

Most of the client preferences for all disabilities involved style of clothing. (See Table 11b.) Stroke and paraplegic disability
individuals consisting mainly of men gave more style preferences than those of other disabilities.

The kind of help provided through the consultation service was studied after the problems and preferences by disability were examined. Adaptations of ready-made clothing were the most frequent type of consultation service provided for cerebral palsy and stroke clients. (See Table 11c.) As was noted earlier, dressing was cited most frequently for both disabilities. Dressing was also cited as the most frequent functional problem for arthritis; however, the consultation service most frequently provided for the latter disability was providing resources. What is not known is if the resources provided were those suggesting adaptations. A possible explanation is that whereas arthritis creates problems in dressing due to stiffness of joints and lack of muscle control, there is less likely to be severe deformities that require altering of clothing as is likely to be true for the other two disabilities. Solutions for adapting clothing for easier dressing can be sought from written material.

**Adequacy of the instructional series** A comparison of the composition of the individual consultations with the information in the lesson series can help to infer their relatedness. The types of disabilities of the clients participating in the individual consultations were very similar to those covered in the in-service series. All of the disabilities, except blindness, were included in the in-service series. The variety in disabilities would make it difficult to deal with specific clothing suggestions for each; however, the classification of disabling conditions that was used as a teaching
Table 11a. Frequency of disability with service needed and provided

<table>
<thead>
<tr>
<th>Disability or disabling condition</th>
<th>Functional problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dressing</td>
</tr>
<tr>
<td>Arthritis</td>
<td>4</td>
</tr>
<tr>
<td>Birth defect</td>
<td></td>
</tr>
<tr>
<td>Blindness</td>
<td>1</td>
</tr>
<tr>
<td>Cerebral palsy</td>
<td>4</td>
</tr>
<tr>
<td>Hemiplegic</td>
<td>1</td>
</tr>
<tr>
<td>Kyphosis</td>
<td></td>
</tr>
<tr>
<td>Leg braces (no disability given)</td>
<td></td>
</tr>
<tr>
<td>Mascectomy</td>
<td></td>
</tr>
<tr>
<td>Milwaukee brace</td>
<td></td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>2</td>
</tr>
<tr>
<td>Paraplegic</td>
<td>1</td>
</tr>
<tr>
<td>Polio</td>
<td>1</td>
</tr>
<tr>
<td>Prosthesis</td>
<td></td>
</tr>
<tr>
<td>Quadaplegic</td>
<td>2</td>
</tr>
<tr>
<td>Spina bifida</td>
<td>1</td>
</tr>
<tr>
<td>Stroke</td>
<td>5</td>
</tr>
</tbody>
</table>
Table 11b. Frequency of disability with service needed and provided

<table>
<thead>
<tr>
<th>Disability or disabling condition</th>
<th>Fit over braces</th>
<th>Fit on body irregularities</th>
<th>Style</th>
<th>Color</th>
<th>Fabric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birth defect</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blindness</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cerebral palsy</td>
<td>1</td>
<td></td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hemiplegic</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kyphosis</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Leg braces (no disability given)</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Masectomy</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milwaukee brace</td>
<td>3</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraplegic</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polio</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Prosthetic</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadraplegic</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Spina bifida</td>
<td>1</td>
<td></td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Stroke</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 11c. Frequency of disability with service needed and provided

<table>
<thead>
<tr>
<th>Disability or disabling condition</th>
<th>Consultation provided</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Altering</td>
<td>Adapting</td>
<td>Selection</td>
<td>Sources</td>
<td>Dressing aids</td>
<td>Referral</td>
<td>Fabric</td>
</tr>
<tr>
<td>Arthritis</td>
<td>1</td>
<td>1</td>
<td></td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birth defect</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blindness</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cerebral palsy</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hemiplegic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kyphosis</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Leg braces (no disability given)</td>
<td>2</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mastectomy</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milwaukee brace</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Paraplegic</td>
<td></td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polio</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prosthesis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Quadraplegic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Spina bifida</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Stroke</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
tool in the in-service series served as a basis for the home economists to analyze specific problems. By analyzing the functional and figure problems with the client, the home economist could provide assistance without extensive knowledge in medical terminology.

The home economists were dealing with people of all ages and of both sexes. The clothing suggestions and examples of garments used in the in-service series included examples for children and older adults of both sexes.

Although the in-service series provided background on most of the situations encountered in the consultations, the preparedness of the extension home economists to deal with the wide range of problems could be questioned. The home economists were, however, instructed to refer cases which they were unable to handle themselves to the researcher. The total number of cases referred was two cases. One was a complicated pattern alteration and the other was information specifically for a blind person. In both cases the researcher handled the requests through the extension home economists.

The in-service preparation seemed to provide an adequate coverage and background for the home economists to conduct the consultation service. There was no real measure of the effectiveness of the consultation. However, judging from their description of the information given in the consultations as recorded on report forms, there was no evidence of incorrect information being provided. This method of analysis has drawbacks, however, because the consultation setting and background were not fully expanded in the data collection device.
Group clothing consultations

A total of 977 individuals were reached through 45 group meetings. The composition of the groups which is shown in Table 12 consisted of individuals who had disabilities, worked with individuals who had disabilities, or were concerned about helping these individuals. Direct assistance was given to groups of disabled and elderly individuals in over 50% of the groups. The 11 service groups and committees were informed of the existence of the consultation service to stimulate interest and publicize the service for their clientele.

Table 12. Number of groups served by consultation service

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly</td>
<td>17</td>
<td>37.8</td>
</tr>
<tr>
<td>Service groups and committees</td>
<td>11</td>
<td>24.4</td>
</tr>
<tr>
<td>Work with disabled</td>
<td>10</td>
<td>22.2</td>
</tr>
<tr>
<td>Disabled</td>
<td>7</td>
<td>15.6</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100</td>
</tr>
</tbody>
</table>

The actual numbers of individuals attending the group consultations were distributed differently from the distributions by group as shown in Table 13; however, the rank ordering remained the same. The elderly remained the largest number contacted through groups with service groups and committees, those working with the disabled, and the disabled completing the order. These findings indicate that it is possible to reach individuals needing the service through group contacts.
Table 13. Number of individuals reached by type of group served

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly</td>
<td>495</td>
<td>50.1</td>
</tr>
<tr>
<td>Service groups and committees</td>
<td>251</td>
<td>25.7</td>
</tr>
<tr>
<td>Work with disabled</td>
<td>130</td>
<td>13.3</td>
</tr>
<tr>
<td>Disabled</td>
<td>101</td>
<td>10.3</td>
</tr>
<tr>
<td>Total</td>
<td>977</td>
<td>100</td>
</tr>
</tbody>
</table>

Only five individual consultations were conducted at the group meetings and recorded on the group consultation forms. It should be noted that the home economists were instructed to record only brief consultation encounters on the group forms and to record more involved consultations as individual consultations. Of the five recorded during the group meetings, two were on adapting clothing and one each on alteration, dressing aid, and clothing sources.

Approximately 25% of the group consultations were publicity efforts. Service groups and home economics committees were provided with information about the service and given examples of help that could be provided. The remaining 75% of the group consultations actually reached people who could make use of the information either for themselves or for people with whom they worked.

The group meetings proved to be an effective way to disseminate general information that is applicable to commonly found disabling conditions. It is a way of establishing a reputation and building relationships which could result in more individual consultations.

The extension home economists were provided with visuals and publications to aid in conducting the group consultations. The resources
were not used exclusively, however. The materials were used in varying proportion with the different type of groups contacted as shown in Table 14. The clothing publication was the one most frequently used with all groups. The home economists reported that having only one state clothing kit made it difficult to schedule every time they would use it. One extension home economist used the kit for a period of 16 days while giving a series of 10 meetings with different elderly groups. The transparency packet was used next most frequently mainly with the disabled groups and the groups working with the disabled. The slide presentation which had to be scheduled from the state extension office was not frequently used. The "other" category included visuals and samples made in the county by the home economists. The items that seemed to be most useful were those that were available in the county offices. Visuals that had to be borrowed from a state office could not always be scheduled when needed by the home economists.

Table 14. Consultation aids used at group meetings

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of groups</th>
<th>Transparency packet</th>
<th>State clothing kit</th>
<th>Slide presentation</th>
<th>Clothing publication</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly groups</td>
<td>17</td>
<td>2</td>
<td>11</td>
<td>1</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Service groups and committees</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Work with disabled</td>
<td>10</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Disabled</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>11</td>
<td>16</td>
<td>3</td>
<td>33</td>
<td>16</td>
</tr>
<tr>
<td>Percentage</td>
<td></td>
<td>13.9</td>
<td>20.3</td>
<td>3.8</td>
<td>41.7</td>
<td>20.3</td>
</tr>
</tbody>
</table>
The development of a kit of visuals including clothing samples for the county could be part of an update in-service workshop. The consultation aids prepared as part of the instructional series were for the most part well used and enabled the home economists to provide group consultation with a limited amount of preparation. The development of more aids that would be available locally could have been of even greater assistance to the home economist.

**In-service series evaluation**

The home economists evaluated the effectiveness of the in-service series at the conclusion of the six-month study. There were seven possible scores ranging from one to seven, with seven indicating a favorable evaluation. (See page 77 for score conversion procedure.) Sixty percent of the scores were a six or above as shown in Table 15.

Table 15. Individual scores on in-service evaluation

<table>
<thead>
<tr>
<th>Range of scores</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

The majority of the home economists indicated the content received was adequate to begin the project and they were able to handle questions and problems that arose during the consultation service. Their comments
on the adequacy and quality of the in-service education are summarized
in Table 16.

Table 16. Frequency of comments recorded on in-service evaluation

<table>
<thead>
<tr>
<th>Comments</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training was very good</td>
<td>8</td>
</tr>
<tr>
<td>Would have liked to meet again during the project</td>
<td>3</td>
</tr>
<tr>
<td>Disabling diseases session was excellent</td>
<td>2</td>
</tr>
<tr>
<td>Found I could talk intelligently with individuals and make realistic evaluations and suggestions</td>
<td>2</td>
</tr>
<tr>
<td>Training was thorough and well planned</td>
<td>1</td>
</tr>
<tr>
<td>Enjoyed &quot;practical&quot; part of workshop</td>
<td>1</td>
</tr>
<tr>
<td>Did not enjoy night workshop</td>
<td>1</td>
</tr>
<tr>
<td>Appreciated new ideas received through mail</td>
<td>1</td>
</tr>
</tbody>
</table>

It should be noted that the evaluation took place six months after the in-service education experience. No doubt some accuracy was lost as the home economists tried to reconstruct an experience from the past. The advantage of waiting until the conclusion of the study to evaluate the in-service experience was that the home economists could react to how useful the information they received had been in light of their consultation experiences.

Effectiveness of the In-service Education Series: Attitude Change

The attitudes of the extension home economists toward working with the physically disabled were assessed directly by an attitude scale before the in-service series began and again at the conclusion of the six-month consultation service period. An indirect indicator that reflected the attitudes of the home economists toward the consultation service was their evaluation of the total program.
Attitude toward disabled persons scale

The attitudes of the home economists toward disabled persons were measured before the in-service education series and again at the conclusion of the six-month study. The possible range of scores was 0 to 180 with a high score reflecting positive attitudes. The scores of the extension home economists ranged from 70 to 158 in the pre-administration and 68 to 162 in the post-administration. (Refer to Table 17.) There were seven home economists who increased their scores by over 10 points. Four, however, had a lower score, ranging from 2 to 18 points below their pre-administration score.

Table 17. Individual scores on the attitude inventory

<table>
<thead>
<tr>
<th>Extension home economist</th>
<th>Attitude inventory Pre-administration</th>
<th>Post-administration</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>89</td>
<td>95</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>123</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>158</td>
<td>161</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>138</td>
<td>159</td>
<td>21</td>
</tr>
<tr>
<td>5</td>
<td>141</td>
<td>162</td>
<td>21</td>
</tr>
<tr>
<td>6</td>
<td>144</td>
<td>138</td>
<td>-6</td>
</tr>
<tr>
<td>7</td>
<td>143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>109</td>
<td>125</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>128</td>
<td>110</td>
<td>-18</td>
</tr>
<tr>
<td>10</td>
<td>107</td>
<td>128</td>
<td>21</td>
</tr>
<tr>
<td>11</td>
<td>141</td>
<td>139</td>
<td>-2</td>
</tr>
<tr>
<td>12</td>
<td>88</td>
<td>128</td>
<td>40</td>
</tr>
<tr>
<td>13</td>
<td>126</td>
<td>137</td>
<td>11</td>
</tr>
<tr>
<td>14</td>
<td>119</td>
<td>124</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>128</td>
<td>134</td>
<td>6</td>
</tr>
<tr>
<td>16</td>
<td>70</td>
<td>68</td>
<td>-2</td>
</tr>
<tr>
<td>17</td>
<td>101</td>
<td>140</td>
<td>39</td>
</tr>
<tr>
<td>Mean</td>
<td>119.375</td>
<td>130.687</td>
<td>10.733</td>
</tr>
<tr>
<td>S.D.</td>
<td>23.846</td>
<td>24.270</td>
<td>15.962</td>
</tr>
</tbody>
</table>
In a comparison of the pre- and post-administration scores, a t-value of 2.60 was calculated. This value approximated statistical significance at the .02 level, which at 14 degrees of freedom was 2.620.

The difference in the pre- and post-knowledge scores were all positive, whereas there were four negative differences between the attitude scores. The extension home economists in the state had a limited amount of experience in working with physically disabled individuals prior to the in-service education series. Some had participated or organized area meetings for those working with the disabled; however, few had actually been involved in the teaching.

The results of the attitude test gave a moderate indication of positive change. A comparison of the means of the pre- and post-administrations shows a gain of over 10 points. The amount of gain in individual scores was large for five individuals increasing their scores by over 20 points in the post-administration. Four individuals had attitudes which were less positive at the close of the six-month study, however, the differences in these scores were not as great as those who had positive score gains. An attempt to correlate the attitude change with the consultations made did not show that the attitude reflected the number of consultations made. One home economist whose attitude score decreased did not conduct any individual or group consultations, however, she had exerted considerable effort as evidenced in her contact and publicity scores. Others with decreased attitude scores, however, did not have fewer consultations than the rest of the home economists in the study.

Attitude change is something that does not occur quickly. Even in the lapse of six months during the study, one cannot expect great
changes to occur. Attitude change may or may not be increased positively by contacts with disabled persons. The average number of individual consultations by home economists was only approximately three, and the average number of people reached by groups was approximately 58. The opportunities were limited, therefore, for personal interaction which may have assisted with increasing the positive attitude change.

The attitude pre-administration score was correlated with a selected group of nine variables, as shown in Table 18. The attitude prior to beginning the in-service education experience did not prove to be related to the performance of the home economists as measured by their effort to contact agencies, publicize the service, and provide individual and group consultations. Home economists with lower positive attitudes toward the disabled may not have been hampered from making a contribution toward helping the disabled. The only statistically significant correlation was with the attitude post-administration scores, indicating there was a relationship between attitudes before and after the study.

Project evaluation

An indirect assessment of attitude was seen through the home economists' evaluation of the clothing consultation service project. The evaluation showed that the home economists were receptive of the idea. The evaluation consisted of nine items which the home economists were to mark if they agreed with the statement. There were 10 possible scores including zero. The overall rating of the project was high,
Table 18. Correlation coefficients showing relationships between the attitude pre-administration scores and selected variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Attitude pre-administration score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude posttest</td>
<td>.793*</td>
</tr>
<tr>
<td>Program evaluation</td>
<td>.277</td>
</tr>
<tr>
<td>Knowledge pretest</td>
<td>.130</td>
</tr>
<tr>
<td>Group consultations</td>
<td>.118</td>
</tr>
<tr>
<td>Individual consultations</td>
<td>.067</td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>-.008</td>
</tr>
<tr>
<td>In-service evaluation</td>
<td>-.111</td>
</tr>
<tr>
<td>Contact score</td>
<td>-.302</td>
</tr>
<tr>
<td>Publicity score</td>
<td>-.574</td>
</tr>
</tbody>
</table>

*Significant at P > 0.001.

with 56% scoring eight or above, as can be seen in Table 19. The responses indicated that the agencies contacted showed an interest in the service and some did respond by referring clients. The home economists reported that the service was received favorably by those making use of it. Twelve of the 16 home economists agreed that the Extension Service is a well-equipped agency to work with the disabled on clothing problems.

The total project was rated nearly an eight on a scale of one to 10, with 10 being the highest rating possible. (See page 77 for score conversion procedure.) This rating was quite high considering the fact that the home economists were incorporating the program into their already full work schedules. They had been told of the program in advance and it was hoped that they would plan their time accordingly; however, comments from the home economists indicated that time was not set aside.
Table 19. Individual scores on the project evaluation

<table>
<thead>
<tr>
<th>Range of scores</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
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<tr>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
</tr>
<tr>
<td>Mean</td>
<td>7.875</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.204</td>
</tr>
</tbody>
</table>

Part of the project evaluation dealt with the reception and cooperation of other agencies and organizations. The success of this part of the study can be attributed to the plan for agency involvement. The contacts of state-level agencies and organizations were believed to have provided the linkage to positive acceptance on the local level.

The favorable reception of the project by the home economists could have been attributed to several factors. The novelty of a new project and working with a new audience may have helped create this climate. The organization of the project from the state level with other agencies also may have caused action on the part of some home economists because of the role expectation on the part of agencies participating as referral sources.
Effectiveness of the In-service Education Series: Performance of the Home Economists

The performance of the extension home economists in the study was examined through the effort they exerted in publicizing the consultation service, the number of actual consultations made, and a self-evaluation of performance. Selected variables were grouped to form a performance rating to see if there was a relationship between performance and the scores on the knowledge tests, attitude measures, and the final evaluation.

Publicizing the consultation service

Referrals for the clothing consultation service were stimulated through agencies and organizations who had been contacted by extension home economists through letter, phone, and personal visits. Referrals also came from publicity efforts. Local publicity was arranged through newspaper, radio, television, and extension newsletters.

More contacts were made by letter than by either phone or personal visits. All home economists sent at least four letters; two made no phone calls and four made no personal contacts. The greatest number of letters sent by any one home economist was 11; phone contacts, eight; and personal visits, seven, none of which were completed by the same person. Some agencies received more than one type of contact by the same extension home economist. A total number of contacts made, therefore, would not equal the total number of local groups reached. Seventy-two percent of the agency contacts took place during the first two months of the study, 28% during the second two months, with none during the last two months.
Since there was a difference in time spent on the three types of contacts and also a difference in potential effectiveness because of establishing a more personal contact, a weighted contact score was established. A letter contact was given one point, a phone contact two points, and a personal contact three points. The weighted scores ranged from eight to 42 as shown in Table 20. The home economist with the lowest score made no phone or personal contacts and the one with the highest score made an approximately equal number of the three types of contacts.

Table 20. Number and method of agency contacts and weighted contact score for each extension home economist

<table>
<thead>
<tr>
<th>Extension home economist</th>
<th>Method of agency contacts</th>
<th>Weighted contact score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Letter</td>
<td>Phone</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
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<tr>
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<tr>
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<tr>
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<td>17</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>60</td>
</tr>
<tr>
<td>Mean</td>
<td>5.647</td>
<td>3.529</td>
</tr>
</tbody>
</table>
Approximately 65% of the publicity efforts were made through newspapers. The combined efforts of radio announcements and radio programs represented another 26%. Not all of the extension home economists had access to local television stations, and so this medium did not prove to be a major source of publicity. A category, "other publicity contacts made," on the evaluation form identified extension newsletters as another source of publicity used by several home economists. Sixty-nine percent of the publicity efforts were accomplished during the first two months of the study, 30% during the second two months, and 1% during the last two months.

Numbers of publicity efforts in all categories were summed to arrive at a total publicity score for each home economist, as can be seen in Table 21. The scores showed a wide variation in effort ranging from three to 14 with a mean score of six.

During the six-month operational period of the consultation service, 1,027 individuals were reached with information concerning clothing for the physically disabled. (See Table 22.) There were 50 individual consultations and 45 group meetings provided by the 17 extension home economists participating in the study. The data shown in Table 22 indicate that the average of one hour was spent for each individual consultation; whereas, the average time used for each group consultation was approximately two and one-third hours. While a larger proportion of individuals was reached through the group contacts, the nature of the contacts was providing assistance in most situations through a secondary source rather than directly to the person needing the assistance. The performance of individual home economists
Table 21. Number and type of publicity efforts and publicity score for each extension home economist

<table>
<thead>
<tr>
<th>Extension home economist</th>
<th>Publicity efforts</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Newspaper</td>
<td>Radio announcements</td>
<td>Radio program</td>
<td>TV</td>
<td>Newsletter</td>
<td>Publicity score</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Mean</td>
<td>4.235</td>
<td>.941</td>
<td>.765</td>
<td>.294</td>
<td>.294</td>
<td>6.529</td>
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<td></td>
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</tr>
</tbody>
</table>

varied greatly. Only two provided no individual consultations, whereas five held no group consultations. One person conducted neither, even though she had an approximate average weighted contact score and an above average publicity score. The most time any one individual spent on the consultations was 32 hours, which averages slightly over one hour per week over the six-month period. The average total time per home economist spent was nine hours which would have been about one and a half hour per month. The time spent by each home economist on individual and group consultations was extremely low in relation to their total work load. The small amount of actual time spent with
Table 22. Number and time spent on individual and group consultations by each extension home economist

<table>
<thead>
<tr>
<th>Extension home economist</th>
<th>Individual consultations</th>
<th>Time on individual consultations</th>
<th>Group consultations</th>
<th>Number reached by group consultations</th>
<th>Time on group consultations</th>
<th>Total number of people reached</th>
<th>Total time</th>
</tr>
</thead>
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<td></td>
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<td>45</td>
<td>977</td>
<td>105</td>
<td>1,027</td>
<td>154.7</td>
</tr>
<tr>
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<td>2.924</td>
<td>2.647</td>
<td>57.47</td>
<td>6.176</td>
<td>60.41</td>
<td>9.1</td>
</tr>
</tbody>
</table>
disabled individuals may provide an explanation for the limited change in attitudes toward the disabled.

Data were collected in two-month intervals over the six-month period from March 1, 1975, to September 1, 1975. (See Table 23.) The consultations in the first two-month period outnumbered those in either of the following periods. Fifty-eight percent of all the individual consultations and 42% of the group consultations occurred in the first period. The number of individual consultations decreased during the six months. However, there was an increase in the number of group consultations from the second to the final data collection period.

Table 23. Distribution of consultations over the six-month period of the study

<table>
<thead>
<tr>
<th>Consultations</th>
<th>2 months</th>
<th>4 months</th>
<th>6 months</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>29</td>
<td>17</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>Group</td>
<td>19</td>
<td>11</td>
<td>15</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>28</td>
<td>19</td>
<td>105</td>
</tr>
</tbody>
</table>

The initial enthusiasm for the project is evidenced by the highest number of consultations occurring during the first two months of the service. As preparation for summer extension programs began, the number of both consultations began to fall. When the project was nearing completion, a few more group consultations were stimulated perhaps as a final effort on the part of the home economist.

Although there was not a significant correlation between agency contacts and publicity efforts of the home economists with the number
of consultations, there was an observed trend in the data. The majority of the agency contacts and publicity efforts occurred during the first two months of the study. It was at this time also that more of the consultations took place. During the second and third two-month periods, there was a decrease in agency contact and publicity effort and likewise in individual consultations. Continued publicity and the building of relationships with agencies may help in equalizing the number of individual consultations received over a period of time.

The referral sources for both the individual and group consultations were analyzed in an effort to see which sources provided the home economists with more consultations. The greatest number of contacts for individual consultations came equally from agencies and newspapers, as shown in Table 24. The referral sources for a large proportion of the group consultations were unidentified. Only two sources were named as group referrals; agencies were credited with the most and personal, meaning the extension home economist herself, was the other.

Findings indicate that the major means of reaching those who would benefit from the service was through agencies that are directly involved with the disabled. This finding supports the initial assumption that the Extension Service would be viewed by these groups as complementary rather than competitive in efforts to meet needs. Newspapers also proved to be a viable means of reaching clientele for both individual and group consultations. Other types of sources were used depending on individual situations.
Table 24. Referral sources of individual and group consultations

<table>
<thead>
<tr>
<th></th>
<th>Individual consultations</th>
<th>Group consultations</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Agency</td>
<td>15</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>Newspaper</td>
<td>15</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Unidentified</td>
<td>7</td>
<td>35</td>
<td>42</td>
</tr>
<tr>
<td>Extension home economist</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Newsletter</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Radio</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Special mailing</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Aide</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Relative</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Personal</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Two counties participated in a special mailing to disabled individuals and friends of the disabled in cooperation with the Iowa Easter Seal Society. This mailing effort was intended to increase the number of requests for consultations. As can be seen in Table 24, however, only two consultations were reported as a direct result from the special mailing effort.

To determine if there was a relationship between the number of individual and group consultations and the contact score and publicity score, the variables were correlated. As can be seen in Table 25, no statistically significant relationships were found.

The extension home economists attempted to establish an awareness of the consultation service through contacting local health-related agencies and through publicizing the service. Six months was a relatively short period of time to establish identity and acceptance in their respective communities as consultants for the physically
Table 25. Correlation coefficients for number of consultations with contact and publicity scores

<table>
<thead>
<tr>
<th>Consultations</th>
<th>Correlation coefficient&lt;sup&gt;a&lt;/sup&gt;</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contact score</td>
<td>Publicity score</td>
</tr>
<tr>
<td>Individual</td>
<td>.303</td>
<td>.143</td>
</tr>
<tr>
<td>Group</td>
<td>.364</td>
<td>.241</td>
</tr>
</tbody>
</table>

<sup>a</sup>Table value for r at .05 level of significance with 17 d.f. is .482.

disabled individuals with clothing problems. One social action model describes a five-step process for adoption of a new idea (Bohlen and Beal, 1975). These steps are: a) awareness, b) interest, c) evaluation, d) trial, and e) adoption. The home economists began to establish an awareness in the study. The interest was there and more was created on the part of many disabled people. This process, however, is one which takes time to develop; this program may only have begun the process. Progress has been made in establishing a reputation for the home economist from successful contacts. It is believed that continued efforts over the years will build the confidence and a reputation resulting in more call for consultations and assistance from extension home economists.

Self-evaluation

The home economists were asked to evaluate themselves in relation to their performance in the study. Based on a one to seven range, the mean was 5.313. The range of the scores varied more on the self-evaluation than on the project or in-service evaluations.
Approximately 60% had a score of five or six, as can be seen in Table 26. Responses to questions composing the self-evaluation revealed that 10 out of 16 were satisfied with the way they handled individual and group contacts. Fourteen out of 16 responded that they would continue to work in this area if called upon even though the six-month study had terminated. Additional comments concerning the self-evaluation are summarized in Table 27. The home economists were realistic in

Table 26. Individual score on the self-evaluation

<table>
<thead>
<tr>
<th>Range of scores</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

Total 16
Mean 5.313
S.D. 1.250

Table 27. Comments recorded on self-evaluation

<table>
<thead>
<tr>
<th>Comments</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time was the largest problem</td>
<td>5</td>
</tr>
<tr>
<td>Enjoyed the contacts made with individuals</td>
<td>4</td>
</tr>
<tr>
<td>The work was exciting and fulfilling</td>
<td>2</td>
</tr>
<tr>
<td>People contacted seemed to want more of an opportunity to visit than clothing suggestions</td>
<td>1</td>
</tr>
<tr>
<td>Feel disabled persons are reluctant to have this type of help from a stranger</td>
<td>1</td>
</tr>
<tr>
<td>Feel frustrated because no inquiries for consultations were received</td>
<td>1</td>
</tr>
</tbody>
</table>
their evaluations of themselves. The lack of sufficient time to spend on the program was the most frequently mentioned comment. More advance planning with the home economists in working the program into their plan of work may have helped the pressure of time. Most of the home economists indicated the study was a positive experience. They enjoyed the contacts made and were very willing to continue to handle requests even after the six-month program was concluded.

The four performance variables; individual consultations, group consultations, contact scores, and publicity scores, were examined in relation to the components of the final evaluation device. The only statistically significant relationship occurred between the number of group consultations made and the score on the in-service evaluation as shown in Table 28. The correlation was negative and the inverted relationship of in-service evaluation score to number of group consultations did not prove to be helpful in the analysis.

Table 28. Correlation coefficients for the final evaluation device with performance variables

<table>
<thead>
<tr>
<th></th>
<th>Attitude post-administration</th>
<th>Program evaluation</th>
<th>In-service evaluation</th>
<th>Self-evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group consultations</td>
<td>.455</td>
<td>-.228</td>
<td>-.642*</td>
<td>-.479</td>
</tr>
<tr>
<td>Individual consultations</td>
<td>.221</td>
<td>.134</td>
<td>-.414</td>
<td>-.283</td>
</tr>
<tr>
<td>Contact score</td>
<td>-.342</td>
<td>.002</td>
<td>.079</td>
<td>.364</td>
</tr>
<tr>
<td>Publicity score</td>
<td>-.490</td>
<td>-.082</td>
<td>.287</td>
<td>.044</td>
</tr>
</tbody>
</table>

*Significant at P < 0.001.
Performance rating

A performance rating was created for each home economist by adding together her contact score, her publicity score, the number of group consultations held, and the number of individual consultations made which was multiplied by the time spent on each individual consultation. The performance rating was correlated with a group of selected variables as shown in Table 29. None of the correlations was found to be significant.

<table>
<thead>
<tr>
<th>Assessments</th>
<th>Performance rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-evaluation</td>
<td>.161</td>
</tr>
<tr>
<td>Knowledge pretest</td>
<td>.010</td>
</tr>
<tr>
<td>Program evaluation</td>
<td>-.038</td>
</tr>
<tr>
<td>Attitude post-administration</td>
<td>-.061</td>
</tr>
<tr>
<td>In-service evaluation</td>
<td>-.067</td>
</tr>
<tr>
<td>Attitude pre-administration</td>
<td>-.188</td>
</tr>
<tr>
<td>Knowledge posttest</td>
<td>-.256</td>
</tr>
</tbody>
</table>

*Table value for r at .05 level of significance with 17 d.f. is .482.*

It can be expected that the home economists had only a limited amount of control over their performance because their settings were so varied. There were some variations in terms of the pressures and work loads that the home economists were faced with over the six-month period. Variations in locality also made a difference in the kinds of publicity and agency sources available and the number of disabled individuals living within their county. These external factors may
have hindered some home economists with high knowledge and attitude scores from achieving higher performance ratings. Likewise, some home economists who did not score high on the test measures may have been in a locality where there were more opportunities for the consultation service to operate. Therefore, the lack of consistency may have been functioning in the computation of the correlations.

Scores from three components of the final evaluation; program, in-service, and self-evaluations; were intercorrelated as shown in Table 30. Significant relationships at the .001 level were found between the program evaluation and self-evaluation, the in-service series evaluation with the self-evaluation.

Table 30. Intercorrelation coefficients for program, in-service, and self-evaluation

<table>
<thead>
<tr>
<th></th>
<th>Program</th>
<th>In-service</th>
<th>Self-evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>In-service series</td>
<td>.138</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>.604*</td>
<td>.593*</td>
<td>-</td>
</tr>
</tbody>
</table>

*Significant at P < 0.001.

Home economists with higher evaluations of the in-service series tended to have higher satisfaction with their performance as indicated in their self-evaluations. The in-service may have provided them with enough confidence to feel good about their performance. The in-service evaluation was not, however, significantly related to the program evaluation which may indicate the preparation could not alter their
own local situation in terms of the responses from agencies and disabled individuals seeking the consultation service. A relationship was found to exist between the program evaluation and the self-evaluation indicating that when the program was well received, the home economist's evaluation of herself tended to increase.

Recommendations for Continued Work in Rehabilitation

Four recommendations, as listed in Table 31, were included in the final evaluation to which the home economists were asked to respond. The two recommendations receiving the most favor were concerned with providing in-service education in rehabilitation for all extension home economists. The greatest number of responses concerned employing multi-area rehabilitation specialists. Although this alternative was favorable to some, others chose not to recommend it because they were concerned about how funds would be available for this purpose.

The importance of extension home economists working with the physically disabled was reflected in the responses to the recommendation that all extension home economists should receive general education in rehabilitation and be able to meet the needs in their communities. The almost equally supported recommendation concerned providing in-service education in other areas of home economics subject matter. As the home economists interacted with disabled individuals, they became aware of the problems encountered in areas such as housing and food preparation. In some cases they were asked for advice on areas other than clothing. The needs of the disabled or of people in general do not appear to categorize by subject matter areas.
Table 31. Recommendations by home economists for continued work with the physically disabled

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Frequency</th>
<th>Percentage^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>All extension home economists should receive general education in rehabilitation so they can meet needs in their own counties and refer problem cases to other extension home economists in their area with more preparation in that specific subject matter</td>
<td>12</td>
<td>75</td>
</tr>
<tr>
<td>In-service education should be provided on rehabilitation in other home economics subject matter areas</td>
<td>11</td>
<td>69</td>
</tr>
<tr>
<td>An extension rehabilitation specialist on a multi-area basis could best meet the needs of the disabled in the home economics areas</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td>One extension home economist per area should receive preparation in all subject matter pertaining to the disabled and handle all area requests</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>

^aNumbers in this column sum to more than 100% because some respondents gave more than one response.

A general knowledge of rehabilitation in all home economics areas, therefore, would enable an extension home economist to provide assistance that is requested in any area related to the home and family.
SUMMARY AND RECOMMENDATIONS

Meeting the special clothing needs of physically disabled individuals has been a challenge over the years for family members and professionals working with the physically disabled. The Institute of Physical Medicine and Rehabilitation in New York City has been one of the centers most concerned with the clothing problems of physically disabled individuals. A study which was conducted by Cookman and Zimmerman (1961) at the New York Institute found approximately one-half of the patients interviewed still had clothing-related problems upon discharge from the rehabilitation facility. Local health-related professionals, such as vocational rehabilitation counselors and public health nurses, do not have the expertise or competencies in the clothing area to assist these people once they return to their own communities.

Requests concerning clothing-related problems from physically disabled individuals in the state of Iowa led to attempts by the Iowa Cooperative Extension Service to meet these needs. A series of meetings were held with disabled persons and professionals working with the disabled and a publication on clothing for the physically limited was prepared (Yep, 1974). These efforts aided with general clothing needs; however, requests on specific help continued to come to the attention of the state extension clothing specialist. Because of the apparent need as evidenced by the number of requests received, consideration was given to involving extension home economists who had
expertise in the clothing area as the channel for working with the disabled on individual and small group bases.

A review of the literature provided insight as to the role for home economics in rehabilitation and perception and present status of research and developments as related to clothing for the physically disabled. The literature revealed a trend toward an increasing effort on the part of home economists to become involved in rehabilitation. The efforts gained momentum in 1954 when the U.S. Vocational Rehabilitation Administration first recognized the homemaker as a rightful recipient of vocational rehabilitation services. In the 1970's two pieces of federal legislation, the rehabilitation amendments of 1973 and the social services amendments of 1974, brought new emphasis to the education and care of the severely disabled. The education amendments of 1974 mandated that handicapped children be integrated into the regular classroom whenever possible. Thus, an increasing number of home economics teachers are becoming involved in working with disabled students. These opportunities have again challenged home economists to become involved in research projects, demonstration programs, and workshops involving the physically disabled.

The literature concerned with clothing for the physically disabled revealed that information on clothing needs and solutions came from various sources. Many of the original ideas on clothing for the disabled came from therapists, special education teachers, and parents as solutions for clothing problems of specific individuals. Ideas on self-help which included dressing were passed along by professionals working in rehabilitation. Early journal articles provided practical
information for other health professionals. In the 1950's, the Institute of Physical Medicine and Rehabilitation in New York City set up a clothing research project to study the disabled and design garments to meet their needs. The work started at the Institute was carried on through the Clothing Research and Development Foundation established at that institution in 1961.

Research studies reported in the literature involving clothing for the disabled were all concerned to some extent with identifying the desired clothing characteristics needed by individuals with certain disabilities. After such an identification was made, some studies used the information to either design or adapt garments to meet the clothing needs. Several of the studies involved working on a one-to-one basis with disabled individuals in designing or adapting the clothing. Very little was found in the literature that dealt with the synthesis and integration of clothing suggestions for the disabled.

Because of a recognized need to prepare the extension home economists to work specifically with the disabled, the present study was planned and carried out. The major objective was to explore the effectiveness of an in-service program for extension home economists which would prepare them to function as consultants to physically disabled individuals with clothing problems. To facilitate the achievement of this objective, two subordinate objectives were identified. These were to evaluate the use of the consulting service of the extension home economists by physically disabled individuals and to evaluate the strengths and weaknesses of the in-service program as perceived by the extension home economists. Another objective was
to make recommendations for preparing and providing in-service programs for extension home economists serving as clothing consultants for the disabled.

The study was composed of three essential components. The first and most basic was the development and execution of an in-service instructional series to prepare extension home economists for working with disabled individuals who had clothing problems. Secondly, the cooperation of extension home economists from both the administration level and the home economists themselves had to be obtained. Finally, a referral system throughout the state had to be established as a means of reaching the clientele who could benefit from the service.

The development of the in-service instructional series was undertaken as a major component of the study. A review of the literature, professional experience in the field as a state extension specialist in textiles and clothing working with the disabled, and visits to rehabilitation centers in various parts of the United States provided the basis of information for the construction of the instructional series. These were Unit I: Physical disabilities and disabling conditions that have an impact on clothing, Unit II: Assisting the physically disabled with clothing problems, and Unit III: Cooperation with agencies serving the disabled.

The overall purpose of Unit I was to introduce the extension home economists to information about disabling conditions to help them analyze clothing problems and make suggestions for clothing. The concluding objective for the unit was for the home economists
to be able to recognize the possible relationship of the disabling conditions to clothing problems.

Unit II was developed to prepare the extension home economists for consulting with physically disabled individuals about clothing problems. The content involved providing practical clothing suggestions to meet specific needs.

The purpose of Unit III was mainly to inform the extension home economists of agencies in their respective areas of the state serving the disabled and the potential cooperation that could be established. Strategies for cooperation with these agencies were examined.

The curriculum components included in the instructional series were the objectives, generalizations, and learning activities. Supportive instructional materials were developed for use in implementing the instructional series. The variety of teaching aids included slides, overhead transparencies, half-scale dress forms in irregular body shapes, garments, and charts organizing technical information.

The in-service series was conducted over two days including one evening session, February 26-27, 1975, at Iowa State University utilizing the Textiles and Clothing Department and administrated by the researcher. During that time the home economists participated in lecture-demonstrations and discussions, a workshop experience on fitting irregular body shapes, and a practice consultation experience. The home economists were pretested on knowledge and attitude. The knowledge instrument was constructed by the researcher to measure the cognitive learning resulting from the instructional series.
The instrument consisted of 25 multiple choice items. An instrument was selected from the literature to measure the attitudes of the home economists toward the disabled; it was the Attitude Toward Disabled Persons Scale (Yuker, Block, & Young, 1970).

The second crucial component of the study involved gaining the cooperation of the extension home economists. Permission was obtained from Extension administration for the involvement of the extension home economists. Extension area directors in the 12 geographic areas of the state were asked to select at least one home economist from their area with subject matter expertise in textiles and clothing to participate in the study. This resulted in 17 extension home economists being asked to participate. All 17 agreed although one was unable to complete the six-month commitment.

The third component of the study was creating a referral system to stimulate clothing consultations for the extension home economists. State level health-related agencies were identified and asked to participate in forming a referral system for the consultation service. The state administrators for seven agencies or organizations attended a meeting for the purpose of learning about the clothing consultation project. These state agency personnel informed their local staff members of the project and encouraged them to participate. Through the state level agency cooperation, the project was approved within the agency before local contact was made through the extension home economists. It was decided that the home economists would contact four of the seven agencies on the local level because they were accessible to local agency personnel. Plans for publicizing the
consultation service also included the use of media. Newspaper and radio releases were given to the home economists to stimulate awareness of the service in the local community. A data collection form was also provided for the home economists to record information on their contacts with agencies and their publicity efforts.

The consultation service operated for a six-month period following the in-service instruction during which time data were collected on the individual and group consultations. Two forms were created for that purpose and collected for review at intervals throughout the six-month period.

At the conclusion of the six-month period, the attitude inventory was re-administered and a final evaluation was given to the extension home economists. The final evaluation sought data on the home economists' evaluation of the project, the preparation they received from the in-service instruction in light of their role in the study, and their own performance in the project.

The findings reported the effectiveness of the in-service education series as assessed by three means. The first was the knowledge acquired; second, the attitudinal change as related to working with the disabled; and third, the performance of the home economists in working with the disabled.

The knowledge acquired was assessed directly by the pre- and post-administration of an evaluation device, and indirectly by an analysis of the preparedness of the home economist to deal with the clothing problems with which she was expected to work. Data on the in-service series evaluation which were collected at the conclusion of the study
also revealed information concerning the adequacy of the in-service
in preparing the home economist for the project.

The results of the pre- and post-administrations of the cognitive
test showed an increase in knowledge concerning the physically dis­
abled after participating in the in-service instructional series. A
t-value indicated a statistically significant difference beyond the
.001 level. Findings did not indicate that the knowledge gain, how­
ever, was related to performance as measured by selected quantitative
variables.

A profile of the clients who received individual clothing consulta­
tions was formulated as a basis for evaluating the information included
in the instructional series as to its appropriateness and coverage.
Sixteen different diseases or disabling conditions were represented
among the 50 consultations. The most frequent were arthritis and
stroke. All of the conditions were dealt with in the instructional
series with the exception of one, blindness which, by itself, is not
likely to cause functional or fitting clothing problems. The variety
in disabilities seeking the consultations would make it difficult to
deal with specific clothing suggestions for each, however, a classifi­
cation of disabling conditions that was used as a teaching tool in
the in-service series served as a basis for the home economists to
analyze problems.

The age of the clients ranged from infancy to 90 years of age,
with over 50% being over 40 years. There were 38% males and 62%
females. Information and examples used in the instructional series
did include the range of ages and both sexes as represented by the actual clientele reached.

Data summarized by the home economists on the individual consultation forms provided additional information that tended to validate the emphasis included in the instructional series. The most frequently reported functional problem of the clients was dressing, approximately 36%; problems associated with wheel chair comfort and function, approximately 26%; and comfort problems associated with style and fabric, 19% of the clients. The two figure problems recorded most often were fit on body irregularities, approximately 47% and fit over braces, approximately 37%. Client preferences were expressed most often in terms of design choices rather than fabric or color.

The nature of the consultations and kind of help provided by the home economists were compared to the functional problems, figure problems, and client preferences. Of the consultations provided, approximately 34% were providing resources such as the Extension Service's publication, Clothes to Fit Your Needs (Yep, 1974), and names and addresses of places where clothing and dressing aids could be purchased. Nearly 28% of the consultations concerned adaptations to ready-made clothing; whereas, approximately 17% were alterations of patterns for home construction.

The functional problems, figure problems, client clothing preferences, and consultation provided were examined in relation to specific disabilities and disabling conditions. Most disabilities have a multiplicity of functional clothing problems so a pattern did not emerge from the limited number of cases in the study.
Fitting problems were most common for the conditions of kyphosis and for clients wearing a Milwaukee brace. Those individuals with stroke and paraplegic conditions gave more design preferences than other disabilities.

The in-service preparation seemed to provide an adequate coverage and background for the home economists to conduct the consultation service, however, there was no real measure of the effectiveness of the consultation, itself. Judging from the description of the information given in the consultation as recorded on the report forms, there was no evidence of incorrect information being provided.

A summary of the nature of group consultations made showed that there were four types of groups of individuals reached. Nearly 25% of the groups were service groups or committees where the objective of the meeting was mainly publicity for the consultation service rather than dealing with clothing problems directly. Approximately 38% of the groups consisted of elderly clientele; approximately 22% were composed of people who work directly with the disabled; and nearly 16% were disabled individuals themselves. The group meetings proved to be an effective way to disseminate general information that is applicable to commonly found conditions and to establish a reputation for building up the number of individual consultations.

An analysis of the information used in providing the group meetings showed how the materials prepared for the home economists served their purpose. The resources that the home economist had available in her office, such as the extension publication and the transparency set, were used more often by the majority of the home economists.
Materials which had to be borrowed from the state extension office did not prove to be used by as many home economists because of scheduling difficulties.

Scores on the in-service evaluation had a mean of 5.53, from a possible range of one to seven. The evaluation took place at the conclusion of the six-month study for the purpose of enabling the home economists to have an opportunity to react to how useful the information they received was in light of their consultation experiences. The majority of the home economists indicated the content received from the in-service series was adequate to begin the project and it enabled them to handle questions and problems that arose during the consultation. Home economists with higher evaluations of the in-service series tended to have higher satisfaction with their performance as indicated on their self-evaluation.

The attitude change was measured directly by a pre- and post-administration of an attitude scale and indirectly through the project evaluation at the conclusion of the study. The attitude scale had an increase of 10.73 in mean score from the pre- and post-administrations. The t value was statistically significant at the .02 level. The attitude score prior to beginning the in-service education did not prove to be related to the performance of the home economists as measured by their effort to contact agencies, publicize the service, and provide help through individual and group consultations.

The evaluation of the total project by the home economists had a mean score of 7.88 from a possible range of one to 10, with 10 being the most positive response. The overall rating was considered
high, and the attitude of positive acceptance of working in a new area was apparent. Twelve of the 16 home economists agreed that extension is a well-equipped agency to work with the disabled on clothing problems.

The performance of the home economists was assessed by their involvement in publicizing the consultation service, the actual number of consultations made, and a self-evaluation of their performance. Scores on selected variables were grouped to form a performance rating for the purpose of investigating relationships with other variables. There were no relationships found between the performance rating and other variables including knowledge or attitude. It can be expected that the home economists had only a limited amount of control over their performance because their settings were so varied. The external factors of work load, location, and agency and publicity sources available may have caused variations that could not be controlled.

The extension home economists obtained referrals for the consultation service through contacts with local agencies and organizations and through publicity efforts. A total of 96 letters, 60 phone calls, and 47 personal visits were made by the 17 extension home economists. Publicity efforts resulted in 72 newspaper articles, 16 radio announcements, 13 radio programs, five television programs, and an item in five county newsletters. No significant correlations were found, however, in the number of agency contacts and publicity efforts and the number of consultations made by each home economist.

The majority of the agency and publicity efforts occurred during the first two months of the study. It was at this time also that more
of the consultations took place. As the agency contact and publicity efforts decreased so did the number of consultations. Continued publicity and the building of relationships with agencies may help in creating a more equal pattern of consultations over time.

During the six months of the study, a total of 50 individual and 45 group consultations were made. There were 977 people involved in the group consultations, making the total number of people reached 1,027.

The self-evaluation score had a mean of 5.31 from a possible range of one to seven. Lack of time was reported to be the greatest problem of the home economists in terms of carrying out the project. The average total time per home economist spent on group or individual consultations was nine hours which would have been about one and a half hours per month. This limited time spent may provide an explanation for the limited change in attitudes toward the disabled and is reflected in their self-evaluation in responses concerning lack of time.

Fourteen of the 16 extension home economists completing the study responded that they would continue to work in this area if called upon even though the six-month study had terminated.

The home economists were asked to respond to recommendations concerning future involvement in rehabilitation program efforts. Seventy-five percent of the home economists agreed that all extension home economists should receive general education in rehabilitation, enabling them to meet the needs of disabled individuals in their counties. Sixty-nine percent agreed that in-service education should
be provided on rehabilitation in other home economics subject matter areas as well as textiles and clothing.

As a result of the study, both from conclusions drawn in observations made in carrying out the instructional series and working with the extension home economists during the six months of the study and from various data collected, the following recommendations are suggested for improving the in-service instructional series.

a) Extend the length of time for the in-service education experience to allow for a more flexible schedule, more discussion after all presentations, and additional workshop experiences.

b) Provide an opportunity for the extension home economists to make visuals and samples during the in-service experience which would be used for their own teaching.

c) Expand the lesson series content to include the disability of blindness and the mentally disabled.

d) Expand and refine the classification system for looking at clothing suggestions in relation to disabling conditions.

e) Develop a more reliable instrument to measure the cognitive component of the in-service series.

The study also provided the basis for the following recommendations for preparing and providing in-service education programs for extension home economists.

a) Provide in-service education in the general area of rehabilitation in home economics subject matter areas to all extension home economists preparing them to consult with groups and individuals in their own counties concerning problems of the disabled in the area of home and family life.

b) Provide in-depth subject matter in-service education to extension home economists with special emphasis in each subject matter area within each geographic extension area. These home economists would then be equipped to become local resources for the extension home economists for any difficult problems encountered in general county work with the disabled.
c) Explore funding possibilities for employing one or more rehabilitation specialist to work on a regional basis in the state providing in-depth information in home economics rehabilitation to the local extension home economists and aiding them in assisting disabled individuals in their counties.

d) Develop a newsletter coordinated at the state extension level to provide an update of information received from the in-service education series and share ideas and experiences of extension home economists working with the physically disabled.

e) Secure administrative support to enable the extension home economists to have more time available, by adjustment to their work loads, for implementation of the program in the counties.

Recommendations for further research based on the present study include:

a) Replicate the study through the Cooperative Extension Services in other parts of the United States incorporating the recommendations for improving the in-service education lesson series.

b) Replicate the study through the Cooperative Extension Service developing an in-service education series involving all subject matter areas in home economics as they relate to working with the physically disabled.

c) Use an experimental design to evaluate the differences with the use of different types of promotion for the consultation service.

d) Refine the data collection instrument for recording consultations to provide more specific information on each consultation which could enable better correlations between clothing problems and consultations provided.

e) Develop an instrument to measure the quality of the consultation which would include information on the background and ability of the client and the performance of the extension home economist in meeting the needs of the client.
LITERATURE CITED

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Scott, Clarice L. Clothing needs of physically handicapped homemakers. Journal of Home Economics, 1959, 51(8), 709-713.


Yuker, Harold, Block, J. R., & Young, Janet. The measure of attitudes toward disabled persons. Albertson, New York: INA Mend Institute at Human Resources Center, 1970.
ACKNOWLEDGMENTS

The author wishes to express sincere appreciation to Dr. Eleanore L. Kohlmann for her time and valuable guidance in the development and completion of this study. Her professional insight accompanied by her personal approach provided the author with continued encouragement.

Appreciation is expressed to Dr. Geitel Winakor for her suggestions on sections of the rough draft and to her other committee members, Dr. Ruth Hughes, Dr. Jackie Puhl, and Dr. Roger Lawrence, for their guidance and encouragement. Gratitude is also expressed to Dr. Irene Beavers for generously offering to contribute her time.

This study would not have been possible without the support given from the Iowa State Cooperative Extension Service. Special appreciation is extended to extension administration for supporting the idea for the study and especially to the extension home economists who gave of their time enthusiastically in trying out a new program idea. The author is indebted to the home economists for their cooperation.

Special appreciation is expressed to friends and colleagues in the Iowa State University Extension staff and the Textiles and Clothing Department for their encouragement and understanding. A note of special thanks goes to Rae Messer, a co-worker whose friendship extended beyond call in encouragement and support. The author also is grateful to Bonnie Trede for her untiring efforts in the typing of the study.

Words cannot fully express the appreciation extended to the author's husband, Ben. His professional assistance in developing the referral component of the study and his background and interest
in rehabilitation enabled the experiences of the study to be shared on a professional level. His support, encouragement, and personal sacrifices assisted the author tremendously in achieving the goals of completing this study and degree.
Initial Letter
Regarding In-service Education
To: Selected Extension Home Economists

Jo Ann Alderton  
Donna Andrusyk  
Ruth Archibald  
Edna Bell  
Beverly Berma  
Reggie Fineran  
Judy Hilgenberg  
Martha Jacobson  
Dorothy Keith  
Susan McDonnell  
Susan Merkley  
Donna Mohr  
Denise Montag  
Catherine Ott  
Brooks Rector  
Bonnie Schubert  
June Steinborn  
Susan Uthoff

Regarding: Clothing for the Physically Disabled In-Service Education  
February 26-27, 1975, MacKay Hall, Ames, Iowa

The area of clothing for the physically disabled is an exciting new opportunity for extension home economics to help individuals and families with clothing needs not currently being met.

We are very excited about this new pilot project which will enable you to become a clothing consultant to the physically disabled. Seven of the major health related agencies who will serve as referral sources have responded very positively to working with us on this project. A state level meeting of these agencies will be taking place in the next few weeks to facilitate local communication and cooperation. I am enclosing the letter sent to these cooperating agencies for your information.

We have a full schedule planned for you while you are in Ames. We are fitting the schedule into two days rather than three days. This schedule will mean that some of you will need to come in the evening before we begin. I have discussed this schedule with the area directors and we decided that this time modification was necessary to enable you to have practical experience as well as receive information during this session.

Our meeting will begin on Wednesday morning, February 26, at 8:30 sharp. Please come to Room 153, our office, to be informed of the exact location in MacKay Hall. It is very important that
we can start to work together as a group at 8:30 a.m. and that you
do not make plans to leave before 4:00 p.m. on Thursday, February 27.
We will also be making use of Wednesday evening.

Since you will be having an opportunity to "do" as well as
listen, watch, and discuss during these two days, we would like
each of you to bring along the following:

- Paper cutting shears or scissors
- Fabric cutting shears
- Scotch tape
- Straight pins
- Measuring tape

We are looking forward to seeing you on Wednesday morning,
February 26, at 8:30.

Sincerely,

(Mrs.) Jacquelyn Yep
Extension Specialist
Textiles and Clothing

JY:bt
Enclosure
cc: Margaret Yoder
    Agatha Huepenbecker
    Roger Lawrence
    Area Directors
Letter Regarding First Data Collection
April 24, 1975

Dear Selected Extension Home Economist:

It is time for our first feedback from the Clothing for the Disabled pilot project. Those first two months passed by very quickly, and I'm sure some of you may still be in the initial awareness stage of getting the word out that the service exists. In a recent conversation with Barbara Cornett, the public relations director of Easter Seals, she again conveyed her enthusiasm regarding the program, because once the disabled persons hear about the service, they will respond very positively. So, don't be discouraged if you have not received too many requests at the present time.

As most of you know, I am teaching a new course in the Textiles and Clothing Department this quarter on clothing and rehabilitation. My students have come up with some excellent ideas on special designs for specific disabling conditions. I am enclosing a few of the designs for your review. I hope you find them useful. Please send me design and adaptation ideas you have come up with so that I may share them with all of the extension home economists in the project.

Please respond to the questions on the following page and send in all the group and individual consultation sheets you have used as of May 1st. I would appreciate your mailing these to me by May 2nd.

Sincerely,

(Mrs.) Jacquelyn Yep
Extension Specialist
Textiles and Clothing

cc: Margaret Yoder
Area Directors
RETURN TO JACQUELYN YEP, 153 MacKay Hall, with group and individual consultation forms used as of May 1.

CLOTHING FOR THE DISABLED PILOT PROJECT REPORT FORM

I. A. Check (✓) the local agencies you contacted with the informational letter.

B. Star (✓) the local agencies you contacted by phone.

C. Place a circle (○) by the agencies you contacted in person.

When more than one method was used, so indicate.

___ Vocational Rehabilitation
___ Public Health Nurse or Visiting Nurse
___ Easter Seal Society
___ Iowa Association for Retarded
___ Other (Please specify)

II. The pilot project has received publicity in my counties from:
Check the appropriate methods:

___ Newspaper article
   Number of papers where story was carried ___
___ Radio spot
___ Radio program
___ Television announcement
___ Television program

III. Indicate all group and organizational meetings for publicizing the project on the green group report forms.

IV. Check one of the following responses:

___ I am receiving more requests for consultations than I can adequately handle.
___ I am receiving about as many requests as I am able to handle.
___ I would like to be receiving more requests than I have to date.
Summary Letter of Data
from the First Data Collection Period
June 4, 1975

Dear Selected Extension Home Economists:

Many thanks to each of you for returning your forms regarding the Clothing for the Disabled pilot project. Some of you have been hard at work and others are finding it slow going and hard to find time to work this into your schedules.

I thought you might like to see the total state picture for the first two months. There have been many contacts with agencies; however, the individual consultations are coming in slowly. Most of the referrals came from newspaper articles or personal contacts. Anything you can do to stimulate contacts would be most helpful. I have appreciated your efforts so far. Here is what you have accomplished in the first two months.

**Awareness of the program**

<table>
<thead>
<tr>
<th>Agencies throughout the state</th>
<th>Each EHE has averaged:</th>
</tr>
</thead>
<tbody>
<tr>
<td>have been contacted by:</td>
<td></td>
</tr>
<tr>
<td>81 letters</td>
<td>4.76 letters</td>
</tr>
<tr>
<td>55 phone calls</td>
<td>3.24 phone calls</td>
</tr>
<tr>
<td>35 personal visits</td>
<td>2.06 personal visits</td>
</tr>
</tbody>
</table>

There have been:
- 65 newspaper articles
- 10 radio spots
- 10 radio programs
- 1 TV announcement
- 3 TV programs

**Individual consultations with a disabled individual or relative**

<table>
<thead>
<tr>
<th>Total</th>
<th>Average</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>1.70</td>
<td>0-4</td>
</tr>
</tbody>
</table>

Types of consultations done by EHE:
- Alderton - leg braces
- Archibald - paraplegic
- Bell - polio
  - cerebral palsy
  - cerebral palsy
  - cerebral palsy
Berna - cerebral palsy
Fineran - artificial leg
  - multiple sclerosis
Hilgenberg - none
Jacobson - paraplegic
  - paraplegic
Keith - none
Matters - stroke
Merkley - none
McDonnell - arthritis
Montag - polio
  - cerebral palsy
Ott - long leg braces
  - stroke
  - arthritis
  - Milwaukee brace
Rector - kyphosis
  - stroke
Schubert - kyphosis
  - mastectomy
  - multiple sclerosis
  - arthritis
Steinborn - arthritis
  - quadraplegic
Uthoff - Milwaukee brace
  - quadraplegic

**Group contacts**

335 individuals reached through 29 group contacts

Reports for the second two months will be due after July 1st. Please continue to keep an account of your consultations, group contacts, and publicity.

Sincerely,

(Mrs.) Jacquelyn Yep
Extension Specialist
Textiles and Clothing

JY/dy
cc: Margaret Yoder
    Area Directors
Letter Regarding Second Data Collection
June 24, 1975

Dear Selected Extension Home Economists:

It is time once again (July 1st) to send in your report forms for the Clothing for the Disabled pilot project.

I am enclosing some extra forms for your future use. If you can use more, please let me know.

If you have made any additional contacts with agencies or other publicity since the first report, please indicate below.

Have a good summer. I'll be writing you again close to September 1st for the final report and evaluation.

Sincerely,

(Mrs.) Jacquelyn Yep
Extension Specialist
Textiles and Clothing

Enclosures

Name__________________________

Activities from May 1 - July 1, 1975
CLOTHING FOR THE DISABLED PILOT PROJECT

Check (✓) the local agencies you contacted with the informational letter. Star (*) the local agencies you contacted by phone. Place a circle (o) by the agencies you contacted in person. When more than one method was used, so indicate.

____ Vocational Rehabilitation
____ Public Health Nurse or Visiting Nurse
____ Easter Seal Society
____ Iowa Association for Retarded
____ Other (Please specify)

Additional publicity in my counties:
Check the appropriate methods:

____ Newspaper article
    Number of papers where story was carried ______
____ Radio spot
____ Radio program
____ Television announcement
____ Television program

Iowa State University and U. S. Department of Agriculture cooperating
Letter Regarding Final Data Collection
and Final Evaluation
I have really appreciated your cooperation with me over the past six months on the Clothing for the Disabled pilot project.

As I have seen in the report forms so far, we have reached some people that could use our help and have learned some things ourselves.

I now need your final help in concluding the project so that it may be evaluated and a report made.

Please send me your group and individual report forms for the last two months.

Also please return the two enclosed forms after completing them. One is one of the same devices you took in February. Answer it honestly relating your present feelings. The second form is an evaluation of the total pilot project. Please check the responses you agree with and add additional comments that will best express your evaluation of the project.

Again, may I extend my many thanks to you for getting involved in a new area for most of us on top of an already busy schedule.

I will be sharing a summary of my final report with you as soon as it is possible.

Sincerely,

(Mrs.) Jacquelyn Yep
Extension Specialist
Textiles and Clothing

Enclosures
APPENDIX B. CORRESPONDENCE WITH AGENCIES OR ORGANIZATIONS
Letter Regarding State Meeting of
Selected Agencies or Organizations
January 31, 1975

To: Mr. Claude Hempbill, Developmental Disabilities Council of Iowa
Mr. Rolf Karlson, Easter Seal Society
Mr. Tom McKee, Iowa Association for Retarded Children
Dr. Ronald Eckhoff, Iowa Department of Health
Mr. Nicholas Grunzweig, Iowa Department of Social Services
Mr. Frank Vance, Iowa Department of Special Education
Mr. Jerry Starkweather, Iowa Department of Vocational Rehabilitation

Regarding: Pilot Project: Clothing for the Physically Disabled

We appreciate your interest in the pilot project on clothing for the physically disabled to be conducted by the Iowa Cooperative Extension Service. This pilot project will begin on March 1, 1975, and extend through September 1, 1975, at which time a comprehensive evaluation will be made of the project's feasibility and effectiveness in meeting the clothing needs of the disabled.

The pilot project will be conducted by Extension Home Economists in the following 30 counties in Iowa:

2. Bremer 12. Floyd 22. Marion
7. Clinton 17. Lee 27. Polk
10. Dubuque 20. Lyon 30. Webster

We will be conducting an informational meeting describing this pilot project on Friday, February 14, 1975, from 1:30 - 3:00 p.m. in the conference room of the Administration Building at Camp Sunnyside in Des Moines. At this meeting detailed information will be presented regarding the project. We cordially invite your organization to send representatives to this meeting and to cooperate with us in providing this clothing consultation service to disabled persons in Iowa. Enclosed are three additional copies of this meeting notice which you may wish to share with your staff.
We are enclosing a stamped, self-addressed postcard which we would appreciate your returning to us as soon as possible indicating the staff from your agency who will attend this informational meeting.

Please call Jacquelyn Yep in Ames at 294-7378 if you have any questions.

Sincerely,

(Mrs.) Jacquelyn Yep
Extension Specialist
Textiles and Clothing

Benjamin Yep, Ph.D.
Extension Sociologist

bt
Enclosures 4
Sample Letter to Agencies Provided
to Extension Home Economists
SAMPLE LETTER TO VOCATIONAL REHABILITATION, NURSE, EASTERN SEAL, AND RETARDED PERSONS.

1. Letter
2. Personal visit or follow-up phone call

Dear

The Cooperative Extension Service would like to inform you of a new non-cost service for your clients who are physically disabled. On March 1, 1975 Extension Home Economists will be available to confer with physically disabled persons on selection, design, fit and adaptation of clothing. This clothing consultation service for physically disabled persons will be available in 32 Iowa counties including (name of your county). I am enclosing a flyer describing this new program.

We would like to reach as many physically disabled persons in this county as we can with this personal service. I would appreciate your ideas in the areas of publicity and referrals.

1. How would you suggest that we publicize this new service so that physically disabled persons and their families in this county may become aware and utilize this new clothing consultation service?

2. How can we build a referral system between your organization and Extension so that we can provide this service to your clients? Who may have this need?

Any additional suggestions you would have regarding introducing this service would be appreciated.

I would like to call you next week and discuss your ideas for developing this new service for the physically disabled in (name of your county).

Sincerely,
APPENDIX C. PUBLICITY MATERIALS
CLOTHING CONSULTATION FOR THE PHYSICALLY DISABLED —A PILOT PROGRAM

Extension home economists in 32 Iowa counties will take part in a pilot program offering individual and group consultation in clothing for the physically disabled.

Beginning March 1 and lasting through September 1, 1975, these Iowa State University home economists will be available to confer with clients on selection, design, fit and adaptation of clothing. In addition, they can provide information on the purchase of dressing aids and clothing designed for the physically disabled.

If the project proves successful during this six-month test, the consultation will be continued and expanded throughout the state.

If you know someone who could benefit from these services, check the following list of Extension personnel. All have been specifically trained to provide this clothing consultation. So just contact the home economist nearest you.

(State Program Coordinator for the Clothing Consultation Service is Jacquelyn Yep, ISU Extension textiles and clothing specialist)

Cooperative Extension Service
IOWA STATE UNIVERSITY
Ames, Iowa 50010

February, 1975
CLOTHING CONSULTANTS FOR THE PHYSICALLY DISABLED

Benton County
Susan Uthoff
Box 485
Vinton, Iowa 52349
319-472-3134

Black Hawk County
Brooks Rector
1022 West 5th Street
Waterloo, Iowa 50702
319-234-5811

Calhoun County
Bonnie Schubert
332 Richmond Street
USDA Building
Rockwell City, Iowa 50579
712-297-8611

Carroll County
Bonnie Schubert
1240 D. Heires Avenue
Carroll, Iowa 51401
712-792-2364

Cedar County
Susan Uthoff
P.O. Building
Tipton, Iowa 52772
319-886-2252

Cherokee County
Susan Merkley
Box 456
Cherokee, Iowa 51012
712-225-2107

Clinton County
Edna Bell
P.O. Building
DeWitt, Iowa 52742
319-659-5125

Dallas County
Judy Hilgenberg
505 Main Street
Adel, Iowa 50003
515-995-3217

Dickinson County
June Steinborn
1611 Ithaca
Spirit Lake, Iowa 51360
712-336-3488

Dubuque County
Beverly Berna
348 Federal Building
Dubuque, Iowa 52001
319-583-6496

Emmet County
June Steinborn
Courthouse
Estherville, Iowa 51334
712-362-3434

Floyd County
Susan McDonnell
615 Beck Street
Charles City, Iowa 50624
515-228-1453

Fremont County
Dorothy Keith
Box 388
Sidney, Iowa 51652
712-374-2351

Guthrie County
Judy Hilgenberg
403 State Street
Guthrie Center, Iowa 50115
515-747-2276

Iowa County
Susan Uthoff
Box 146
P.O. Building
Mariano, Iowa 52301
319-642-3514

Jackson County
Beverly Berna
Courthouse
Maquoketa, Iowa 52060
319-652-4923

Johnston County
Susan Uthoff
Box 226
Room 251 Federal Building
400 S. Clinton
Iowa City, Iowa 52240
319-337-2145

Johnson County
Susan Uthoff
Box 68
Anamosa, Iowa 52205
319-462-2791

Linn County
Susan Uthoff
8-01 Federal Building
Cedar Rapids, Iowa 52401
319-366-2411 x-407

Lucas County
Ruth Archibald
P.O. Box 330
Chariton, Iowa 50049
515-774-2016

Lyon County
Denise Montag
320 1st Avenue
Rock Rapids, Iowa 51246
712-472-2146

Marion County
Ruth Archibald
112 E. Robinson
Knoxville, Iowa 50138
515-842-2014

Osceola County
Denise Montag
845-4th Avenue
Sibley, Iowa 51249
712-754-2615

Page County
Dorothy Keith
309 East Washington St.
Clarinda, Iowa 51632
712-542-5171

Plymouth County
Susan Merkley
19-1st St., N.W.
Le Mars, Iowa 51031
712-546-7835

Polk County
Reggie Finneran
3612 2nd Avenue
Des Moines, Iowa 50313
515-284-4158

Ringgold County
Catherine Ott
Mount Ayr, Iowa 50854
515-464-3333

Tama County
Lorine Matters
USDA Building
Toledo, Iowa 52342
515-484-2703

Taylor County
Catherine Ott
Box 193
Bedford, Iowa 50833
712-523-2137

Webster County
Martha Jacobson
252 Federal Building
Fort Dodge, Iowa 50501
515-576-2119

AND JUSTICE FOR ALL

Programs and activities of Cooperative Extension Service are
available to all without regard to race, color, national origin, age,
or sex. 

(Iowa State University of Science and Technology and the
United States Department of Agriculture cooperating.)

Charles E. Companion, director

Amer. Iowa Distributed in accordance with the Acts of Congress of May 8 and June 30, 1914

Amer. Iowa Distributed in accordance with the Acts of Congress of May 8 and June 30, 1914
Newspaper Release
Home Economist Offers Clothing Advice for the Disabled

Most teenagers aren't concerned about what neckline looks good with a Milwaukee brace. Executives and secretaries rarely need to cope with a jacket or other clothing bunched uncomfortably beneath them as they sit through long hours of work.

But these clothing problems and many others are of special concern to the physically disabled. The use of a wheelchair or crutches or the nature of the disabling condition itself can cause regular clothing to tug, pull or bind. These same garments may be difficult to put on or unflattering to the wearer.

But now (your name), Extension home economist for (your county or counties), can offer advice to help disabled persons meet their special clothing needs. For (your last name) and 18 other Extension home economists are taking part in a six-month pilot project in 33 Iowa counties to provide this specialized clothing aid.

Sponsored by the Iowa State University Extension Service, each home economist has received training in how clothing choices are affected by various disabling conditions. So (your last name) can offer suggestions on the selection of fabrics and clothing styles and explain how to adapt patterns and ready-to-wear clothing to meet personal figure needs. She has information available too on sources for the purchase of dressing aids and ready-to-wear clothing designed with physical limitations in mind.

Anyone interested in this individualized help can contact (your last name) at (your office name and address) by phoning (number). The project will be offered until Sept. 1. Then if it has proven successful, it will be continued and expanded throughout the state.
Radio Release
Home Economist Offers Clothing Advice for the Disabled

You and I might never worry about what to wear to cover leg braces. Or how to keep sleeves clean when mud splashes up from our wheelchair. But if we're physically disabled -- these problems can be important.

And now (your name), Extension home economist in (your county or counties), is offering special clothing advice for the physically disabled. She can tell you how to choose fabrics and clothing styles for comfort, looks, and fit. How to adapt patterns and ready-to-wear clothing to suit personal needs. And where you can buy special dressing aids and clothing designed for the physically handicapped.

So if you're interested in this help or know someone else who might benefit, just call or write your county Extension office.

TIME: 55 seconds
Special Mailing Letter used in Two Counties
Dear Friend:

If you, a family member, or a friend with a disability has ever had frustrations with clothing, we would like you to know suggestions and help may be close at hand.

Your county extension home economist is offering free individual or group consultations on clothing for disabled individuals. She has received information from an in-service education workshop at Iowa State University, where research is in process in this subject matter area.

She has available a publication entitled "Clothes to Fit Your Needs" on problems related to attractiveness, convenience, comfort, safety, and care. Information on where to purchase clothing items especially made for the disabled is available. She also can work with individuals with special needs on suggestions for adapting clothing or making pattern changes in garments to be constructed.

The extension service is trying to see if this service would be used by and helpful for disabled individuals, so we are piloting this program only in selected counties. If we find the response favorable, we hope to expand it in the future.

If we can be of service to you or someone you know, please contact your county extension home economist before September 1, 1975. We will be evaluating the program after that date. Enclosed is a flyer describing the program and the counties participating. Please share it with a friend.

Sincerely,

(Mrs.) Jacquelyn Yep
Extension Specialist
Textiles and Clothing

JY/dy
Enclosure
APPENDIX D. EVALUATION DEVICES
Knowledge Test
and Key
KNOWLEDGE OF CLOTHING FOR THE DISABLED

Directions: Select the one answer you feel is most correct and place the corresponding letter in the blank preceding each question.

1. _____ A hemiplegic's greatest difficulty in dressing usually is:
   a. balancing while dressing
   b. managing closures
   c. reaching limitation
   d. lacking physical strength

2. _____ The form of arthritis which is prevalent in the aging and often affects the small muscle movement in the hands is:
   a. ankylosing spondylitis
   b. gout
   c. rheumatoid
   d. osteoarthritis

3. _____ The following fitting irregularity not associated with children using crutches is:
   a. no defined waistline
   b. heavy thighs
   c. muscular shoulders
   d. short legs

4. _____ The most common type of cerebral palsy which is identified by body stiffness and slow large motor movements is:
   a. spasticity
   b. athetosis
   c. ataxia
   d. tremor

5. _____ Research has shown that most women with rheumatoid arthritis do not prefer clothing with:
   a. long sleeves
   b. raglan sleeves
   c. front openings
   d. round necklines
6. The disabling condition not associated with muscular dystrophy is:
   a. unstable balance
   b. spasms during dressing
   c. raising arms above head
   d. fitting clothing over braces

7. The clothing related difficulty least associated with most paraplegics is:
   a. loss of sensation
   b. incontinence
   c. spasms
   d. limited physical strength

8. The combination of figure irregularities not associated with each other is:
   a. high right shoulder/high left hip
   b. high rounded back/hollow back waist
   c. hollow back waist/raised seat
   d. sloping shoulders/enlarged abdomen

9. A paralysis or partial paralysis of the lateral half of the body is called:
   a. paraplegia
   b. hemiplegia
   c. tetraplegia
   d. quadriplegia

10. The disease not associated with limited large motor movement is:
    a. cerebral palsy
    b. paraplegia
    c. multiple sclerosis
    d. arthritis

11. Kyphosis is a condition of the spinal cord causing:
    a. one shoulder to be higher than the other
    b. a hollowing out of the back waist
    c. a protrusion between the shoulders
    d. one hip to be higher than the other
12. The alteration which would be used in fitting a person who has a high rounded back is:

a. Slash on the dotted line, spread the amount needed at the center back, and taper to nothing at the armseyc.

b. Slash on the dotted line, spread the upper two portions until the center back is sufficiently increased enlarging the dart.

c. Slash on the dotted line, pivot under the armseyc until the desired amount has been added at the center back.

d. Slash on the dotted line, spread the upper two portions until the back is sufficiently increased.

13. A chronic, progressive, neurological disease causing extreme weakness, lack of balance, and numbness of the body is:

a. muscular dystrophy
b. multiple sclerosis
c. scoliosis
d. cerebral palsy

14. Three most important factors to consider when analyzing clothing problems are:

a. physical ability, sewing ability, individual tastes
b. fashion preferences, fit, figure problems
c. comfort, cost, care
d. functional problems, figure problems, clothing preferences
15. A paraplegic client is uncomfortable with the fit and displeased with the appearance of his pants; the following suggestion could be made for adapting his present pants:

a. Shorten pants in center front, add on in center back.
b. Shorten pants in center front.
c. Add a wedge of fabric below waistband.
d. Shorten pants at the center back.

16. A person using crutches and wanting to prevent wear and tear at the underarm seam of garments would avoid:
   a. action pleats
   b. raglan sleeves
   c. set-in sleeves
   d. gussets

17. A five-year-old girl has ataxic cerebral palsy with good use of her right hand, but only assisted use of the left hand, and stiffness of the left arm. What three suggestions would you make to develop an interest in independent dressing?
   a. pull-over top, elastic casing pants, bright colors
   b. large buttons, raglan sleeves, elastic casing pants
   c. zipper with decorative pull, raglan sleeves, loose fit
   d. two-piece outfit, pressure tape openings, raglan sleeves
18. ____ The preferred alteration for an asymmetric hip would look like the following:

- [Image of skirits]

  a.  
  b.  
  c.  
  d.  

19. ____ Research shows that most disabled individuals would prefer to:
   a. adapt clothing that is purchased
   b. select clothing available in ready-to-wear
   c. have clothing made to meet specific needs
   d. buy clothing designed for the physically disabled

20. ____ The garment opening requiring the least amount of elbow joint movement to operate is a:
   a. front neckline zipper
   b. wrap jumper
   c. side waistline zipper
   d. back zipper

21. ____ To avoid drawing attention to an undesirable focal point use:
   a. a solid color near the focal point, a print elsewhere
   b. a print near the focal point, a solid color elsewhere
   c. a close fitting garment around the focal point
   d. sharp contrasting colors next to each other

22. ____ Research in the area of clothing for the disabled has:
   a. been at a standstill since the 1950's
   b. been widely used in the rehabilitation field
   c. been done on individual disabilities
   d. been summarized in current publications

23. ____ The person who's job it is to provide services to help the disabled function at his fullest capacity is the:
   a. public health nurse
   b. home-health aide
   c. vocational rehabilitation counselor
   d. social worker
24. The inability to tie a shoe can be associated with the limitation of which specific classification of movement:
   a. fundamental movements
   b. perceptual abilities
   c. physical abilities
   d. skilled movements

25. Clothing styles including complete front openings, wrap garments, and open seam pants would be especially helpful for individuals with:
   a. limited range of motion
   b. limited small motor movements
   c. limited physical strength
   d. limited perception
KNOWLEDGE OF CLOTHING FOR THE DISABLED

Key

1. a 14. d
2. d 15. a
3. b 16. c
4. a 17. c
5. a 18. a
6. b 19. b
7. d 20. c
8. d 21. a
9. b 22. c
10. b 23. c
11. c 24. d
12. d 25. d
13. b
Attitude Towards Disabled Persons Scale and Answer Sheet
READ EACH STATEMENT AND PUT AN "X" IN THE APPROPRIATE COLUMN ON THE ANSWER SHEET. PLEASE ANSWER EVERY QUESTION.

1. Disabled persons are usually friendly.
2. People who are disabled should not have to pay income tax.
3. Disabled people are no more emotional than other people.
4. Disabled persons can have a normal social life.
5. Most physically disabled persons have a chip on their shoulder.
6. Disabled workers can be as successful as other workers.
7. Very few disabled persons are ashamed of their disabilities.
8. Most people feel uncomfortable when they associate with disabled people.
9. Disabled people show less enthusiasm than non-disabled people.
10. Disabled people do not become upset any more easily than non-disabled people.
11. Disabled people are often less aggressive than normal people.
12. Most disabled persons get married and have children.
13. Most disabled persons do not worry any more than anyone else.
14. Employers should not be allowed to fire disabled employees.
15. Disabled people are not as happy as non-disabled ones.
16. Severely disabled people are harder to get along with than are those with minor disabilities.
17. Most disabled people expect special treatment.
18. Disabled persons should not expect to lead normal lives.
19. Most disabled people tend to get discouraged easily.
20. The worst thing that could happen to a person would be for him to be very severely injured.

Copyright by Human Resources, Inc.
21. Disabled children should not have to compete with non-disabled children.

22. Most disabled people do not feel sorry for themselves.

23. Most disabled people prefer to work with other disabled people.

24. Most severely disabled persons are not as ambitious as other people.

25. Disabled persons are not as self-confident as physically normal persons.

26. Most disabled persons don't want more affection and praise than other people.

27. It would be best if a disabled person would marry another disabled person.

28. Most disabled people do not need special attention.

29. Disabled persons want sympathy more than other people.

30. Most physically disabled persons have different personalities than normal persons.
DIRECTIONS: Use this answer sheet to indicate how much you agree or disagree with each of the statements about disabled people on the attached list. Put an "X" through the appropriate number from +3 to -3 depending on how you feel in each case.

+3: I agree very much  -1: I disagree a little
+2: I agree pretty much  -2: I disagree pretty much
+1: I agree a little  -3: I disagree very much

PLEASE ANSWER EVERY ITEM

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|1  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|2  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|3  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|4  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|5  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|6  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|7  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|8  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|9  | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|10 | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|11 | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|12 | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|13 | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|14 | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|15 | -3| -2| -1| +1| +2| +3|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

(16) -3 -2 -1 +1 +2 +3  (17) -3 -2 -1 +1 +2 +3  (18) -3 -2 -1 +1 +2 +3  (19) -3 -2 -1 +1 +2 +3  (20) -3 -2 -1 +1 +2 +3  (21) -3 -2 -1 +1 +2 +3  (22) -3 -2 -1 +1 +2 +3  (23) -3 -2 -1 +1 +2 +3  (24) -3 -2 -1 +1 +2 +3  (25) -3 -2 -1 +1 +2 +3  (26) -3 -2 -1 +1 +2 +3  (27) -3 -2 -1 +1 +2 +3  (28) -3 -2 -1 +1 +2 +3  (29) -3 -2 -1 +1 +2 +3  (30) -3 -2 -1 +1 +2 +3
Final Evaluation
As the six months of piloting the Clothing for the Disabled project draws to an end, I would appreciate your evaluation of the project itself, the in-service education which you participated in last February, and your evaluation of your participation in the project.

Your responses to these questions along with any comments and recommendations you wish to add will be used to make recommendations concerning Extension's involvement in future work specifically with disabled individuals.

***Please check as many of the responses as you have found to be true.***

I. Project evaluation

____ The agencies I contacted were interested in the service.

____ The agencies I contacted indicated the service was not needed.

____ The agencies I contacted responded by referring clients.

____ The service was received favorably by those making use of it.

____ More publicity would have helped provide more client interest.

____ Clients would bring up other problems during consultations.

Please list problems:

____ Group meetings is the best way to reach this audience.

____ Individual client contacts are necessary to meet individual needs.

____ A trust needs to be established before disabled individuals will come to Extension for help.

____ Extension is a well-equipped agency to work with the disabled on clothing problems.

Your comments concerning the project of Extension providing individual and group consultation to the disabled in the specific area of clothing.
II. In-service workshop evaluation (February 26-27)

_____ The content received was adequate to begin the project.

_____ I was still inadequately prepared to teach and consult in this area.

_____ I could handle questions and problems that arose.

_____ More time was needed for the in-service workshop.

_____ Additional needed preparation could be gained through material sent by mail.

_____ Additional needed preparation could be gained from a workshop with more practical experience.

*Your comments* concerning the adequacy and quality of the in-service education received prior to the beginning of this project.

III. Self-evaluation

_____ I feel satisfied with the way I handled individual and group contacts.

_____ I feel frustrated that I could not provide needed help.

_____ I feel frustrated that I did not have enough time to devote to the project.

_____ I enjoyed the one-to-one contact with disabled persons.

_____ I was not comfortable with the direct contact with disabled persons.

_____ I will continue to work in this area if called upon even though the pilot project is terminated.

*Your comments* concerning your participation in the project.
IV. Recommendations

___ In-service education should be provided on rehabilitation in other home economics subject matter areas.

___ One extension home economist per area should receive preparation in all subject matter pertaining to the disabled and handle all area requests.

___ All extension home economists should receive general education in rehabilitation so they can meet needs in their own counties and refer problem cases to other extension home economists in their area with more preparation in that specific subject matter.

___ An extension rehabilitation specialist on a multi-area basis could best meet the needs of the disabled in the home economics areas.

*Your recommendations* concerning meeting the needs of disabled individuals in Iowa.
APPENDIX E. CONSULTATION RECORD FORMS
Individual Consultation Record Form
**INDIVIDUAL CLOTHING CONSULTATION RECORD FORM**

<table>
<thead>
<tr>
<th>Date:</th>
<th>Referral source</th>
<th>Functional clothing problems</th>
<th>Figure clothing problems</th>
<th>Client's clothing preferences</th>
<th>Consultation provided</th>
<th>Follow-up and feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability:</td>
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<td>Approx. age:</td>
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<td>County of residence:</td>
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</tbody>
</table>

<table>
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<th>Referral source</th>
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</thead>
<tbody>
<tr>
<td>Disability:</td>
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</tbody>
</table>

Prepared by Jacquelyn Yep, Extension Specialist, Textiles and Clothing, Iowa State University, Ames, Iowa, for a pilot project on Clothing for the Disabled, February 1975.
Group Consultation Record Form
<table>
<thead>
<tr>
<th>Referral source</th>
<th>Information presented</th>
<th>Individual help provided*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of people:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Est. of time:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(incl. travel)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- transparency packet
- state clothing kit
- slide-tape presentation
- Clothes to Fit Your Needs offered as handout
- other (specify)

*If individual help is more than informal, brief suggestions following presentation, record contact as an individual consultation.

Prepared by Jacquelyn Yep, Extension Specialist, Textiles and Clothing, Iowa State University, Ames, Iowa, for a pilot project on Clothing for the Disabled, February 1975.
APPENDIX F. INSTRUCTIONAL SERIES TEACHING AIDS
Unit I Teaching Aids
MEETING THE CLOTHING NEEDS OF A SELECTED PHYSICALLY DISABLED INDIVIDUAL

The young woman pictured in this slide series has been a quadriplegic for over 20 years. She was injured in a car accident when she was in high school. She is employed as a social worker and is very active in the community. She has adapted her clothing to meet her specific needs through trial and error, the help of her mother, and ideas from Textiles and Clothing students at Iowa State.

Her special clothing needs continue to be met by insight and experience. She shows us here some of her favorite garments.

1. She purchased this sweater set for comfort and warmth.
2. These purchased slacks with wider legs conceal her leg bag, and she prefers
3. longer length slacks for an attractive seated appearance.
4. The somewhat tapered upper legs do not make her legs appear too wide.
5. She selects colors and style that are attractive for her.
6. Her seat belt, which is fastened with velcro, is sometimes worn over her clothes.
7. A seat belt is a necessity to stop her from falling forward.
8. This garment was designed by a Textiles and Clothing student.
9. It was made with side slits so the seat belt can be concealed under her clothing.
10. The back is shorter than front to end at body curve, and the longer front conceals pant wrinkles.
11. A slit was made by opening the seam.
12. This high neckline is a favorite because it is both attractive and warm.
13. The hanging snap does not catch in her hair.
14. The pants were especially made for wheel chair comfort.
15. An extra wedge of fabric was added in back.
16. When pants are worn, they look and feel correct around waistline, while
17. also draping well over her legs.
18. She has some preference with fabrics as well as styles.
19. This soft and absorbent velour is a favorite.
20. Slits were provided for her seat belt and
21. an extension for the neck for added neckline comfort.
22. She is also clever in making use of garments she no longer wears.
23. This was the skirt of an old dress,
24. transformed into a dressy cape.
25. The dress bodice was bound on the edge, and
26. the old zipper remains.
27. Snaps were placed at an empire length, and
28. a coordinating skirt was made
29. in a long length.
30. Snaps on the skirt connect to the bodice for an attractive dressy outfit.
31. Finding an attractive warm coat can be a problem.
32. She had the back cut out of this coat so it would button down the front without binding her.
33. The coat edge was bound, to
34. make a purchased coat that meets her specific needs.
35. Outer wear is frequently a problem, but for everyday wear she selected a purchased jacket that meets her needs.
36. The lines of the coat are especially slimming for a seated person.
37. The zipper opens from the bottom for comfort while sitting.
38. Dressing attractively is important to her, and she definitely knows how to do it.

Disabling conditions related to clothing for arthritic conditions:

Limited range of motion because of stiffness, joint immobility, and permanent flexion
Limited fine motor control (rheumatoid, rheumatic fever, and gout)

Disabling conditions related to clothing for cardio-vascular diseases:

Limited endurance and strength
Partial paralysis

Disabling conditions related to clothing for cerebral palsy:

Spastic - limited movement by braces and/or wheel chair
  - resistance to movement, muscle contraction
  - large muscle incoordination
Athetoid - limited movement by wheel chair
  - excess movement
Ataxic - limited movement by braces and/or wheel chair
  - excess movements
  - imbalance
  - limited fine motor movement
  - large muscle incoordination
Tremor - large muscle incoordination
Rigidity - resistance to movement

Disabling conditions related to clothing for multiple sclerosis:

Limited sense of balance
Large muscle incoordination
Excess movement (tremor)
Limited strength and endurance
Incontinence
Sensory loss
Visual impairment

Disabling conditions related to clothing for muscular dystrophy:

Loss of strength and endurance
Limited movement by wheel chair confinement
Lack of perception
Increase in body girth
Limited range of motion

Disabling conditions related to clothing for hemiplegia:
- Lack of motor movement on one side
- Limited movement by leg braces, splint, arm sling, and/or wheelchair
- Sensory loss on one side
- Lack of balance
- Lack of perception
- Incontinence

Disabling conditions related to clothing for paraplegia:
- Lack of lower limb movement
- Limited movement by leg braces and/or wheelchair
- Sensory loss
- Incontinence

Disabling conditions related to clothing for quadriplegia:
- Lack of or limited lack of muscle movement
- Limited movement by wheelchair confinement
- Incontinence

Disabling conditions related to clothing for amputation:
- Lack of balance
- Modification of large and small motor movements

Disabling conditions related to scoliosis:
- Body form irregularity - right shoulder and left hip higher

Disabling conditions related to kyphosis:
- Body form irregularity - high rounded curve between shoulders

Disabling conditions related to lordosis:
- Body form irregularity - hollowing of back waist and raised back seat
Disabling conditions related to Parkinson's disease:

- Resistance to movement
- Limited small motor movements
- Flexion position can result in kyphosis

Disabling conditions related to spina bifida:

- Sensitive skin area
- Paralysis or partial paralysis of lower limbs
- Incontinence
- Limitation of movement by braces and wheel chair confinement

Disabling conditions related to aging:

- Limited strength and endurance
- Slowed circulation
- Small motor manipulation

Prepared by Jacquelyn Yep, Extension Specialist in Textiles and Clothing, Iowa State University, Ames, Iowa, for a pilot project in Clothing for the Physically Disabled, February 1975.
# DISEASES OR INJURIES AND DISABLING CONDITIONS RELATED TO CLOTHING

<table>
<thead>
<tr>
<th>Disease or injury:</th>
<th>Definition:</th>
<th>Possible disabling conditions relating to clothing:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td>Rheumatoid - chronic, progressive inflammatory, primarily attacking joints can affect whole body. Osteoarthritis - non-inflammatory disease of joints, results from increased age. Ankylosing spondylitis - chronic inflammatory arthritis of the spine. Rheumatic fever - acute disease which follows a streptococcus infection, can be damaging to the heart and causes a temporary arthritis of the joints. Gout - disease which painfully attacks small joints, such as fingers, toes, wrists, and ankles.</td>
<td>Limited range of motion because of stiffness, joint immobility, and permanent flexion. Limited fine motor coordination (for rheumatoid, rheumatic, and gout).</td>
<td></td>
</tr>
<tr>
<td>Cardio-vascular</td>
<td>Diseases associated with the heart and circulatory system, acute or chronic.</td>
<td>Limited endurance and strength. Partial paralysis.</td>
<td></td>
</tr>
<tr>
<td>Disease or injury:</td>
<td>Definition:</td>
<td>Possible disabling conditions relating to clothing:</td>
<td>Notes:</td>
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<tr>
<td>------------------------</td>
<td>----------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Cerebral palsy</td>
<td>disorder of motor control</td>
<td>limited movement by braces and/or wheel chair</td>
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<tr>
<td></td>
<td>spasticity - muscle contraction</td>
<td>resistance to movement, muscle contraction</td>
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<td></td>
<td>athetosis - reoccurring slow involuntary movements</td>
<td>limited movement by wheel chair</td>
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<td></td>
<td></td>
<td>excess movement</td>
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<tr>
<td></td>
<td>ataxia - muscle incoordination, balance disturbance</td>
<td>limited movement by braces and/or wheel chair</td>
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<td></td>
<td></td>
<td>excess movement</td>
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<td></td>
<td></td>
<td>imbalance</td>
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<td></td>
<td></td>
<td>limited fine motor movement</td>
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<td></td>
<td></td>
<td>large muscle incoordination</td>
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<tr>
<td></td>
<td>tremor - rapid rhythmical movements</td>
<td>large muscle incoordination</td>
<td></td>
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<tr>
<td></td>
<td>rigidity - resistance to slow movement</td>
<td>resistance to movement</td>
<td></td>
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<tr>
<td>Multiple sclerosis</td>
<td>chronic, usually progressive neurological disease; symptoms and</td>
<td>limited sense of balance</td>
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<tr>
<td></td>
<td>progression vary greatly</td>
<td>large muscle incoordination</td>
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<tr>
<td></td>
<td>excess movement (tremor)</td>
<td>limited strength and endurance</td>
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<td></td>
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<td>loss of bladder control</td>
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<td></td>
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<td>sensory loss</td>
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<td>visual impairment</td>
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<tr>
<td>Disease or injury:</td>
<td>Definition:</td>
<td>Possible disabling conditions relating to clothing:</td>
<td>Notes:</td>
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<tr>
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</tr>
<tr>
<td>Muscular dystrophy</td>
<td>chronic progressive weakness and wasting of the voluntary muscles</td>
<td>loss of strength and endurance limited movement by wheelchair confinement lack of perception increase in body girth limited range of motion</td>
<td></td>
</tr>
<tr>
<td>Hemiplegia</td>
<td>paralysis of one lateral half of the body</td>
<td>limited movement by leg brace, splint, arm sling, and/or wheelchair sensory loss on one side lack of balance lack of perception lack of motor movement on one side incontinence</td>
<td></td>
</tr>
<tr>
<td>Paraplegia</td>
<td>paralysis of lower half of body</td>
<td>lack of lower limb movement limited movement by leg brace and/or wheelchair sensory loss incontinence</td>
<td></td>
</tr>
<tr>
<td>Quadriplegia</td>
<td>paralysis or partial paralysis of all four limbs</td>
<td>lack of or limited muscle movement limited movement by wheelchair confinement incontinence sensory loss</td>
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</tr>
<tr>
<td>Disease or injury:</td>
<td>Definition:</td>
<td>Possible disabling conditions relating to clothing:</td>
<td>Notes:</td>
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<tr>
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<tr>
<td>Amputees</td>
<td>loss of one or more limbs or parts of limbs</td>
<td>lack of balance modification of large and small motor movements</td>
<td>cosmetic problem</td>
</tr>
<tr>
<td>Scoliosis</td>
<td>lateral curvature of the spine</td>
<td>body form irregularity right shoulder and left hip higher with Milwaukee brace: fitting over brace fabric wear from brace</td>
<td></td>
</tr>
<tr>
<td>Kyphosis</td>
<td>curvature of spine at high back</td>
<td>body form irregularity: high rounded curve between shoulders</td>
<td></td>
</tr>
<tr>
<td>Lordosis</td>
<td>inward curvature of spine at lower back</td>
<td>body form irregularity: hollowing of back waist, raised back seat</td>
<td></td>
</tr>
<tr>
<td>Parkinson's disease</td>
<td>degenerative disease appearing in older men and women, involves rigid muscles, tremor, and flexion posture</td>
<td>resistance to movement limited small motor movements flexion position could result in kyphosis</td>
<td></td>
</tr>
<tr>
<td>Spina bifida</td>
<td>congenital defect in spinal column</td>
<td>sensitive skin area paralysis or partial paralysis of lower limbs incontinence limitation of movement by braces and wheelchair chair confinement</td>
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</tr>
<tr>
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<td>Definition:</td>
<td>Possible disabling conditions relating to clothing:</td>
<td>Notes:</td>
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<tr>
<td>Aging</td>
<td>physiological changes which may occur in the final stage of growth</td>
<td>limited strength and endurance&lt;br&gt;sloved circulation&lt;br&gt;limited small motor manipulation</td>
<td></td>
</tr>
</tbody>
</table>

Prepared by Jacquelyn Yep, Extension Specialist, Textiles and Clothing, Iowa State University, Ames, Iowa, 50010, for a pilot project on clothing for the disabled, February 1975.
Unit II Teaching Aids
A CLASSIFICATION OF DISABLING CONDITIONS WITH RELATED CLOTHING SUGGESTIONS

<table>
<thead>
<tr>
<th>Disabling conditions*</th>
<th>Clothing suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Basic fundamental movements</strong></td>
<td></td>
</tr>
<tr>
<td>A. Resistance to movement (body stiffness)</td>
<td>knit fabrics, flat opening garments, open underarm and side seams and replace with pressure tape, open leg seams and replace with pressure tape, garment styles with wide openings, elasticized neckline, and waistlines, raglan or kimono sleeves, armhole seam connected with an inset of stretch nylon</td>
</tr>
<tr>
<td>B. Limited large motor movement, limiting the range of motion</td>
<td>knit fabrics, front opening garments, including slips and bras, back opening wrap garments if dressed by someone else, garment styles with wide openings, raglan or kimono sleeves, above elbow sleeves, back fullness in bodice, action pleats, gathers, and gussets, wrap around styles, elastic waistbands, loops sewn on socks and pants to aid in pulling them up with a long handled hook, small elastic loops on cuff of long sleeves to be hooked over thumb when putting on a jacket, elastic shoe laces, long handled shoe horn, stocking gutter, reaching tongs, dressing stick</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disabling conditions</th>
<th>Clothing suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Limited single small motor movements</td>
<td>pull-over or pull-on garments requiring no fasteners</td>
</tr>
<tr>
<td></td>
<td>large buttons with shanks</td>
</tr>
<tr>
<td></td>
<td>button hooks</td>
</tr>
<tr>
<td></td>
<td>pressure tape replacing buttons</td>
</tr>
<tr>
<td></td>
<td>elastic thread on buttoned cuffs</td>
</tr>
<tr>
<td></td>
<td>kemper fastener</td>
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<tr>
<td></td>
<td>easy to reach fasteners</td>
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<tr>
<td></td>
<td>magnetic fasteners</td>
</tr>
<tr>
<td></td>
<td>zipper pulls</td>
</tr>
<tr>
<td></td>
<td>zipper pull hooks</td>
</tr>
<tr>
<td>D. Special conditions of limited movement</td>
<td>absorbent, easy care, soft, stretchable fabrics</td>
</tr>
<tr>
<td>Wheel chair confinement</td>
<td>action back or full cut across back</td>
</tr>
<tr>
<td></td>
<td>two-piece garments</td>
</tr>
<tr>
<td></td>
<td>adjustable waistline</td>
</tr>
<tr>
<td></td>
<td>blouses and shirts worn over pants and skirts</td>
</tr>
<tr>
<td></td>
<td>side slit blouses and shirts</td>
</tr>
<tr>
<td></td>
<td>coats cut shorter in back</td>
</tr>
<tr>
<td></td>
<td>coats and jackets with bottom opening zippers</td>
</tr>
<tr>
<td></td>
<td>warm underwear</td>
</tr>
<tr>
<td></td>
<td>wide pant legs</td>
</tr>
<tr>
<td></td>
<td>longer back and shorter front rise in pants</td>
</tr>
<tr>
<td>Wearing braces</td>
<td>closely woven fabric</td>
</tr>
<tr>
<td></td>
<td>extra room</td>
</tr>
<tr>
<td></td>
<td>large openings, seams can be split and secured with pressure tape or zippers</td>
</tr>
<tr>
<td></td>
<td>openings for adjusting locks</td>
</tr>
<tr>
<td></td>
<td>reinforcement on strain areas: iron-on inside patches, double fabric, double stitching, flat-fell seams</td>
</tr>
<tr>
<td></td>
<td>hem turned to outside and covered with decorative trim</td>
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<tr>
<td></td>
<td>to reduce snagging</td>
</tr>
<tr>
<td>Disabling conditions</td>
<td>Clothing suggestions</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Use of crutches</td>
<td>action back or full cut across back and sleeves</td>
</tr>
<tr>
<td></td>
<td>underarm reinforcement</td>
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<tr>
<td></td>
<td>underarm gussets</td>
</tr>
<tr>
<td></td>
<td>pockets</td>
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<tr>
<td></td>
<td>long shirt-tail or body suit</td>
</tr>
</tbody>
</table>

II. Perceptual abilities

A. Limited body awareness (sensory loss or slower reaction time)

- flame retardant fabric, especially if around sources of fire (gas range, fireplace)
- front opening garments
- long underwear for warmth
- garments without excess fabric or detail to catch on things while in motion

B. Limited sense of balance

- reaching tongs
- seated or lying down dressing procedure
- front and side closures
- garments without excess fabric or detail to catch on things while in motion
- long handled shoe horn
- stocking gutter

C. Limited visual discrimination

- garments with wide openings
- belts attached to garments
- mark garments that coordinate, and front or back of garments, by using patterns of french knots, pieces of different textured fabric, or clothing tags available from American Foundation for the Blind, 15 West 16th Street, New York, New York, 10011
<table>
<thead>
<tr>
<th>Disabling conditions</th>
<th>Clothing suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>III. Physical abilities</td>
<td></td>
</tr>
<tr>
<td>A. Limited endurance</td>
<td>lightweight fabrics</td>
</tr>
<tr>
<td></td>
<td>one-piece garments</td>
</tr>
<tr>
<td>B. Limited strength</td>
<td>front opening garments</td>
</tr>
<tr>
<td></td>
<td>pressure tape openings</td>
</tr>
<tr>
<td></td>
<td>seated dressing procedure</td>
</tr>
<tr>
<td></td>
<td>partially lying down dressing procedure</td>
</tr>
<tr>
<td></td>
<td>dress two garments at a time (example: pants and underpants)</td>
</tr>
<tr>
<td></td>
<td>belts attached to garments</td>
</tr>
<tr>
<td></td>
<td>dressing stick</td>
</tr>
<tr>
<td></td>
<td>reaching tongs</td>
</tr>
<tr>
<td>C. Incontinence</td>
<td>washable fabrics</td>
</tr>
<tr>
<td></td>
<td>easily managed outer garments</td>
</tr>
<tr>
<td></td>
<td>protective pants, diapers</td>
</tr>
<tr>
<td></td>
<td>wide pant leg for catheter bag, or zipper or pressure tape seam openings</td>
</tr>
<tr>
<td></td>
<td>waterproof or plastic shoes</td>
</tr>
<tr>
<td>D. Drooling</td>
<td>washable fabrics</td>
</tr>
<tr>
<td></td>
<td>bibs or aprons</td>
</tr>
<tr>
<td></td>
<td>removable front section of garment</td>
</tr>
<tr>
<td></td>
<td>two-piece garments</td>
</tr>
<tr>
<td>IV. Skilled movements</td>
<td>pre-tied bows, ribbons, and ties</td>
</tr>
<tr>
<td>A. Limited complex small motor manipulation</td>
<td>permanent decorations on garments</td>
</tr>
<tr>
<td></td>
<td>elastic shoe laces</td>
</tr>
<tr>
<td></td>
<td>fake button openings</td>
</tr>
<tr>
<td></td>
<td>button hook</td>
</tr>
</tbody>
</table>

Prepared by Jacquelyn Yep, Extension Specialist, Textiles and Clothing, Iowa State University, Ames, Iowa, for a pilot project on Clothing for the Disabled, February 1975.
CLOTHING FOR THE PHYSICALLY LIMITED KIT CONTENTS

The following items should be included in this kit. If there is an item missing or in need of repair, please place a note in the top of the kit when you return it to the Textiles and Clothing Extension Specialist's office.

Clothing for the Physically Limited Kit
  • Script
  • 40 overhead transparencies
  • 42 slides

Meeting the Clothing Needs of a Selected Physically Disabled Individual
  • Script
  • 38 slides

Irregular Body Form Pattern Changes
  • 38 slides

Folder of Additional Resources
  • Reference books
  • Mail order catalogs

The following items of clothing and dressing aids:
  Yellow men's shirt with pressure tape front closing
  Gold men's shirt with gusset inserted
  Floral blouse made into body shirt, reinforcement in inside underarm for skin irritation problem, and leather-like patch to prevent fabric wear
  Bra with adapted front opening
  Slip with adapted front zipper
  Slip purchased with front zipper opening
  Turquoise corduroy lap robe and jacket (2 piece) purchased
  Plaid men's slacks adapted for wheel chair wear
  Purchased housedress with wrap back opening
  Pink striped utility apron
  Purchased denim slacks with drop front and one pressure tape leg opening
  Boy's slacks with pressure tape leg opening
Adapted boy's outfit (2 piece) shirt: pressure tape closure behind buttons, and back seam opening for dressing ease; denim pants: pressure tape leg opening, and reinforcement for brace abrasion

Adapted girl's outfit (2 piece) top: front zipper inserted for self-dressing; denim pants: back drop

Breast form bra filler
Stocking gutter
Quad-quip, zipper pull, and buttonhook
Homemade button hook
Homemade dressing stick
Homemade dressing hook
Large zipper with easy pull
Samples of patches, pressure tape, and elastic thread

CLOTHING FOR THE PHYSICALLY LIMITED KIT SCRIPT

Program suggestions:

The transparencies and slides for this program are divided into five content areas: attractiveness, comfort, convenience, care, and safety. These are the same areas used in the publication, Clothes to Fit Your Needs, Pm 570, which may be used as a reference and handout.

Depending upon the length of time you have for your program, you may want to adapt and select from the visuals. The program can be done using both transparencies and slides or using only transparencies or only slides. The use of a blank slide which has been placed between each section of slides will allow you to leave the slide projector on while showing the overhead transparencies. Garments in the kit can be shown with the presentation or used in a display, depending upon the audience size.

The following is a summary of contents of the transparencies and slides.

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<th>Transparencies</th>
<th>Slides</th>
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<td>Introduction</td>
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<td>Conclusion</td>
<td>40</td>
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Tr = transparency
Sl = slide

* indicates there is a sample garment illustrating the point
Introduction: Think for a minute -- what clothing can and does do for us.

Something you can put on that makes you feel good?
Helps make us feel comfortable in situations or terribly uncomfortable.
Improves our looks -
  - Emphasizing good points
  - Disguising our irregularities.
Physically -
  - Clothing can restrict our movements.
  - How far can you raise your arm without being restricted by your clothing or feeling it pull?

Sometimes in fashion we overlook how functional our clothing is, but it is possible to have clothing that is FASHIONABLE AS WELL AS FUNCTIONAL.

An extensive study in clothing for the physically limited was conducted in England in 1964 by the Disabled Living Foundation.

Object of study -- view problems presented by clothing in relation to the entire field of disablement in the United Kingdom.

1 year duration
All ages considered

Results reported in following transparencies.

Tr 1 Greatest problems arose from: (see transparency)

Tr 2 Greatest number of general problems were: (see transparency)

Tr 3 Garments presenting most problems were: (see transparency)

The latest Disabled Living Foundation publication, entitled Clothes Sense (Macartney, 1973), has solutions to many of the problems recognized in the study.

Tr 4 Studies conducted in the U.S. have led to the importance of five areas in clothing for the physically disabled person:

Attractiveness  Safety
Comfort       Care
Convenience
Tr 5 The Iowa Extension Service has a publication, entitled Clothes to Fit Your Needs (for the Physically Limited), Pm 570, which deals with clothing suggestions in the five areas of attractiveness, comfort, convenience, safety, and care.

Attractiveness - Beginning with attractiveness, let's look at some suggestions in these five areas.

Tr 6 Sometimes it's only a simple adjustment in hem length which can improve the overall appearance of a garment ...

Tr 7 ... or making wise choices when purchasing ready-made clothing.

Tr 8 Making those wise choices requires that we apply our knowledge about silhouette or shape of a garment, color, and texture.

Tr 9 We also need to be aware of emphasis created by patterns in fabrics and select garments which place the emphasis where we want it.

Tr 10 Emphasis can also be created by combinations of stripes and solids and by the lines within a fabric.

Tr 11 We all have those positive points we want to play up and those we'd rather not emphasize. Design and fabric choice influence where the eye lands.

Tr 12 Make sure your clothing choices are creating attention where you want it.

Tr 13 Choices in ready-to-wear garments or in selecting patterns can be made to conceal figure irregularities.

Tr 14 Sometimes the careful choice of style can eliminate the need for complicated alterations and adjustments.

Tr 15 However, there are times when you need special assistance in changing patterns to accommodate the body shape. These changes result in garments that are usually both more attractive and comfortable. The extension service can provide you with more specific help for these special needs.

S1 1 Clothing for the physically limited can be fashionable and attractive without sacrificing function.
Looking professional at work is important to everyone. And so is dressing up for a special occasion. Today's style provides us with many choices to conceal braces and still wear clothing that all children enjoy wearing.

Comfort

Selecting clothing for comfort again can mean just looking for comfort features in ready-to-wear clothes.

However, both comfort and attractiveness for the person in a wheelchair may involve some special treatment. This jacket was reshaped especially to fit the seated figure.

This cape was designed to provide a comfortable outer garment that does not restrict movement.

Pants are made to look and feel best on the standing figure. When we sit down we find our pants are not long enough in the back waist and bunch up in front.

If we are able to walk, we sacrifice these problems when seated. However, why not design pants to fit the seated figure for the person in a wheelchair?

This method of adapting regular pants for wheelchair wear can be found in the extension publication, Clothes to Fit Your Needs.

The result is a comfortable pair of pants that are more attractive.

This suit was tailored to be more comfortable and attractive by a tailor who sells clothing for the man in a wheelchair by mail order.

The shape of this jacket made for the man in the wheelchair is shorter in length than a regular sports jacket.

By careful measuring and pattern changes, this jacket was designed to fit a gentleman with long and somewhat crooked arms.
Regular slacks can be uncomfortable and unattractive on a person while seated.

By altering the pattern before construction or adapting a pair of regular pants, they can be made to be more comfortable and attractive for a person in a wheel chair. (Adaptation directions are in extension publication.)

Pants take on a new shape with this change.

These pants are available made to your measurements from a mail order tailor.

This lap robe and jacket are available by mail order from Cleveland. The skirt is a flat piece of fabric curved to fit the shape over the lap. The jacket extends to the seat in the back and drapes around the front seated figure.

The comfort and appearance of a young girl wearing a Milwaukee brace was improved by this specially designed dress.

The high and wide collar was designed to cover part of the neckline portion of the brace.

This garment was designed at the Vocational Guidance and Rehabilitation Center (V.G.R.C.) in Cleveland.

Increased comfort may also come from selecting styles of unrestricted design.

One-piece garments allow for more freedom in movement. A waistline look can be achieved through use of a casing or elastic.

Construction features in garments such as a gusset can allow for added comfort, especially for a person using crutches.

Loose comfortable styles are natural for children with physical limitations.

Clothes that hang free and do not restrict movement are especially good choices in enabling young people to be as mobile as possible.
Convenience

Tr 22  Selecting convenient clothing can often mean the difference in establishing independence in dressing.

Tr 23  Adapting a garment for easier access can assist an individual with limited or restricted large motor movement.

*Tr 24  Pressure tape can be inserted in the seams of garments to allow for ease in dressing.

*Tr 25  Pants can be adapted to have drop fronts or backs while the other half of the garment remains at the waistline.

Tr 26  For an individual with limited endurance, two articles of clothing can be treated as one in the dressing process.

Tr 27  Zippers in the side seams of pants, like pressure tape, can provide easy access to leg bags as well as ease in dressing over braces.

Tr 28  Selecting closures with care can also aid in establishing independence.

*Tr 29  Even zippers can be difficult to maneuver for a person with limited small motor control. The addition of a zipper pull can make the process much easier.

*Tr 30  Dressing aids can also be a help in more independent dressing. Tongs and reachers act as an extension of the body for individuals with limited large motor movement. A button hook which can be made or purchased can enable an individual with limited small motor movement to button garments.

Tr 31  The use of elastic thread for sewing on buttons on cuffs can make unbuttoning unnecessary, and a door knob mounted to the wall at the correct height can aid in tucking in a blouse or shirt.

*Tr 32  Many dressing aids can be made from items around the house.

*Tr 33  This stocking gutter can be purchased or made with an old soft plastic bottle, straps, and garters.

Tr 34  This so-called kempner fastener will allow a person with limited strength or use of only one hand to loosely hook the fastener and then pull it tightly secure.
So many times it's the style of the garment that causes frustration in dressing.

If we remember when selecting clothes we can usually have garments that will help, not hinder, in the dressing process.

Many styles give easy front opening features, fresh modern looks ...

suitable for all ages.

Wrap garments provide easy access to those with limited movement or paralysis of one side.

Styles which are classic have a lasting appeal.

This garment is available for sale through the mail. (V.G.R.C.) It features the wrap style, with elasticized waistline,
a pressure tape closure,
and a surprise pre-tied bow belt.

Wrap skirts with sufficient underlays can also be a convenient style choice.

For those who need to be dressed by others, the back openings prove to be more convenient, and they can be made by adapting ready-made garments.

Another mail order dress (V.G.R.C.) is this shirtwaist style.

In this case the front opening is only for appearance ...

as this is a back wrap garment secured with pressure tape.

This summer lightweight dress has no waistline, but makes use of elastic to add shaping in the waist (another V.G.R.C. garment).

It also features a back opening to make it easier to dress the wearer.
Care

Tr 35 Selecting garments that are easy to care for includes choosing fabrics that are easy to wash and dry and do not require ironing; and choosing fabrics that will not readily show spots, soil, and wrinkles. Reversible fabric panels on the front of garments can be an aid for people with coordination problems who soil garments while eating.

Tr 36 Preventive care of garments includes reinforcing areas of strain and abrasion.

Tr 37 This can be done on inner garments as well for extended wear and on seams that receive excess pressure.

Si 38 (Read Tr 35 if using slides alone) Soft, absorbent fabrics like this provide easy care along with comfort.

Si 39 Choosing serviceable trim can keep garments looking fresh after extended wear and care.

Safety

Tr 38 For safety reasons, clothing needs to be full enough for ease of movement, but fitted enough not to get in the way.

Tr 39 When working around a source of fire, clothing is a potential fire hazard. Avoid fabric with a brushed texture that will ignite quickly. A home application for flame retardancy is given in the extension publication, Clothes to Fit Your Needs.

Si 40 For the active person with slow reflexes, garments with close fitting sleeves are preferred for safety, especially in working around the kitchen.

Si 41 Choose styles with enough fullness to allow for ease of movement.
Conclusion

S1 42 Clothing can be a very important part in developing
and/or independence and self-confidence. Help to meet specific
clothing needs is available from ________________________
(your local county extension home economist).

Prepared by Jacquelyn Yep, Extension Specialist, Textiles and Clothing,
Iowa State University, Ames, Iowa, February 1975.
IRREGULARLY SHAPED HALF-SCALE DRESS FORMS

Carving and padding process to make forms irregular

Irregular half-scale forms

Garments constructed for irregular forms
Form Number 1
Form Number 2
Form Number 3
Form Number 4

Form Number 5
I. Introduction
   A. Objectives:
      1. To shape the clothes to fit over the body contours.
      2. To keep the clothes from emphasizing the irregularities.
      3. What I show is not gospel -- it's an approach to show you some possibilities and get you thinking of ways to solve situations you will find.

   B. References:
      1. Alter Your Pattern (Ingels, 1972)
      2. Dressmaking for the Disabled (Rogers and Stevens, 1966)
      3. Vogue's Sewing Book of Fitting and Alterations
      4. Pattern Making by the Flat Pattern Method (Hollen, 1971)

   C. Flat pattern:
      1. Basically you are doing pattern alterations, but sometimes you will be:
         a. Modifying the design to be more flattering.
         b. Making such an extreme alteration that you will need to try a different procedure than usual.
      2. Your flat pattern knowledge will help in both cases.
      3. Flat pattern techniques to be familiar with:
         a. Moving a dart
         b. Adding fullness or flare
         c. Changing an opening
         d. Adding a yoke
         e. Make facings
      4. Moving a bust dart
         a. Find pivot point -- for bust, extend center line of dart till the lines meet (bust point)
         b. Bust circle -- distance from under-arm dart point to bust point. Use as radius for circle. Basically, darts shouldn't extend into the bust circle.
         c. Draw new dart line to bust point. Slash to point.
d. Close out dart or darts by overlapping sides of dart.
e. Draw new dart lines from bust circle.

5. Moving shoulder dart to neckline
   a. Pivot point is about 1/2" past point of dart.
   b. New dart can be drawn in straight or at angle.

6. Add flare:
   a. Slash to side seam at hipline to get small A shape.
   b. OR slash from hem to dart and close out all or part of dart.

II. The Basics

A. The original pattern: Good idea to trace the pattern off on tissue paper so that the original stays intact during preliminary work.
   1. Sometimes what you've tried won't be terrific and you'll want to start from the beginning.
   2. Also can give you a way of comparing what you've done to the original pattern.

B. Measurements
   1. Take ones that you will find useful.
   2. Find out how long or wide the irregularity is (and then how far from someplace that measurement was).
   3. Measure the pattern in the same place.
   4. Don't forget about ease. The chart in Alter Your Pattern should be a help.

C. Breaking points
   1. Place where 2 lines or curves on outside of pattern come together OR point of dart.
   2. Most often the alteration will be pivoted from 1 or 2 of these points.

D. Slashing
   1. Slash to one of those points (ex., from waist, hem, side seam).
   2. Generally you don't slash to neck or armhole. That changes the shape of that particular curve too much.

E. Add to pattern
   1. When evening up the alteration, it's better to add on to the pattern than to take off.
2. Most of the time you need more, not less fullness.

F. Darts
1. Can be moved around according to the needs of the individual.
2. We've been taught that darts point to the fullest part of the body.
3. However, fitting for body irregularities, you will often cheat a little to get optically flattering results.
4. You'll alter the pattern to get the fullness where you need it, but then you might reposition the dart to fool the eye.

5. Skirt example
   a. These darts were made parallel and made to end on the same horizontal line.
   b. The eye perceives this skirt as fitting and looking better than if the darts were left as they had been when the alteration was completed.

G. Fabric grain
1. Can be confusing on an extensively altered pattern.
2. Generally, the least altered part of the pattern dictates the grain line.

III. Specific Pattern Adaptations

A. Asymmetric hips
1. Situation: one hip higher than the other.
2. Need: add length and width on one side so skirt hangs evenly.
3. Solution:
   a. Measurements: both side seams from waist to floor.
   b. Trace off a complete pattern -- both right and left sides.
   c. Slash from hipline to waistline at side seam.
   d. Spread the required amount.
   e. Realign side seam -- continue from the hip curve to the hemline parallel to the original hip curve.
   f. Realign darts so they are on the same horizontal line (one dart will be longer than the other).
   g. Use the grainline below the slash.
   h. Compare the original shape to the altered shape to see what happened.
Form #1

B. Kyphosis (moderate), form #1 - gray and yellow plaid dress
2. Need:
   a. Increased length and shaping at center back.
   b. Modify style so back of garment doesn't fit closely against the body.
3. Procedure:
   a. Measure back waist length.
   b. Slash across pattern several inches down from neckline. Slash about
      2/3 of the way across then over to shoulder and underarm.
   c. Spread to add sufficient length.
   d. Realign center back.

Kyphosis (moderate), form #1 - gray and yellow plaid dress
2. Need:
   a. Increased length and shaping at center back.
   b. Modify style so back of garment doesn't fit closely against the body.
3. Procedure:
   a. Measure back waist length.
   b. Slash across pattern several inches down from neckline. Slash about
      2/3 of the way across then over to shoulder and underarm.
   c. Spread to add sufficient length.
   d. Realign center back.

C. Kyphosis (more extreme) and Lordosis, form #4 - gray dress with blue insert.
1. Situation:
   a. Larger hump at base of neck.
   b. Hump at center back area of derriere.
   c. Enlarged tummy area.
2. Need:
   a. More length and shaping at center back.
   b. Shoulders -- more slanted and shorter.
   c. More width to give room for hump at lower part of back.
   d. More width in tummy area.
3. Procedure:
   a. Measure
      • Back waist length.
      • Width and degree of slant of shoulder.
      • Width across back over hump in derriere area.
      • Width across tummy area.
   b. Kyphosis -- same as previous.
   c. Shoulder -- decrease shoulder width and increase slant in one alteration.
Transparency 18
(covers left half)

D. Scoleosis (moderate), form #1 - yellow dress
1. Situation:
   a. One shoulder blade stands out further than the other.
   b. Opposite hip is larger in back.
   c. Fairly small concave side opposite large shoulder blade.

2. Need:
   a. Add width over one shoulder blade.
   b. Decrease shoulder width and increase slant.
   c. Add width over larger hip.
   d. Make dress appear symmetrical, de-emphasizing the irregularities.

3. Procedure:
   a. Measure
      • Width of side with larger shoulder blade (center back to armhole crease) and note how far down measurement was taken.
      • Both shoulders for width and slant.
      • Width of side with larger hip.
   b. Increase width and shaping over left shoulder blade.
   c. Decrease width and increase slant of shoulders.

E. Scoleosis (more severe), form #3 - blue/white two-piece outfit.
1. Situation:
   a. Right shoulder blade stands out.
   b. Left side caved in.
   c. Shoulders narrow and slanted.
   d. Right hip enlarged.

2. Need:
   a. Add width through right shoulder blade.
b. Add some flare to left side to make the two halves appear more alike.
c. Decrease shoulder width and increase dart.
d. Add width through large hip.

3. Procedure:
   a. Measure
      - Larger shoulder blade from center back to armhole crease.
      - Right hip.
      - Shoulders.

Transparency 16
Show right half

b. Increase width for larger shoulder blade. Here we used the wide back alteration in the Alter Your Pattern publication.

c. Add same width to opposite side at hem -- slash up to dart point; close dart part way.

d. Alter shoulder as before.
e. Enlarge one hip as before; add flare to opposite hip.

F. Scoleosis (mild - just tilts), form #5 - blue with white yoke

1. Situation:
   a. Body tilted above waist (one shoulder higher than the other).
   b. Somewhat asymmetric below waist.
   c. No enlargements.
   d. Body often has shorter rib cage.

2. Need:
   a. Tilt pattern to fit tilt of body above waist.
   b. Below waist make skirt asymmetric.

3. Procedure (will probably need to do this on both front and back. Do back first and adapt front later).
   a. Measure
      - Back waist length.
      - Front waist length.
      - Underarm to waist -- right and left sides.

Transparency 20

b. Mark on the pattern
   - Back waist length (that's what the altered pattern needs to measure at center back).
   - Two underarm lengths.
   - Draw horizontal line through mark at center back (that's the new waistline, parallel to cross-wise grain).
Draw on 20
Transparency 21

Draw on 21
Transparency 22

Draw on 22

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Prepared by Jacquelyn Yep and Rae Messer, Extension Specialists in Textiles and Clothing, Iowa State University, Ames, Iowa, for an in-service workshop for extension home economists, February 1975.
CASE SITUATIONS OF INDIVIDUALS WITH SPECIAL CLOTHING NEEDS

1. Mrs. Slate is 72 years old. She has been afflicted with arthritis in the joints of her fingers for several years. She is now finding other joints in her arms and legs are stiff and dressing is more and more difficult for her.

What suggestions would you have for adapting her present clothing to make it possible for her to continue dressing independently?

2. Mr. Rue has diabetes, is overweight, and his eyesight is gradually worsening. He can stand with support, but gets around in a wheel chair. He lives at home with his wife and although she is most willing to assist him in dressing, that is one area in which he would like to remain independent.

What suggestions can you give him?

3. Carla is four years old and has cerebral palsy. She has problems with body stiffness, especially in her arms, and has not taken much of an interest in dressing herself. Her mother is interested in teaching her to dress herself.

What suggestions could you make to encourage Carla's interest in dressing and make dressing easier for Carla?

4. Marge is 32 years old and was stricken with multiple sclerosis two years ago. She has become quite dependent on her oldest daughter. She is now reaching a mental readiness for more independence. She is in a wheel chair and can transfer from her bed to the chair. She tires easily, and has limited upper arm reach.

How could her clothing be adapted to enable her to become more independent?

5. Rick is 28. He was in a motorcycle accident and is now a paraplegic confined to a wheel chair. He wears a urinal with a leg bag. He works in an insurance agency office and is very conscious of his appearance. He is especially uncomfortable with the fit of his pants.

What clothing suggestions could you make for Rick?

6. Ron had a cardiovascular attack which resulted in paralysis of the left side of his body, leaving him a hemiplegic. He owns his own hardware store and is planning to go back to work. He chills easily and will be able to dress casually, but would like to manage his dressing independently.
What would you suggest to help him dress independently and appropriately for his work?

7. Sara has muscular dystrophy and walks with pelvic band braces and below elbow crutches. Her clothing wears out very quickly in strained areas. It is difficult for her to get up from a seated position. Sara will begin attending school and her mother is trying to have her develop more independence in dressing.

She asks you for your suggestions.
SUGGESTED CLOTHING CONSULTATION INTERVIEW

I. "Can you dress and undress without assistance?"

A. "Do you have difficulty bending, stooping, or reaching during dressing?"
   1. Putting on socks
   2. Pulling up pants, girdle
   3. Fastening bra
   4. Lifting arm to pull over undershirt, slip, or dress
   5. Reaching back to arms into a sleeve

B. "Can you manage garment closures?"
   1. Zippers (front, side, back)
   2. Buttons
   3. Snaps
   4. Hooks
   5. Buckles
   6. Velcro tape

C. "Can you balance your body while dressing?"
   1. Leg into pair of pants
   2. Arm into sleeve

D. "Does dressing and undressing tire you?"
   1. Dress standing, seated or lying down
   2. Activities in dressing which take most strength

E. "Can you manage small manipulative dressing tasks?"
   1. Buttoning small buttons
   2. Hooking small hooks
   3. Tying bows, ties, and shoe laces

II. "Is your clothing comfortable to wear?"

A. "Are you pleased with the way clothes look on you?"

B. "Are there places where your clothing binds and is too tight or is too big and loose fitting?"

C. "Are there places in which your clothing wears out quickly?"

D. "Are some fabrics irritating to your skin?"
III. "Are you pleased with the styles of clothes that you are now able to purchase or construct?"

A. "What styles are not available to you that you wish were?"

1. Style preferences
2. Color preferences
REFERENCES AND RESOURCES ON CLOTHING FOR THE DISABLED

Medical References:


Taber's Cyclopedic Medical Dictionary, Clarence Wilbur Taber, F. A. Davis Co., USA, 9th Ed., 1972.

Pamphlets and Books:

Clothes ... to Fit Your Needs, PM-570, (Rev.), Jacquelyn Yep, Cooperative Extension Service, Iowa State University, Ames, Iowa, 1974.


Catalogs:

Custom made fashions for men in wheel chairs:

Leinenweben, Inc.
Custom Tailors
69 W. Washington St.
Chicago, Illinois 60602 - free catalog and samples

Women's fashions and self-aids:

Fashion Able
Rocky Hill, New Jersey 08553 - free catalog
Catalogs (continued):

Women's fashions and self-aids:

Vocational Guidance and Rehabilitation Services
Rehabilitation Center
2239 E. 55th Street
Cleveland, Ohio 44103 - catalog $1.00

Medical equipment and aids for daily living devices:

Fred Sammons, Inc.
Box 32
Brookfield, Illinois 60513

MED, Medical Equipment Distributors, Inc.
Iowa Sickroom Supplies, Inc.
1244 Sixth Avenue
Des Moines, Iowa 50314

Sears Home Health Care and Convalescent Needs
Catalog KH (available from local Sears stores)
Sears, Roebuck and Co.
Chicago, Illinois 60607

Prepared by Jacquelyn Yep, Extension Specialist, Textiles and Clothing, Iowa State University, Ames, Iowa, for a pilot project on Clothing for the Disabled, February 1975.
Unit III Teaching Aids
## FOLLOW-UP FOR CLOTHING CONSULTATION PROJECT

<table>
<thead>
<tr>
<th>Activity</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>Referral agency contacts</strong></td>
<td>- Call on the agency representation in your counties explaining the service and offering your assistance.</td>
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<tr>
<td><strong>Publicity</strong></td>
<td>- Contact local newspapers, radio, T.V. with publicity about project.</td>
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<td>- Utilize group meetings such as service clubs to publicize the consultation service.</td>
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<td>- Include information about project in newsletters.</td>
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<td>- Send copy of all local publicity to Jacky Yep.</td>
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<tr>
<td><strong>Record keeping</strong></td>
<td>- Record each individual consultation on yellow form.</td>
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<td>- Record each group meeting on green form.</td>
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<td><strong>Record collection</strong></td>
<td>- Mail all completed records to Jacky Yep on:</td>
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<tr>
<td></td>
<td>- May 1, 1975</td>
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<tr>
<td></td>
<td>- July 1, 1975</td>
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<td></td>
<td>- September 1, 1975</td>
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<tr>
<td><strong>Final program evaluation</strong></td>
<td>- Fill out the final evaluation form you will receive by mail and return to Jacky Yep by September 15, 1975.</td>
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</table>

Prepared by Jacquelyn Yep, Extension Specialist, Textiles and Clothing, Iowa State University, Ames, Iowa, for a pilot project on Clothing for the Disabled, February 1975.
APPENDIX G. SUPPLEMENTAL DATA
Item Analysis for 25-Item Knowledge Test
Distractor analysis, difficulty index, and discrimination index for 25-item knowledge test post-administration (N=16)

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